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CONTENTS.

Since last week some progress has been made in the proposed combination of the smelting works. We are informed that the parties who are arranging the affair have secured options on several important works, and are negotiating for others, with a prospect of securing them. The plan is not for an agreement of any kind, but for the purchase of the works by a new corporation, which is to be organized in the East, and is to have $25,000,000 preferred stock, with at least the same amount—and possibly more—of common stock. The main question at present seems to be as to the management of the new company, some differences of opinion existing in this respect. It is quite probable, however, that these will be adjusted, and that the new company will be launched within a month.

It is understood that the Guggenheim Brothers and the Pueblo Smelter have thus far declined all the offers made them to enter into the new deal. Whether they will persist in this refusal remains to be seen. Strong inducements will probably be offered them to join.

Copper mining stocks are having a boom in the European markets as well as in this country. This was to be expected under the circumstances, and the present speculation in copper involved a corresponding movement in copper stocks. The greatest advance recorded is in Rio Tinto stock, which sold at the opening of the year at £10¾ in London, and which last week brought £40 in London and 1,000 francs in Paris. Rio Tinto is the chief speculative stock, and shows the heaviest advance, though others have made very good gains. Thus Anacondas have gone up from £5½ in January to £10 now, a gain of over 80 per cent. Mount Lyell rose from £6½ to £8¼ and Tharsis from £7¼ to £9½. The only well-known copper stock which shows little or no advance is Cape Copper, which went from £4½ to £4⅝, and this stock was kept down by special discouraging reports.

It is an excellent time to float new copper properties, and there are several who have already taken it. New companies are being brought out as fast as possible. Some of these are good and some are very bad; but in the present temper of the market the bad are taken as quickly as the others.

There has been a good deal of speculation as to the Krupp process of making steel armor plates, which has been always considered a trade secret. According to a statement recently made to the Naval Committee of the United States Senate by the Ordnance Bureau of the Navy Department, the composition of the Krupp armor plates is as follows: Nickel, 3.5 per cent.; chromium, 1.3; carbon, not less than 0.2; manganese, not over 0.4; copper, not over 0.07; phosphorus, not over 0.03; sulphur, not over 0.03; silicon, not over 0.15 per cent.

This differs little from the formula used for the American nickel-steel plates, the differences being in the addition of 0.25 per cent. of nickel and the use of the chromium. It is claimed that the use of the last named metal greatly facilitates the process of carbonization of the plate.

The process used at the Creusot Works in France, which is also a secret one, is said to be very similar to the Krupp process, except that one of the rarer metals—tungsten, molybdenum or vanadium—is substituted for chromium. These foreign plates are therefore nickel steel with a light alloy of chromium or some other similar metal.

The large gold production in the Transvaal has been very industriously used in the London market to support the prices of the South African shares, and with much success. Our London correspondent has frequently pointed out that the quotations of these shares are maintained at so high a level that no one thinks of buying for a rise. An interesting confirmation of this opinion is to be found in the speech of the chairman of the South African Gold Trust, Limited, at the meeting of that company this week. This Trust was formed originally to deal in the shares of the Consolidated Gold-fields, and its subsidiary companies, and in its earlier days made considerable profits by creating good markets for these shares. At the recent meeting, however, the chairman announced that these days were practically over, and that they were no longer able to buy and sell shares at a profit. They therefore intended in the future to hold their shares for dividends, and so become gradually more in the nature of a trust than they used to be. They have considerable holdings in deep-level mines which were secured at fairly reasonable figures, in some cases being obtained fully paid as purchase considerations. But we have still to see from experience how many of these deep levels can be worked permanently at a profit.

The rapid advance in iron prices during the last two or three weeks is going to bring out all of our productive capacity; and the demand for pig iron especially is stirring up owners of furnaces. Already we hear of preparations being made to start up blast furnaces in the East which have been closed down since 1895, some of them with the general impression that they would never be fired again. With Bessemer pig and No. 1 foundry selling at $13.50 a ton in Pittsburg, however, and other

grades at corresponding prices, there are a number of furnaces that can be worked at some profit, provided it does not cost too much to put them in running order; and doubtless a number of these will be started up. How long they will continue to run is another question. By the middle of the year the great furnaces at Lorain will probably be ready, and other large new or remodeled stacks will be in blast; and these can make iron so much cheaper than the older and smaller furnaces that it will not take long to force the latter out. The first trouble which some of them will meet will be in providing iron ores. The probable supply of Lake Superior ores is already pretty well covered by season contracts, and while the production of these ores can be considerably extended, the additional supplies will not be available until well on in the shipping season. For the Eastern furnaces it is not unlikely that there will be a considerable importation of ores. There is no probability, however, of anything more than a temporary scarcity of iron, and all demands will be met with little delay.

We have now received the full returns from four of the Australasian colonies of their production of gold in 1898. The figures for these four—which furnish about 90 per cent. of the total—show a total value last year of $56,764,043, as follows:

	1897.			1898.		
	Crude Oz.	Fine Oz.	Value.	Crude Oz.	Fine Oz.	Value.
Queensland	796,885	658,580	$14,170,938	918,106	758,355	$15,675,198
Victoria	822,632	782,549	16,175,207	837,258	796,495	16,401,542
Western Australia	674,993	604,121	12,487,181	1,050,179	939,910	19,427,940
New Zealand	251,644	230,782	4,770,256	280,176	254,444	5,259,363

Victoria shows practically no change, though the slight difference, of 0.8 per cent., is a gain. Queensland increased its output 10.6 per cent., and in New Zealand the relative gain was nearly the same, 10.2 per cent. The great increase, however, was in Western Australia, which last year led all the colonies, with a production of $19,427. 40, which exceeded that of 1897 by $6,940,759, or 55.6 per cent.

These figures closely confirm the preliminary estimate given in the "Engineering and Mining Journal" January 7th last, and show that Australia will continue to hold a high position among the gold producers. In most of the colonies the increase has been steady, and will be held, probably, for several years to come. Western Australia is the uncertain factor, and gain there depends upon possible new discoveries and on conditions in the Kalgoorlie mines, from which came the great increase of last year.

THE JOSEPH LADUE COMPANY—PROMISE AND PERFORMANCE.

The Joseph Ladue Gold Mining and Development Company, of Yukon, has recently issued a report of its operations during the period from August 20th, 1897, to January 1st, 1899—that is from its organization up to the opening of the current year—that makes an instructive contrast between promise and performance.

As our readers will remember, this company was organized in the first flush of the Klondike excitement. The capital of the company was $5,000,000, of which $1,000,000 was sold for cash working capital, and $4,000,000 for three unproven mining claims, a diminutive saw-mill at Dawson, a timber limit such as is auctioned off for a few thousand dollars; some town lots at Dawson, and a choice lot of eminent directors, including Chauncey Depew, ex-Postmaster James, H. Walter Webb, Smith M. Weed, John Carstensen, Edwin G. Maturin and others in New York. The relative value of directors and mining property was indicated by giving $750,000 to $1,000,000 for the property, and $3,000,000 to $3,250,000 for the names. The intrinsic value of the property was shown in the "Engineering and Mining Journal" November 13th and 27th, 1897.

The company's financial statement recently issued is as follows:

Earnings at Dawson, etc.		$186,284
Earnings on transportation		54,225
Total earnings		$240,509
Expenditures.		
Merchandise at Yukon points, at cost	$40,929	
Mining machinery	6,600	
Warehouse and other house construction	35,650	
Real estate bought (cost)	36,000	
Sawmill equipment bought	1,932	
Lumber and logs in stock, at cost	49,901	
Due from leases	3,400	
Expense account, coal lands	600	
Cash paid, account freight	2,000	
Accounts receivable	35,700	
Cash on hand, New York and Dawson	27,797	
		240,509
Less accounts and bills payable on account of above	$22,566	
Less taxes, insurance, rents, advertising, salaries and general expenses paid	56,514	
		79,080
Balance, net profit to date		$161,429

This statement does not mention how much money the company received from its stockholders, though it should have been $1,000,000, nor what its steamship, which cost in the first place $125,000, ultimately cost the company, nor what the other vessels, subsequently wrecked, cost. This statement of earnings may be correct, but that of expenditures certainly is not; indeed that is admitted where the report admits "another liability of $27,395.49 money borrowed" and "spent on refitting, etc., the Morgan City." How many more expenditures may have been omitted besides those we have pointed out, we cannot tell, nor what the receipts from stock sold have been, but it is very evident that this statement is wholly misleading and discreditable, and that with this system of bookkeeping it would always be possible to "figure out" any dividend desired. None should allow this dividend to give him the impression that this is a desirable investment, or to overlook the gross scandal attached to the flotation of the company.

It is of interest to note what the 16 months' operation of the company has shown of the enormous riches the stockholders were informed were acquired for them. We gather from this report that the money said to be earned was derived from the saw-mill, from sale and rental of lots and from the business of a store established at Dawson. No part of it came from mining in any form. The earnings from transportation was from chartering the "Morgan City" to the Government when it was in straits to carry troops to the Philippines.

What money the company has earned has come from business which had little connection with the property for which its stock was issued, and for which it paid—or agreed to pay—$4,000,000 of its capital. Are the stockholders who furnished the $1,000,000 working capital satisfied to pay $3,000,000 to eminent gentlemen to carry on for them an ordinary steamship or merchandise business that any one could engage in without paying any one for the privilege?

This is what we learn, after 16 months' operations, concerning the mining property which was described in the prospectus issued in October, 1897, as "a gold placer property in the heart of the Gold Bottom Mining District. . . . Development work, so far as prosecuted, shows the existence of a pay streak of gravel 1,000 ft. in length, 4 ft. in thickness, with a known width of 200 ft. . . . almost certain to expand to 400 ft. The yield shows a result of $12 per cu. ft. in coarse nugget gold." The present report says that on the treasurer's visit (in August, 1898) to Dawson, "no instructions had reached the country regarding the working of the mines," and work on them was only then begun. "Information received from there, as of date of December 8th (1898), shows that a pay streak of 2 ft. of gravel, of as yet unknown width, has been struck on our Gold Bottom Claim." The 2 ft. of gravel of "as yet unknown width"—and unknown value—of December, 1898, is a pitiful shrinkage from the $9,000,000 or $10,000,000 in sight of August, 1897; and the one prospect shaft, with 2 ft. of gravel in the bottom, is a woeful change from the placer mine from which "ten men, with proper machinery, can extract an average of $30,000 per week."

The second asset in the prospectus was a "gold-bearing quartz property 1,500 ft. in length by 600 ft. in width. . . . of which the average assay is $300 per ton. . . . Arrangements are already being perfected for the erection of a stamp mill on this property, as well as for the full development thereof." But 16 months later the treasurer tells us that "before leaving San Francisco, in the spring (1898), we purchased a four-stamp mill, with sufficient power for an additional 16 stamps; but on account of the loss of the river boats on which it was to be transported to Dawson, our quartz mill remains at St. Michaels."

A further asset in the prospectus was "a choice parcel of carefully selected lots, each of 25 ft. frontage, to be located in the center of the business portion of the city of Dawson." This ought to have been a valuable property; but if the company's lots were located in the business center, why was it necessary to spend $36,000 for real estate on which to build its store-house? The town lots seem to have been about as valuable as the rest of the assets.

The saw-mill at Dawson seems to have been the one thing which the company purchased which brought in a return, and that, in the prospectus, was earning $1,350 a day, and lumber greatly advanced in value in 1898, so that the mill should have earned more than this; yet in nine months it earned only $31,749.

The only additional asset the company has acquired is a claim to 320 acres of land, 20 miles from Dawson, on which there are "indications" of a "large deposit of coal." The value of this is probably as much as it cost, namely, $600.

The outcome of 16 months' operations of the company has been to confirm, as far as they have gone, the worthlessness of nearly all the assets mentioned in the prospectus, and the issue of a treasurer's statement that is worthless and discreditable to the gentlemen at the head of the company.

NEW PUBLICATIONS.

"A Compendium of Gold Metallurgy." By E. M. and M. L. Wade. Los Angeles, Cal.; 1899. Pages 125; illustrated. Price, 75 cents.

This is a very sensible and practical little book, and though issued partly as an advertising medium cannot fail to be useful to those interested in gold mining who have little or no knowledge of the methods of treating gold ores, tailings, concentrates, etc. The modest tone of the authors well nigh disarms criticism. In their preface they dis-

claim the intention of producing a text-book or making expert metallurgists, aiming to give only a general idea of the scope and application of the processes of extracting gold. It is very simply written and devoid of technicalities. "Compendium" is perhaps rather too comprehensive a name for it; probably the authors mean "primer"—which better describes it. Exception might be taken to the preference given to certain machines, processes and works, but the views of the writers are stated in evident good faith. About the only serious slip we notice is the somewhat extravagant percentage stated for the "strong" cyanide solution—"2.10 to 6.10 per cent. or more." In the main the descriptions and explanations are clear and sound so far as they go. Of course much detail is not to be expected in a pamphlet of this size.

"Traité d'Analyse des Substances Minerales. Tome Premier: Methodes Generales d'Analyse Qualitative et Quantitative." Par Adolphe Carnot. Paris, France: Vve. Ch. Dunod. Pages, 992; illustrated.

Scarcely a week passes in which the publishers' lists do not announce the appearance of some new work relating to qualitative or quantitative chemical analysis, or both. Most of these are works to which much earnest effort has been devoted; many have positive merit, due to unique methods of presentation or completeness in a limited field; many have some special message to bring to students of analytical chemistry or to technical analysts; a few seem almost to lack a real reason for existence. Among them all there has been a vain search for a work which should take its place as an authority beside the long-recognized standard works of Fresenius, of which, indeed, new editions have from time to time been announced, but which have been found to lack extended revision and to be without the much-needed enlargement to embrace the results of research in recently opened fields. An exhaustive treatise, such as that of Professor Carnot, bearing as it does the evidence of entire familiarity with all portions of his subject, and presenting the more recent phases of analytical research, is, therefore, sure of a cordial reception, and is bound to take its place as an authority. The present volume is one of three (presumably of approximately equal size) into which the subject matter will be divided, and in it the author treats of those general matters which relate to both qualitative and quantitative inorganic analysis. The application of these methods to specific cases, a discussion of methods for the analysis of solids and liquids, the detection and determination of the elements, the analysis of their important combinations, and of rocks, minerals and industrial products, will constitute the contents of Volumes II. and III Typical methods of analysis of complex substances are also promised, and the important analytical separations will receive due attention.

Such is the general scope of a work which, as Professor Carnot says, deals with a branch of chemistry of prime importance, not alone to the science itself, but to mineralogy, lithology, metallurgy, applied chemistry of all sorts, agriculture, biology, matters of hygiene, and, indeed, to most of the sciences and arts. From all of these the analytical chemist receives appeals for assistance, and any gain in accuracy and rapidity which he may make reacts in some measure upon all.

The present volume is divided into two parts—the first relating to general methods of qualitative the second to those of quantitative analysis. Chapter I (pages 13-82) is devoted to blowpipe analysis. The historical development of this method of procedure is sketched, and its character, advantages and limitations (the latter in the author's opinion being such as to make its use for quantitative determinations even of silver or gold of doubtful value) are plainly stated. Different forms of blowpipes are described, the nature of the blowpipe flame explained, and considerable space is given to descriptions of the various utensils required. This is followed by a discussion of reagents for blowpipe use, including the various fluxes and their behavior.

A systematic procedure for blowpipe analysis is presented, in which the phenomena to be observed in the case of each element, rare as well as common, and under varying conditions, are described with great detail. These include the examination before the blowpipe in closed and open tubes, on charcoal, in platinum pincers or on wire, in the borax and microcosmic salt beads, with sodium corbonate, and with cobalt solution. Following the general scheme, Professor Carnot has given methods for the treatment of special cases, and for the separation before the blowpipe of certain of the elements. This is a somewhat unique and a valuable feature, although many of the separations require a skilled operator for their success.

The second chapter (pages 83-100) shows how the ordinary flame of a Bunsen burner may be in a large measure substituted for the more fatiguing blowpipe flame in a large number of the dry reactions. The nature of the various zones of the gas flame is fully described, as well as a number of useful devices for the support in the flame of material under examination. A systematic procedure, including reactions in closed and open tubes, on a stick of charcoal, the deposits of metals or oxides on cold porcelain and flame coloration is carefully developed.

A historical sketch of the development of the spectroscope and of spectrum analysis opens Chapter III (pages 101-142), and is followed by fully illustrated descriptions of the modern forms of the spectroscope. The various sources of heat for volatilization (gas and electric devices) are discussed, and extended descriptions of the spectra of the various elements are presented, as well as tables giving data regarding absorption spectra.

Microchemistry, which constitutes the subject matter of Chapter IV (pages 143-200), is yet in a tentative stage. Its acceptance as a reliable source of information has met with some opposition, and perhaps too much has been claimed for it by enthusiasts; but, while it may not yet be possible to offer a complete analytical procedure which it is possible to carry out under the object glass of the microscope, yet the material here collected shows that microchemical processes are capable of throwing valuable side lights upon obscure problems, since, in a number of instances, it appears to be possible to detect the presence of 1-10,000 of a milligram of a substance by this means—a quantity quite beyond the power of macrochemical methods of analysis to identify. The historical development of this branch of analytical research is also briefly sketched. Professor Carnot has selected only those microchemical reactions for presentation which he has found by experience to be most simple, rapid and characteristic, rejecting those requiring close watching for hours, as well as those involving repeated filtration, decantation or sublimation. He does not present plates showing the form of the various crystals, since he believes that an adequate knowledge of these can only be gained by the examination of known material under conditions parallel with those of analysis. A discussion of apparatus, reagents, matters of manipulation and reagents precedes a detailed account of the principal characteristic microchemical reactions. This, in turn, is followed by a scheme for the detection of most of the important elements and by special methods for particular cases, as the silicates, and the examination of rocks for potassium, aluminum and phosphoric acid.

Chapter V (pages 201-296) treats of the processes of qualitative analysis as applied to substances in solution. It is pleasant to find the need of a careful physical examination of the substance under analysis, including the use of the microscope, duly emphasized—a point too often passed over in manuals of qualitative analysis.

The directions for the preparation of solutions and the analytical scheme are full, and for the most part very clear. The latter includes provision for the presence of the rare as well as the common elements, although in many instances a simplified procedure is offered for use when the rare elements are known to be absent. The scheme contains certain new features, introduced by Professor Carnot, as in the separation of cobalt and nickel, and of chlorine, bromine and iodine; and the method adopted for the separation of the alkaline earths from the sesquioxides in the presence of phosphates, by means of ammonium citrate, is unusual in qualitative procedures.

The use of sulphuretted hydrogen as a general reagent for the detection of such acids as arsenic, antimonic, molybdic, etc., is a useful suggestion, as is also the application of dilute as well as strong sulphuric acid to the solid substance as a part of the preliminary examination. The directions for the systematic analysis would gain somewhat in clearness if the paragraphs were numbered, or some other method were used to help the analyst to trace the course of the various filtrates and precipitates through the procedure.

The characteristic reactions by which the various elements may be identified, after they have been isolated by the processes of the general scheme, are brought together, under each element, in Chapter VI (pages 297-350). These reactions are well chosen, and include the results of recent work; but the entire absence of symbols and equations in this part of the work is to be regretted, as it leaves the statements somewhat incomplete. For example, under mercurous compounds, it is stated that "caustic potash, caustic soda and ammonia produce black precipitates, insoluble in an excess of the reagent." Here, surely, a distinction should be made between the reaction with ammonia and that of the caustic alkalies. In many other instances the statements would gain in value, both to the student and the experienced analyst, if they gave the chemical as well as the physical character of the products of reaction.

The preparation, properties, uses and common impurities of reagents are dealt with in Chapter VII (pages 351-460), many processes of preparation being given in great detail.

The second part of Volume I (Quantitative Analysis) begins with Chapter VIII .(pages 461-521), in which are discussed the preliminary operations, such as sampling, separation of mineral and gangue, selection of samples for moisture determination, pulverizing, grinding, desiccating and weighing which must precede the analysis proper. Chapter IX (pages 523-642) opens with the descriptions of the various forms of burners, furnaces, muffles, cupels, triangles and other supports, as well as crucibles, scorifiers, boats and the like, employed in quantitative methods in the dry way. The processes of ignition, roasting, dry distillation and fusion are discussed at length, and a most useful lst of fluxes, indicating their action upon various classes of substances, is appended. The fusibility of a large number of silicates is given in detail.

In Chapter X (pages 643-708) the steps in quantitative procedures which have to do with solutions, such as evaporation, distillation, precipitation, decantation, filtration (filter pumps), and the washing, drying, ignition and weighing of precipitates are dealt with from a broad point of view, and general directions and precautions are well presented. The text is fully illustrated. It is with surprise that the absence of any reference to the use of the Gooch filter is noted in a work so full of detail as the present one.

The special subject of electrolysis makes up the contents of Chapter XI (pages 709-755), and a historical outline is followed by descriptions of methods of producing currents, descriptions of cells, accumulators, thermo and electric piles, means of measuring and regulating current, the treatment of deposited metals, etc.

Volumetric methods and apparatus are described in Chapter XII. (pages 756-832). Typical processes of acidimetry and alkalimetry, and of oxidation and reduction, with the preparation of the necessary solutions are fully described without, however, indicating their application to specific cases. The general treatment is not essentially different from that usually employed in works on volumetric analysis.

A brief chapter (XIII, pages 832-840) is devoted to colorimetric methods, only general principles being given, with some description of apparatus. The closing chapter (XIV, pages 841-978) deals with the methods and apparatus employed in gas analysis, and in this instance procedures for the analysis of certain specific mixtures, twenty-one in all, are presented in order to complete the discussion of this branch of analytical chemistry. An historical sketch is followed by extended descriptions of apparatus (illustrated) and of methods of manipulation. A useful list of "incompatiable gases" is given, and also a table of specific gravities.

Such, in outline, are the contents of the first volume of this treatise. It is essentially a reference book, to which one will go as an authority in time of uncertainty rather than a work which the student or analyst, especially the beginner, will find useful for daily guidance in the solution of simple problems at the work table, on account of its size and wealth of material. But as a reference book it will be found to speak with authority and deserves a place among our standard works.

It is to be regretted that Professor Carnot has not included in this volume some reference to the importance of the recent advances in physical chemistry, which are likely to do so much to place analytical chemistry upon a truly scientific footing. The electrolytic dissociation theory

of Arrhenius, and a discussion of its applications to analytical chemistry, seems to deserve a place in all modern standard works upon the subject. Progressive analysts can no longer afford to neglect this phase of analytical chemistry, and it is much to be hoped that Professor Carnot will find some opportunity to introduce a reference to this side of the problem in the later volumes.

The present volume, in its fullness of detail, careful preparation, and excellent typography, gives full promise of equally valuable material in the later volumes, the appearance of which will be awaited with pleasant anticipation. H. P. Talbot.

BOOKS RECEIVED.

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

"Report of the Department of Mines, Nova Scotia, for the Year Ending September 30th, 1897." Halifax, N. S.; H. M. Printer. Pages, 83.

"The Manual of Receipts." Compiled by Sidney P. Johnston. Chicago, Ill., 1899; Published by the "American Artisan" Press. Pages, 241.

"Report of the State Board of Agriculture of Virginia, 1898." G. W. Koiner, Commissioner, Richmond, Va.; State Printing Office. Pages, 110.

"From Euston to Klondike." By Julius M. Price. London, Eng., 1898; Sampson, Low, Marston Co., Limited. Pages, 301; with map and illustrations.

"First Biennial Report of the Bureau of Labor of the State of Washington, 1897-1898." W. P. C. Adams, Commissioner. Olympia, Wash.; State Printer. Pages, 310.

"Tables of the Trade and Navigation of the Dominion of Canada for the Fiscal Year Ending June 30th, 1897." Ottawa, Can.; H. M. Printer. Pages, 790. Price, 50c.

"Alabama Geological Survey: Report on Iron Making in Alabama." Second Edition. By William Battle Phillips. Montgomery, Ala., 1898; State Printers. Pages, 380.

"Report of the Director of the Imperial Mint, Osaka, for the Year Ending March 31st, 1898." T. Hasegawa, Director. Tokyo, Japan; Printed by the Insetsu Kyoku. Pages, 52.

"Annual Report of the Comptroller of the Currency to the Third Session of the Fifty-fifth Congress of the United States." In two volumes. Volume II. Washington, D. C.; Government Printing Office. Pages, 1,273.

"Report of the Director of the Mint Upon the Production of the Precious Metals in the United States During the Calendar Year 1897." George E. Roberts, Director. Washington, D. C.; Government Printer. Pages, 404.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Passage of Sound Through Rock.

Sir—Regarding passage of sound through rocks, as referred to in your issue of February 18th. In my experience the sound of hammering was clearly conveyed through 190 ft. of rock, crossing the intervening hard country rock dividing three separate fissure veins. The sound was so distinct that the difference between hitting a gad or a drill could be easily distinguished, and signals by raps sounded as if not 5 ft. of ground intervened. The vein matter was all frozen at a depth of 260 ft. from the surface. F. F. Reiner.

Aspen, Colo., Feb. 23, 1899.

Sir: In your issue of February 18th, you invite statements of experience as to the distance at which sound has been heard through rock underground. At this mine we recently finished communication between the adit level and a level driven from the main shaft to meet and form part of it. Both levels were driven by hand on the vein—hard quartz—in a country of hornblende-gneiss, often highly silicified, with very few joints. The sound of drilling was in this case first observed at a distance of 175 ft. When a length of 30 ft. remained to complete the communication, we could hear the sound of the scraper used to remove dust from the holes.

I believe that I have observed the sound of air drills even further than this, but have never made any memorandum of the exact distance. In my experience, the distance at which sounds may be heard varies directly with the hardness of the rock and the fewness of the transverse joints. George E. Collins.

Reynolds Mine, White County, Ga., Feb. 24, 1899.

Correspondence Schools.

Sir: Miners are men who are not compelled to do manual labor specified hours daily, since they generally work on contract. This system is almost universal in the United States, and leaves the miner more independent than any other class of trade labor in regard to working hours. He has ample time to take a course of instruction in the Correspondence School, and no doubt one will find a large number of mine workers enrolled. The class of men who were miners twenty years ago have given way to men who prefer to read books and papers which elevate them, rather than the "Police Gazette." P. M. B.

Sunday Creek, O., Feb. 18, 1899.

Sir: On August 18th, 1898, Prof. J. B. Johnson read a presidential address before the Society for the Promotion of Engineering Education, at Boston, in the course of which he made some remarks which show the great importance of industrial education: "When industrial capacity rested wholly upon traditional and empirical knowledge and upon manual skill, it was essential that artisans should obtain all this knowledge and skill as apprentices. . . . But since, all processes of the artisan have now a scientific and rational basis. . . . Germany has seen this situation most clearly, and it is her clear perception of this problem, and her rational and thorough solution of it, that has raised her industrially from poverty and obscurity to wealth and fame in the short period of a quarter of a century."

It is hardly possible to have a practical or industrial school in the line of mining and metallurgy, so that the only proper method of raising the standard of mine workers and furnacemen must be accomplished by the methods advocated by the United Correspondence Schools. I am ready to accept all A. W. advances in your issue of February 4th, and confess there is a large amount of truth in his remarks. P. B.

Freeland, Pa., Feb. 11, 1899.

Sir: J. J. A. takes exception to my remarks in your issue of February 4th regarding the relative merits of technically and practically educated mine and furnace workers. My remarks were based upon the inability of colleges to give a technical education in mining and furnace work, since that sort of thing will not go into a building, as do lathes and electrical apparatus; nor it is possible to pick up practical details in one or two visits, nor all the details in one or two years. The man who works in the mine or keeps the furnace knows the generally practical part, but unless he understands the scientific part he will never get ahead on his merits. It is extremely doubtful whether he can obtain the scientific instruction lacking to make him a technical man unless he takes a course in such a school as that you have referred to. You doubtless have known college graduates to go into the mines and on the dump in order to perfect their theoretical knowledge of mining, and we further know that such men have generally reached the top notch of their profession. Therefore, I have not yet decided to withdraw the remarks I made in your issue of February 4th until at least I have more conclusive reasons than J. J. A. affords. A. W.

Salem, Va., Feb. 20, 1899.

NEW YORK MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

In our last issue we gave a full acount of the proceedings at the different sessions, the closing one having been held on Thursday evening, February 23d. After the sessions had ended the local committee provided interesting excursions for Friday and Saturday, which drew a good attendance.

A special train, leaving the Erie station in New York at 9.15 a. m. on February 24th, took a party of 180 persons, including a large number of ladies, to Franklin Furnace, N. J. Here, through the courtesy of the New Jersey Zinc Company and the efficient aid of a local committee, headed by Mr. R. Hecksher, the visitors were enabled to get a clear idea of the great Franklinite ore body, with its unique zinc and manganese minerals and methods used in mining and concentrating the ore. The ore body is known to be over 3,500 ft. long and in places over 200 ft. thick. At the south end of the outcrop the ore is to be worked by an open cut, and there the overlying limestone is being removed. The ore now mined comes from a compartment shaft 950 ft. deep in the hanging wall. The ore body has been opened by a number of drifts and upraises, but there are no stopes as yet, nor has any definite system of mining been laid out, as the shape of the ore body in the deep levels is yet undetermined. Considerable surface water gets into the mine through fissures in the limestone, one large stream having been cut at 586 ft. in sinking the shaft. All the water at the bottom is sent to surface in one lift by a duplex triple expansion Worthington steam pump, that has a capacity of nearly 1,000 gals. per minute. Ingersoll-Sergeant air compressors and drills are used. The present output is about 400 tons of ore daily, but as soon as the new mill, a steel frame structure, is completed the capacity may be increased to 1,000 tons daily or over. The ore is a mixture of franklinite, rhodonite and willemite, carrying considerable zincite, also garnets, while the gangue is calcite.

The ore is broken by Blake crushers to ½ in., dried in an Edison tower dryer, then crushed to 60-mesh and sized into five sizes, each size being run separately over a Wetherill magnetic concentrator. This concentrator was described in the "Engineering and Mining Journal" of July 17th, 1897. By means of six magnets of increasing strength the ore is divided ito different classes, according to the magnetic attractibility of the minerals removed. The final tails, a mixture of willemite, zincite and calcite, are jigged in ordinary Hartz jigs to remove the calcite. A very pure zinc concentrate is thus obtained, which is made into spelter at the company's works at Bethlehem, Pa. The concentrates containing manganese and iron are used for making zinc oxide and spiegeleisen.

Refreshments were served at Franklin to the visitors by the New Jersey Zinc Company. As the weather was unusually pleasant for February the trip proved an exceptionally enjoyable one. Mr. H. O. J. Wilkens had charge of the excursion.

On Saturday morning a party visited the New Jersey Zinc Company's works at Newark, N. J. Here the first heads separated by the Wetherill concentrator, mostly franklinite, containing 20 per cent. zinc oxide, are mixed with fine anthracite coal and roasted. The fumes are collected in flues, settling chambers and cloth sacks and are barreled for shipment. A large amount is exported, mostly in barrels containing about 224 lbs., the American trade being supplied in 300-lb. bbls.

The cinder residuum, which contains 30 to 35 per cent. iron and 14 to 18 per cent. manganese, is made into spiegeleisen by an ordinary blast furnace, the fuel being coke and anthracite. There is a considerable loss of manganese in the slag. Much of the slag is granulated and sold to makers of cement.

The experimental laboratory of the Wetherill Company in Newark proved an attractive place for those members of the party interested in magnetic separation, as the process was shown in detail.

In the afternoon a party of about fifty went to Maurer, N. J., and visited the firebrick and terra cotta works of H. Maurer & Son, where they inspected, through the courtesy of the company, the Hofman continuous kiln, in which terra cotta material for fireproof walls, roofs and florrs is produced; and also examined the firebrick plant.

The remainder of the afternoon was spent in examining the Guggenheim gold, silver and copper smelting and parting works at Perth Amboy. These works are very complete in equipment, and the visitors were permitted to see many points of interest. The copper being refined comes from Mexico and Arizona, with some from Mount Lyell, Tasmania. The copper matte after smelting in reverberatory furnaces is cast into anodes and goes to the electrolytic department. This contains 395 tanks, with 27 or 29 cathodes each. The plant, when mining full capacity, can turn out 265,000 lbs. of refined copper daily. The precipitated silver and gold are washed and separated by treating with acid. A current of 25 to 30 volts and 3,000 amperes or over is used in the tanks. In the smelting department the visitors saw the method used in refining lead-silver bars from Western smelters by smelting, adding zinc, separating the zinc as oxide and the lead by cupellation, parting the gold and silver in the silver ingots. This final parting is by electrolysis. The Moebius process in two forms, one with anodes suspended in the solution, the other with anodes on a rack beneath, which passes the silver belt cathode, is used. The total capacity of this silver-refining plant is 2,000,000 oz. of fine silver monthly.

A large number of the members attended these excursions, and nearly all who had been present at the meeting left for their homes on Saturday evening.

We give below some additional abstracts of papers presented at this meeting:

Possible Origin of the Pneumatic Process of Making Steel.

By William B. Phillips, Pittsburg, Pa.

In connection with the address of our late President, Mr. Joseph D. Weeks, delivered at the Pittsburg meeting, in February, 1896, I venture to believe that a circumstance which came recently to my notice may possess some historical interest. Several years ago I spent some months in Western Kentucky, near the site of the old Kelly Furnace, in the vicinity of Kuttawa. I became acquainted with many men who had known William Kelly well. Some of them had worked for him, and had very lively recollections of "Old Phosphorus," as he was called.

Somewhere about 1845, when he was working on the pneumatic process which afterwards bore his name, and as used by W. F. Durfee at the old Wyandotte Works, he imported four Chinamen. He secured them through the American Consul in China, and they worked at his iron-furnace. Now, there is an old story that the Chinese had refined iron by blowing air into it a great many years ago, and I have thought that Kelly, in asking for Chinese laborers, would naturally require the services of those who had some knowledge of the iron business. He would have had no use for the ordinary Chinese laborer, since there was, in the region where he operated, no special scarcity of labor of the unskilled sort. May it not be that he was aided by his Chinamen in experimenting with the pneumatic process, and that some knowledge of this method of refining iron was brought into this country first by those men? This is merely a suggestion, and I am unable to say whether it is worth following up.

Disintegration of an Alloy of Nickel and Aluminum.

By Erwin S. Sperry, Bridgeport, Conn.

Some time ago, the author had occasion to make an alloy of equal parts of nickel and aluminum, for the purpose of adding small amounts of nickel to pure aluminum. The nickel was melted in a plumbago crucible under a layer of borax; and at a proper temperature the aluminum was added, and the whole mass was stirred with a plumbago stirrer. The alloy immediately became incandescent and boiled. It was then poured into iron moulds, in the form of ingots weighing about 10 lbs. The metal when poured was very fluid and free from the viscosity so often noticed in nickel and nickel-alloys. The color of the alloy is gray, not unlike that of wrought-iron, and the fracture is devoid of any crystalline appearance. It is quite brittle, and can be readily ground to a powder in a mortar.

More metal was made than was needed; and what remained unused was placed in a covered wooden box and set away. In about three months, as it was again necessary to use the alloy, the box was opened; and, much to my surprise, nothing but a dark gray powder was found in it. This condition of the alloy could not be accounted for. An attempt was made to melt the powder and pour it again into ingots, but with negative results. Analogy points to disintegration; and it was decided to make a fresh sample of the alloy, and watch the material from the beginning. In the second experiment the conditions were identical with those of the first, with the exception that fluor-spar was substituted for borax. This change was made because it was thought that perhaps the borax might have been decomposed so that boron or sodium, or both, had entered the alloy. No difference could be detected between the appearance of this metal and that of the preceding experiment. The ingots, visible at all times, were allowed to lie in the open air. In about one month cracks appeared on the surface of one ingot, and, as time elapsed, became more extended and penetrated to a much greater depth; soon new cracks appeared and the ingot split into many large pieces. Such a change went on for two months more, or until the whole mass became a coarse powder.

The experiment was tried again by melting the nickel and aluminum together under a flux; and again, in order to make sure that no outside reagent was present in the alloy, the ingredients were melted without any fluxes. In each case the results were the same.

It is well known that many alloys are subject to disintegration, notably an alloy of tin and aluminum. Indeed, brass is subject, more or less, to this phenomenon; but the author believes that the disintegration of an alloy of nickel and aluminum has never before been observed.

An alloy of nickel 90 per cent. and aluminum 10 per cent. was made by the author September 16th, 1895; and a recent examination of the ingot failed to reveal any trace of disintegration. Such alteration is limited, so far as yet observed, to the half-and-half alloy.

Chromite in North Carolina.

By J. H. Pratt, Chapel Hill, N. C.

After a very full account of the chemical composition of chromite and of its occurrences, and a discussion of the probable origin of the deposits, the author says that there is in North Carolina, extending from Ashe County to Clay County, a series of disconnected peridotite outcrops; and chromite is associated with all these peridotite rocks. It is, however, in few localities only that the mineral has been found in considerable quantity. Although prospecting for chrome-ore in this State was first undertaken over 30 years ago, and has been continued spasmodically ever since, there has never been any systematic development of the localities. In the alluvial deposits at the base of the peridotite outcrops there is usually a considerable amount of chromite crystals and particles, but nowhere have they been observed in sufficient quantity to constitute a chrome-sand ore. Many of the titaniferous iron-ores of the State contain a little chromic oxide. The general character of the chrome-ore is nearly uniform throughout the entire area, being very hard and compact, though often of a fine granular appearance, and there is but little that is at all friable. The masses of chromite are usually very free from seams of peridotite or its alteration-product, serpentine. This simplifies the concentration, and a high-grade ore can usually be obtained by cobbing and hand-picking.

In Watauga County, Nitze mentions the occurrence of chromite in small pockets or seams in the drainage-basin of Cove creek, 7 miles northwest of Boone.

In Yancey County, one of the two more important deposits in the State occurs at Mine Hill on the Mine Fork of Jack's Creek, 5 miles north of Burnsville, the county-seat, on the Bakersville road, where a large peridotite (dunite) formation outcrops on both sides of the road. In this peridotite, seams or pockets of chromite-ore are very abundant, varying from 0.5 to 3 in. in thickness. Near the summit of the hill, on the east side of the road, about 150 ft. above the road and streambed, a deposit of chromite has been opened, from which 25 tons of ore were taken, a large part of which still remains on the dumps. This is perhaps the most promising region in the State for a large deposit of chromite. The distance from the railroad has very greatly discouraged sytematic prospecting in this region. The present shipping-point is Asheville, on the Southern Railroad, about 40 miles to the south, over a fair mountain road. The nearest railroad point is Erwin, Tenn., on the Ohio River & Charleston Railroad; but although the distance (27 miles) is much shorter, the railroad facilities are not as good as those systematic prospecting in this region. The present shipping point is at Asheville. The property is owned by Garrett D. Ray, of Burnsville, Yancey County, N. C. An analysis of a selected specimen of the chromite (Baskerville, analyst,) gave: Cr_2O_3, 58.00; Al_2O_3, 15.52; FeO, 14.45; MgO, 8.26; SiO_2, 3.20; CaO, 0.70.

About 9 miles west of Burnsville, near Price's Creek, there is a narrow bed of peridotite on the land of W. A. Robertson. A pocket of chromite discovered here yielded nearly 7 tons of ore. This exhausted the pocket, and since then no prospecting has been done in this vicinity.

An analysis of a selected sample of this ore gave 59.20 per cent., Cr_2O_3.

In Jackson County, in the vicinity of Webster, there is a large peridotite (dunite) formation extending from about ½ mile north of the town to 1¼ miles south. The widest part of the area, about ½ mile, is at Webster, the town being partly built on the dunite hill. The Tuckaseegee River cuts through this formation about ½ mile below the town. Considerable prospecting has been carried on in this region, and numerous veins and pockets of chromite, of varying extent, have been discovered.

The North Carolina ores are all of high grade, but the existence of large deposits has not yet been conclusively shown.

Operations of a Light Mineral Railroad.

By James Douglas, New York.

In this paper Mr. Douglas describes the operation of the Arizona Southeastern Railroad, which was built to give transportation facilities to the Copper Queen Mine at Bisbee. For this line two routes from Fairbank to Bisbee (a distance in a straight line of under 30 miles, but, on a deflected line around the south of the Mule Mountain pass, of 37 miles) were surveyed. The shorter line with heavy grades and narrow-gauge track was located over the Mule Pass mountain, following substantially the route of the toll-road. The longer line for standard gauge, with 2.5 per cent. maximum grades, was selected. One motive for adopting the longer and more expensive line and the standard gauge was to avoid the transfer of fuel at the junction, and thus escape the heavy loss in coke involved by every handling, especially when using the friable product of the Colorado ovens. As a 40-ton locomotive would haul the estimated amount of freight, 30,000 tons annually, in one train daily, and as a 40-lb. rail was considered heavy enough to carry safely a locomotive of that size, drawing cars loaded up to the maximum capacity of even 60,000 pounds, it was decided to adopt a 40-lb. rail. The rails were made at the Joliet Works of the Illinois Steel Company.

The first section of the road, 36.3 miles in length, was built from Fairbank to Bisbee in 1887. This was extended to Benson on the Southern Pacific in the summer of 1895. Most of the rails, therefore, have been in use for 10 years. The road runs with easy grades for 30 miles up the valley of the San Pedro, and then commences to climb up long 2.5 per cent. grades. There are 98 curves of an aggregate length of 10.2 miles, the maximum being 12°. Of the 55.3 miles of road there are 45.1 miles of straight track and 10.2 miles of curves. There are 38.1 miles of ascending grade, 10 miles of descending grade, and only 7.2 miles of a

level road-bed. The road is therefore exceedingly trying on both track and locomotives, and consequently the 40-lb. rails have been put to a severe test. The work they have done up to June 30th, 1898, 10 years, was as follows: Mileage of loaded cars, 1,265,499; mileage of empty cars, 872,129; total tonnage, 466,848; weight of engines, 28 to 52 tons.

The rails have now been taken up and are being relaid on an extension where light service will be required of them. Only five have broken during the 10 years of use, and to-day they are in perfect condition—neither surface-bent, nor kinked, nor buckled. Only the outside rails which were laid on heavy curves are somewhat worn. The fish-plates and bolts were often found broken, especially in the winter, when expansion and contraction are excessive, owing to the extraordinary diurnal variation of temperature, which often exceeds 60°.

Of course, the preservation of the rails has been secured only by laying them on a well-made gravel and clay road-bed, and bestowing more than ordinary care on the maintenance of the same. Two section gangs are employed on the 55 miles. The rails were laid on split redwood ties 6 by 8 ft., 2,640 to the mile. These have been cut into by the rails, but show no signs of decay, and, except those on the heavy curves, can be turned over and are good for many years more of light traffic. We are, however, laying our new rails on redwood ties with Servis plates interposed.

An objection which we encountered with light rails, when using heavy rolling-stock, was, of course, the unduly rapid cutting of the tires of the driving-wheels.

The change from 40 to 60 lb. rails was incident to increased traffic. On the 2.5 per cent. grades a locomotive of safe weight could haul only five cars, carrying an average load and a passenger coach, or the tonnage on which we commenced operations, of about 30,000 tons a year. To handle the increased tonnage three engines and three train-gangs were kept in almost constant service, and the operating expenses were reduced, through the larger business, only in the item of maintenance of way. Economy, therefore, lay in the substitution of heavier rails and heavier locomotives, and a train which would do substantially all the work with one crew.

The point of interest which is thought worth recording is the amount of work done by the lighter rails, and the adaptability of a rail of that weight to branch-roads of moderate traffic. It must be confessed, however, that to-day, with the wonderful diminution in the cost of rails, the inducement to economize in that item of construction is not so great as formerly.

UNITED STATES BESSEMER STEEL PRODUCTION IN 1898.

The American Iron and Steel Association has collected and now presents complete statistics for 1898 of the production of Bessemer steel ingots and Bessemer steel rails in the United States, except the comparatively small quantity of standard rails and street rails which were made by manufacturers from purchased blooms or were re-rolled from old steel rails. There were no Clapp-Griffiths works in operation in 1898 and only one Robert-Bessemer plant was active. The ingot statistics embrace the production of steel castings by all Bessemer works.

The total production of Bessemer steel ingots in 1898 was 6,609,017 gross tons, against 5,475,315 tons in 1897, showing an increase in 1898 of 1,133,702 tons, or over 20 per cent. The production of 1898 was much the largest in our history. Of the total production 3,539 tons were steel castings. The following table gives our production of Bessemer steel ingots and castings in the last six years.

Years.	Tons.	Years.	Tons.
1893	3,215,686	1896	3,919,906
1894	3,571,313	1897	5,475,315
1895	4,909,128	1898	6,609,017

The following table gives the production of Bessemer steel ingots by States since 1895, in gross tons:

States.	1895.	1896.	1897.	1898.
Pennsylvania	2,978,924	2,292,814	3,060,049	3,402,254
Ohio	719,954	568,535	1,041,541	1,489,115
Illinois	866,531	780,105	943,774	1,105,040
Other States	343,719	278,452	429,951	612,608
Total	4,909,128	3,919,906	5,475,315	6,609,017

Last year Pennsylvania made 57.5 per cent. of the total; Ohio, 22.5, and Illinois, 16.7 per cent. These three States made 90.7 per cent. of all the Bessemer steel, only 9.3 per cent. being made in other States.

The production of all kinds of Bessemer steel rails by the producers of Bessemer steel ingots in 1898 was 1,955,427 gross tons, against a similar production in 1897 of 1,614,399 tons and 1,102,892 tons in 1896. The maximum production of Bessemer steel rails by the producers of Bessemer steel ingots was reached in 1887, when 2,044,819 tons were made. The following table shows the production by States of Bessemer steel rails by the producers of Bessemer steel ingots in the last four years, in gross tons:

States.	1895	1897.	1897.	1898
Pennsylvania	837,043	663,096	1,024,385	1,052,771
Other States	429,038	439,796	590,013	902,656
Total	1,266,081	1,102,892	1,614,399	1,955,427

At the request of the steel rail manufacturers the report separated for 1897, for the first time, the production of Bessemer steel rails weighing 45 lbs. and less than 85 lbs. to the yard from those weighing less than 45 lbs. and over 85 lbs. This separation continued for 1898, as follows:

	Under 45 lbs.	45 lbs. and less than 85.	85 lbs. and over.	Total.
Pennsylvania	67,558	670,290	314,923	1,052,771
Other States	52,368	712,343	137,945	902,656
Total	119,926	1,382,633	452,868	1,955,427

This shows the continued increase in the use of heavy sections of rails. No less than 23.2 per cent. of all the rails made were over 85 lbs. to the yard, while 70.7 per cent. were between 45 and 85 lbs., the larger proportion being probably over 60 lbs. Only 6.1 per cent. were below 45 lbs.

It appears from the statements above that about 34 per cent. of the total production of Bessemer steel was made into rails, leaving 66 per cent. for other uses.

MINERAL PRODUCTION IN CANADA.

We have received from the Geological Survey of Canada an advance statement of the mineral production of the Dominion in 1898, which is given in the following table:

Product—Metallic.		Quantity. (a)	Value. (a)
Copper (fine, in ore, etc.) (b)	Lbs.	17,951,421	$2,159,556
Gold, Yukon District*	$10,000,000		
" all other	3,700,000		
		.....	13,700,000
Iron ore	Tons.	58,161	152,510
Lead (fine, in ore, etc.) (c)	Lbs.	31,915,319	1,296,399
Nickel (fine, in ore, etc.) (d)	"	5,517,690	1,820,838
Silver (fine, in ore, etc.) (c)	Oz.	4,434,085	2,583,298
Total metallic		.....	$21,622,601
Non-Metallic.			
Asbestos and asbestic	Tons.	23,785	486,227
Chromite	"	2,021	24,252
Coal	"	4,172,655	8,227,958
*Coke (f)	"	72,444	219,200
Felspar	"	2,500	6,250
*Fire clay	"	2,170	5,000
Graphite	"	.....	11,098
Grindstones	"	.....	39,465
Gypsum	"	219,256	230,440
Limestone for flux	"	33,913	31,153
Manganese ore	"	50	1,600
Mica	"	.....	117,598
Mineral pigments—			
Baryta	Tons.	1,070	5,258
Ochers	"	2,341	18,600
*Mineral water		.....	155,000
Moulding sand	Tons.	10,572	21,038
*Natural gas (g)		.....	320,000
Petroleum (h)	Bbls.	700,790	981,106
Phosphate (apatite)	Tons.	733	3,665
Pyrites	"	32,218	128,872
Salt	"	57,142	248,639
Total		.....	$11,282,419
Structural Materials and Clay Products.			
Cement, natural rock	Bbls.	87,125	$73,412
" Portland	"	163,084	324,168
Flagstones		.....	4,250
Granite		.....	73,573
*Pottery		.....	135,000
Sewer pipe		.....	166,421
Slate		.....	40,791
Terra cotta		.....	167,902
Tripolite	Tons.	1,017	16,660
Building material, including bricks, building stone, lime, sands and gravels and tiles (estimated as for previous year)		.....	3,600,000
Total structural materials and clay products		.....	$4,602,177
All other non-metallic		.....	11,282,419
Total non-metallic		.....	$15,884,596
Total metallic		.....	21,622,601
Estimated value of mineral products not returned		.....	250,000
Total		.....	$37,757,197

* Partly estimated.
(a) Quantity or value of product marketed. The ton used is that of 2,000 lbs.
(b) Copper contents of ore, matte, etc., at 12.03 cents per lb.
(c) Lead contents of ores, etc., at 3.78 cents per lb.
(d) Nickel contents of ore matte, etc., at 33 cents per lb.
(e) Silver contents of ore at 58.26 cents per oz.
(f) Oven coke, all the production of Nova Scotia and British Columbia.
(g) Gross return from sale of gas.
(h) Calculated from inspection returns at 100 gals. crude to 42 refined oil, and computed at $1.40 per bbl. of 35 imp. gals. The barrel of refined oil is assumed to contain 42 imp. gals.

The increase in the total over 1897 was nearly 32 per cent., a large part being due to the Yukon gold. In 13 years the gain has been 270 per cent., and the value of the mineral output per capita has increased from $2.70 to $7.20.

Of the gold output the main feature was the very large increase in that of the Yukon. This accounts for $7,500,000 of the enlargement, which is three times as great an estimated output as that for last year. With the exception of the gold washings of the Saskatchewan River, in the Northwest Territories, there were also increases in all the other districts of the Dominion.

There were increased outputs of coal in all the different districts. In copper the largest increase was in Ontario, which amounted to over 50 per cent. of the previous year's output. British Columbia showed also a considerable enlargement, while in Quebec a small falling off was apparent. A rise in the price of the metal makes the proportional increase in value greater than that for quantity.

In nickel the increase in the quantity is greater than that in the value, owing to a fall in the average price of the metal for the year.

The falling away in the production of both lead and silver is, in the former case, partly offset by the rise in the average price, while in the latter case a lower price for the year has aggravated the proportional decrease in the value as compared with the quantity.

While there was a decrease in the actual quantity of the product of the asbestos mines of Quebec, the value shows a large percentage increase, which is explained by the lesser proportion of asbetic and low grade fiber in the output.

A SALE THAT CONSTITUTES A SUB-LEASE.—A sale by the lessees of a gas well of the gas flowing from it to a gas company, which takes charge of the well and conducts the gas off the premises, is really a sub-lease of the well.—Akin vs. Marshall Oil Company (41 Atlantic Reporter, 749); Supreme Court of Pennsylvania.

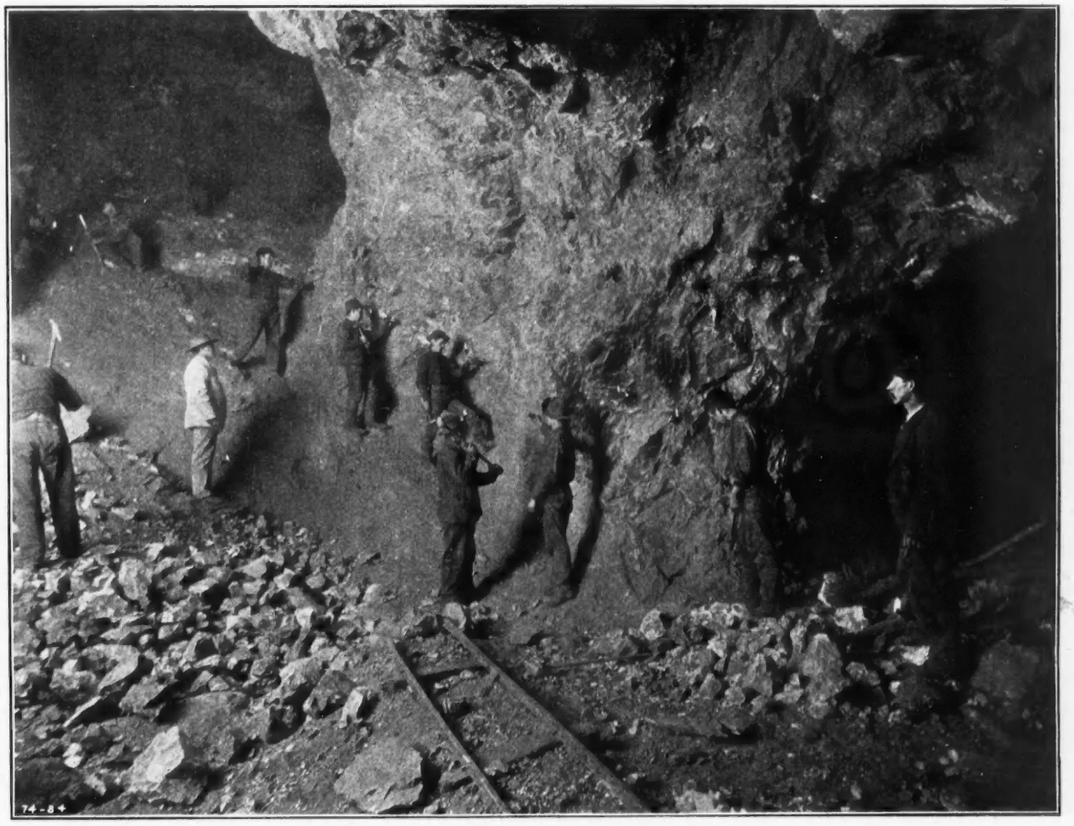
UNDERGROUND PHOTOGRAPHY.

The accompanying illustration, which is reproduced from a photograph taken by the Jackson-Smith Company of Denver, is an excellent specimen of underground photography. The view is in the Calumet Mine in Colorado, showing work in progress on the vein, and the illustration is an exceedingly clear and vivid one. The mine is in Chaffee County, and is operated by the Colorado Fuel and Iron Company, the iron ore taken out being used in that company's furnaces at Pueblo.

The iron deposit at Calumet has been worked for several years, and is one of the best known in Colorado. The bed of ore is about 40 ft. thick at the point where operations are now carried on. The ore runs 60 per cent. and over in metallic iron, several analyses showing between 63 and 64 per cent. The phosphorus runs as low as 0.007 per cent., making it a good Bessemer ore. The mine, however, has recently been closed, owing to the necessity of roasting the ores, and to the company's ability to obtain supplies more cheaply from other mines. It will probably be reopened in the near future, as the demand for iron and steel from the Pueblo mills is rapidly increasing.

THE SALT INDUSTRY OF RUSSIA.

Consul-General Holloway sends from St. Petersburg, January 10th, 1899, the following translation from the "Messenger of Finance": The first meeting of the Russian salt producers was held in the Ministry of Agriculture and Crown Domains at St. Petersburg, November 4th, 1898.



STOPING IN CALUMET MINE, COLORADO.

In addition to the well known Crimean salt mines, one of the richest beds of rock salt in the Bakhmut District of the Donetz basin, where salt has been produced regularly since 1881, increasing yearly and amounting in 1897 to 19,000,000 poods (306,451 tons). The beds are worked the whole year, and, owing to favorable conditions and the high quality of the salt, this district is successfully competing with all the other salt mines of Russia. The salt works near Bakhmut and Slaviansk, which produce salt from wells, are also well known, their production having amounted in 1897 to 80,645 tons.

In the Northern Caucasus, salt is produced in small quantities from small lakes. There are a few salt lakes in the government of Baku, the annual product of which amounts to 8,064 tons.

In the Erivan government and Karsk region rock salt is produced only from large beds which run along the Russo-Turkish-Persian frontier, 398 miles along the Russian territory. In some places these beds occupy an area of about 1 square mile and 280 ft. thick, which shows that they are very rich. The production of salt in that region does not exceed 32,258 tons per year, but there is reason to expect that after the construction of the Kars Railroad, with a branch to Erivan, the Trans-Caucasian salt will find its way to the Russian markets, and the productiveness of the local mines will increase.

The Trans-Caspian region produces 24,194 tons of rock salt, and a like amount of lake salt comes from Turkestan annually.

In Poland salt is produced only in the Tsekhotsensk factory, which belongs to the Government and lies near the Prussian frontier. At present this factory is leased by the heirs of General Glinka-Mavrin and produces but 4,839 tons yearly, whereas 94,839 tons are required to supply the demands of the Polish governments.

In Siberia the production of salt is comparatively small—from 32,258 to 48,387 tons a year. This is principally due to the fact that the salt-bearing regions are far from the markets, and to the absence of convenient ways of communication. It is therefore not surprising that salt is brought to Siberia partly from European Russia (through Odessa) and partly from America. Thus, during the past fall there was such a demand for salt in Eastern Siberia that the Ministry of Agriculture sent by rail, through Omsk to Irkutsk, 1,613 tons of salt from the Koriakov Lake, in Eastern Siberia. In Western Siberia salt is produced from salt lakes, and in Eastern Siberia it is produced by decocting brine. There are in the Yakutsk region well known rock salt deposits, but until now they have not been worked, as they are far from inhabited localities. The prices of salt in Siberia are exceedingly high, amounting to $57.47 per ton; whereas in European Russia the price fluctuates between $12.77 and $3.19 per ton.

The Russian salt industry began to develop as an important industry in November, 1880, when by an imperial ukase the excise duty on the same was abolished. Thus, during the 10 years 1871-1880, while the excise was still in force, the production of salt in Russia did not exceed 693,548 tons, while from 1888 to 1897 it amounted to 1,209,677 tons, nearly double, and the prices decreased accordingly.

The importation of foreign salt has also decreased greatly, amounting at present to but 8,065 tons per annum, which go principally to the Baltic region and Poland. During recent years salt from the Nonetz basin has found its way to the above regions, and therefore it is to be expected that the import of foreign salt will become still smaller.

ACETYLENE AT VERY LOW TEMPERATURES.—At a recent meeting of the Paris Academie des Sciences a communication by Mr. Georges Claude was made on the explosive power of acetylene at very low temperatures. The solubility of acetylene in acetone increases very rapidly as the temperature diminishes, acetone at — 80° C. dissolving more than 2,000 volumes of the gas. A platinum wire may be kept at a red heat in this solution without any explosion taking place. Liquid acetylene at — 80° behaves admirably.

GERMAN COAL TRADE.—Imports and exports of fuel in Germany for the calendar year were as follows in metric tons:

	—Imports.—		—Exports.—	
	1897.	1898.	1897.	1898.
Coal	6,072,029	5,820,332	12,389,907	13,989,223
Lignite	8,111,076	8,450,149	19,112	22,155
Coke	435,161	332,578	2,161,886	2,133,179
Briquettes	79,450	62,239	247,722	325,408

This shows a surplus of exports over imports in 1898 of 8,168,891 tons of coal, 1,800,601 tons of coke, and 263,169 tons of briquettes; an excess of imports of 8,427,994 tons of brown coal, or lignite.

DOMESTIC COKE AND BRIQUETTES FROM RETORT COKE OVENS.*

By R. M. Atwater.

The question of making coke from Ohio coals is not settled, though they are not used to any extent at present. The difficulties to be overcome are the high content of sulphur, which injures the quality of the iron, and the high percentage of volatile matter in the coal, which results in a soft-bodied coke.

The object of the present paper is to show that there is a possibility of the use of Ohio coals in their present condition for making domestic coke and briquettes in the retort oven, as a practical operation for the coal operators of Ohio. For the ordinary use of the household, either lump bituminous coal or anthracite are in general use, while slack coal is not used to any extent. Anthracite is used, probably, to a limited extent in the southern part of the State, but in the northern tier of cities is in general use, its freedom from smoke and gas making it more desirable when the increased cost is not too great.

Crushed coke differs from lump bituminous coal in carrying no gas or smoke. In this respect it closely resembles anthracite, but on account of its porous character it burns more like bituminous than anthracite. Anthracite burns only on the surface, or until the lump after becoming red hot falls to ashes or melts to clinker. Coke, when it becomes hot enough to burn, burns throughout its whole bulk, and from a glowing mass falls quickly to ashes. On this account it occasions some trouble in managing the fire, which goes out quickly when it does not receive a fresh supply at a time when anthracite coal would last much longer. On account of its greater bulk it occupies more room in the stove for a smaller actual amount of fuel.

Fuel briquettes have not been used to any extent in this country, but they have some advantages over any other domestic fuel. They are made in enormous quantities in all the chief coal producing countries of Europe and have won a permanent place. Not only are they in common use as a domestic fuel, but the locomotives and steamships of Europe use them very largely. They are made of different sizes, corresponding to the market sizes of anthracite, for boilers, locomotives, furnaces, grates and stoves. By their use the waste coal, both bituminous and anthracite, at the mines and in the cities is utilized. If such a use can be made of the great slack heaps in the Ohio mines it will be of benefit to the miner and the household.

If briquettes are made of bituminous slack they have the nature of bituminous lump coal, but on account of their density, being pressed as bricks at a great pressure, there is much less waste in dust and slower and more economical combustion. But they can be made of anthracite slack as well as from bituminous slack or from coke breeze, and in this form they have all the advantages of anthracite coal.

The retort coke oven affords the means of utilizing Ohio coal in either or all of these three forms,, crushed coke, soft or smoky briquettes and hard or smokeless briquettes, and it allows these forms of domestic fuel to be produced at a cost which will yield a good profit.

To make this clear let us take up the details of the operation of a block of retort ovens on a practical scale and of a size best suited to economical operation. It will be quite practical to make an operation on a much smaller scale, but an operation to produce 100 tons of coke and 100 tons of briquettes a day is a convenient unit.

The plant will consist of 18 retort coke ovens, with all the apparatus for recovering the by-products, ammonia, tar and gas. Also a tar distilling plant for converting the tar into oil and pitch for briquetting; also a briquetting plant for making 100 tons of briquettes in 10 hours. The plant will occupy less than an acre of ground and will cost, exclusive of land and a water supply and railroad connections, from $100,000 to $125,000. Such a plant can be operated in three ways, according to the amount and quantity of the product desired.

First, let us consider its operation to produce 100 tons of briquettes per day on Ohio coking coal. Each oven will take eight tons of coal and coke it in 24 hours, or 144 tons per day and 52,000 tons per year. The coal will yield 70 per cent. of domestic coke, or 100 tons of coke per day, or 36,000 tons per year. The operation and maintenance in good repair of the plant will cost 40c. per ton of coke, or $14,400 per year.

There will be recovered from the volatile part of the coal in the by-product apparatus 520 tons of ammonia, reckoned as sulphate, per year, which has an assured market value of $15,600, or sufficient to cover the entire cost of operating the ovens and by-product works. There will also be recovered from the oven gas 2,600 tons of tar, which has a market value of $4 per ton, or $10,400 per year.

After supplying all the heat required for coking the coal and raising steam for all the power required by the ovens and by-product works there will be left a surplus of 3,000 cu. ft. of gas per ton of coal, or 156,000,000 cu. ft. of gas, which is worth for manufacturing purposes 5c. per 1,000 ft., or $7,800 per year.

The low value given this gas does not represent its true value, but its actual fuel value in replacing coal and reducing it still lower because it is produced at all hours of the day and all days in the year, and no provision is made for storing it in a holder. The gas carries about 600 heat units per cubic foot, and is, for many purposes, equal in efficiency with natural gas.

It is practically the same as unenriched illuminating gas. If local gas companies will take the gas for their use it can be enriched by the luminous portion of the fuel gas and can be delivered of 18 candle power. It would, of course, in this case be worth double the amount here estimated for it, and the holders of the illuminating gas company would be available for storing it. Still, at the figure above given the value of $7,800 per year is sufficient to pay the interest on the investment of money for the whole plant.

The operation thus far stands as follows: The ammonia recovered will cover the cost of operating the ovens and by-product works, while the surplus gas will pay the interest on the investment. I do not state the cost of coal, for that is a local matter. I also consider that any operation likely to be undertaken will be in the interest of coal operators. The value of the tar stands as a clear profit, and a ton of crushed coke costs only the coal required to make it. As it takes 1.4 tons of coal to make one ton of coke, if coal costs at the ovens $1 per ton, the cost of one ton of crushed coke is $1.40. If coal costs 50c. per ton, a ton of coke costs 70c., and the $10,000 worth of tar is a profit or asset beyond this cost of the coke.

Taking up the second part of the operation—the making of briquettes—we will consider that the tar will have to be distilled. The cost of the distilling plant, about $5,000, I have included in the total of $125,000 for the whole plant, also the cost of the briquetting plant, $20,000.

The distillation of the tar is a very simple operation, and the oils produced have sufficient value to pay for the cost of the distillation. We may therefore consider the 2,600 tons of tar as equal to 1,800 tons of pitch, which is the material used for cementing or binding the briquettes. If pitch alone is used for the bind it takes 8 per cent. of the coal. If lime is used with the pitch, 5 per cent.; 1,800 tons of pitch will therefore supply the bind for 36,000 tons of briquettes per year ,or 100 tons per day.

The cost of operating the briquetting plant on the basis of 100 tons a day for 10 hours is given by parties claiming to be familiar with the business as 25 to 30c. per ton of finished product. As 100 tons of coal will make 108 tons of briquettes, we may say that 50c. per ton of briquettes is a sufficient figure for the cost of manufacture, not counting the value of the pitch, which is a clear profit from the coking part of the operation.

We therefore have 100 tons of briquettes which cost what 100 tons of slack coal cost, plus 50c. per ton. If the coal costs $1 per ton the briquettes cost $1.50 per ton and will sell in competition with lump coal and be preferred on account of their uniformity in size and cleaner condition.

Summing up the whole operation briefly, we have, after paying all operating expenses and interest on the investment, 100 tons of crushed coke, costing the value of 140 tons of slack coal, and 100 tons of soft coal briquettes, costing tne value of 100 tons of slack coal, plus 50c. per ton. The value of the coal at any point where the plant may be located can be supplied and also the competing value of anthracite against the crushed coke or of lump coal against the briquettes.

Two other methods of operation are, however, worth our consideration. As was said before, briquettes may be either made from soft coal or from anthracite slack, in which case they will be smokeless and in every way equal to anthracite.

For this purpose the coke may be ground to a fine powder and the pitch used to make smokeless briquettes, which should command the full price of anthracite coal. On this basis the operation will stand as follows: 108 tons of smokeless briquettes will cost the value of 140 tons of bituminous slack coal, plus 50c. per ton. If this slack costs $1 per ton, the cost of these briquettes will be $1.80 per ton. If the coal costs 50c. per ton, the briquettes will cost $1.15 per ton.

The other method of operation is of interest in view of the large quantities of non-coking coal in the Hocking Valley region. This slack coal is considered of no value at the mines, and its cost at any operating plant is simply its freight. This coal can be charged into the coke ovens, all the volatile matters distilled off and the tar, ammonia and gas recovered precisely as is the case with coking coal. The resulting carbon will be drawn from the oven, quenched and passed through rollers to make it of suitable fineness, and made into smokeless briquettes, which will compete with anthracite coal. The cost will be the same as briquettes from the crushed coke, but the coal may be of lower cost, and so the operation will yield a greater profit.

These three forms of operation may be carried on in the same plant, either simultaneously or at different times, according to the conditions of the market for the several products. In general it may be said that coal is the cheapest form in which the various products, tar ammonia, gas, coke and briquettes, can be transported, as the f. o. b. rates on coal are on the lowest basis of all commodities. Therefore, in selecting a case for the operation the preference should be given to that place affording the best market for all the products. The consumption of anthracite coal at the place for the operation is also an important element, as it is easier to displace an article in common use than to create a market for a superior article.

*Abstract of paper read before the Ohio Institute of Mining Engineers, January, 1899.

MINERALS IN ARABIA.—The report of British Consul Devey says of the Yemen District in Arabia: "Rock salt—one of the sources of Turkish Government revenues—is widely distributed in the Tehama. There are some indications of an intention of the Turkish authorities to work iron ore and coal deposits at Sheik Said, but large capital will be needed. It is also proposed to work deposits suitable for making Portland cement, found at Geezan. There is petroleum in the island of Farsan, and it may be worked by the Government."

THE OLDEST COAL MINE IN EUROPE.—Mr. Franz Buettgenbach, mining engineer, Aachen, Germany, who published last year a little book on this subject, has been dipping again into certain old documents, and has reached the conclusion that the earliest coal mining operation antedated the period assigned in his first book, says the "American Manufacturer." He now expresses the opinion that coal was mined much prior to 1113. It appears that coal was first found in the Liége district about 1199, long after it had been found and worked in the Worm district, and no doubt now is entertained that in that district it was worked before 1113. In his "History of Coal Mining in Great Britain," Galloway says that it is probable that before the close of the reign of William the Lion (1214) coal was attracting some attention on the south shore of the Frith of Forth, and that during the reign of this king a grant of a tithe of the colliery of Carriden, near Blackness, was made to the monks of Holyrood Abbey, Edinburgh. This was 100 years after the mines in the Worm district were opened and regularly worked. It is not likely that coal was mined in Great Britain before the 13th century, whereas it was mined in the Worm district certainly as early as the beginning of the 12th century, and perhaps even before this.

THE PRODUCTION OF METALLIC TUBES BY EXTRUSION.

The system of making metallic tubes and bars by extrusion at high temperatures, invented by Mr. Alexander Dick, was first brought out over two years ago, and was described in the "Engineering and Mining Journal," June 20th, 1896, page 592. By this system all kinds of metallic sections are produced, from a simple round wire to complex designs with re-entering angles—which it would be impossible to roll—by forcing metal, heated to plasticity, through a die under hydraulic pressure. These sections are all solid, but since that time Mr. Dick has made the discovery that copper and its alloys in a heated and plastic condition can be separated, and, provided no air has access to it to oxidise the fresh surfaces, they will re-unite by simple pressure. A true weld is thus formed which it has been found impossible to rupture. Upon this discovery Mr. Dick has founded and perfected a system of producing metallic tubes of any section by the same process, and their manufacture is now being carried on concurrently with that of the solid sections. The principle of extrusion has been applied in the production of leaden pipes and leaden rods for the manufacture of projectiles for small arms. But, in those cases, the lead is pressed at a comparatively low temperature, whilst in the present instance the metal has to be operated upon at a very high temperature, namely, that of plasticity or about 1,000° F.

The process of manufacture as described in London "Engineering" is carried on by means of a press, which is 16 ft. in length, 6 ft, wide, and 5 ft. high over all. It consists mainly of the compressing cylinder or container, and the hydraulic ram. The heated metal is placed in the cylinder, at one end of which is the die, and upon pressure being applied at the opposite end the plastic metal is forced through the die, issuing therefrom as rods, or as tubes, of the required section and of a length governed by the quantity of metal placed in the container. This container has not only to withstand the high temperature of the metal, but it has also, while under the influence of that temperature, to meet the severe strain brought upon the interior by the resistance of the metal to the pressure of the hydraulic ram in forcing it out through the contracted area of the die. The construction of the container was, therefore, an anxious matter, and the designing of it gave some trouble, but at length all difficulties were overcome and every working requirement amply met. The container, which is 2 ft. long and 2 ft. in diameter externally, has an inner liner of cast steel. The internal diameter of the liner varies in different containers from 5 in. to 8 in., according as to whether it is wanted for pressing a small or a large charge, the container being changed as required. The liner is enclosed within a series of cylinders of ordinary mild steel spaced about ¾ in. apart, the annular spaces being filled in with a non-conducting material composed of crushed granite mixed with a small proportion of borax. The container is mounted on trunnions and fitted with worm-gearing for bringing it to a vertical position for being charged with metal and restoring it to the horizontal for the operation of pressing. The machine is shown in Fig. 1.

The die-plates are made of tungsten steel, and they are formed with either one or several openings, each opening being, in the case of rods and bars, of the section required to be given to the article produced. In the case of tubes there is a mandril in the centre of the opening in the die-plate. This form of dye is shown in Figs. 2 and 3, Fig. 1 being a vertical section and Fig. 3 a plan view at the back of the die, or that portion which presents itself to the incoming metal in the operation of pressing. Upon the plastic metal meeting the sharp edges of the ribs or wings of the die, the stream becomes divided, and is conducted in several streams to the mandril, around which the incoming metal is pressed. Here the divided streams of metal are re-united as a tube, and become firmly welded together, so that it is impossible to discover the points of junction in the finished tube. This re-union is dependent upon the exclusion of the air, which would otherwise cause oxidation of the surfaces of the metal, and prevent them uniting. A singular verification of this is shown by the fact that for a few inches at the front end of every tube the metal is never united. It might be thought that this was due to the cooling action of the die on the metal. This, however, is not the case, inasmuch as at the commencement of every run the die is heated to a cherry red, the initial severance being solely due to the presence of air in the die, and the subsequent re-union of the metal, to its absence. Fig. 4 shows the front end of a tube as it comes from the machine.

The die-plate is mounted in a holder, in which it is easily fixed, or from which it is readily removed, as different sections are required to be pressed. As it is necessary to heat the die and its holder previously to each pressing operation, as already mentioned, the die is fitted into a shouldered recess in the holder, which is coned to seat into a hollow metal block. This block is firmly held in position during the operation of pressing by a pair of gripping jaws actuated by hydraulic power. The die-holder and the gripping jaws are carried in a strong crosshead. The metal is forced out of the container and through the die by an hydraulic ram 20 in. in diameter, and working under a pressure of 2 tons per square inch. The ram has a prolongation or extension of reduced diameter, which forms the plunger of the container, entering it at the opposite end to that at which the die is situated. A different plunger is used with each container, the diameter varying to suit the internal diameter of the container. On starting to work each day the container is first heated up by gas with a Bunsen burner, which quickly brings the liner to the temperature necessary to prevent the first charge of metal receiving a chill. The container does not require reheating, as the liner remains red-hot after each run.

Such in general is the arrangement of this ingenious system of tube production. It is now in operation at the Delta Metal Works, Pomeroy street, New Cross, London.

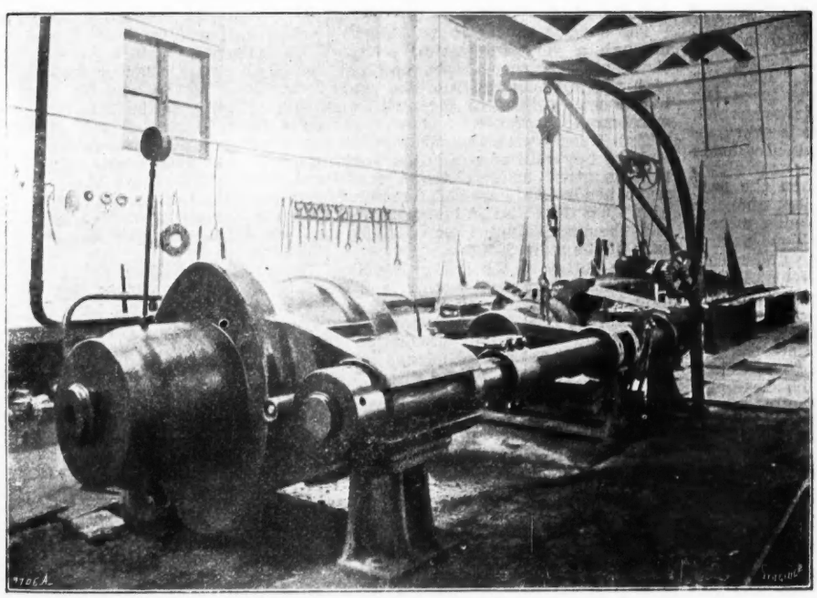


FIG. 1.
THE PRODUCTION OF METALLIC TUBES BY EXTRUSION.

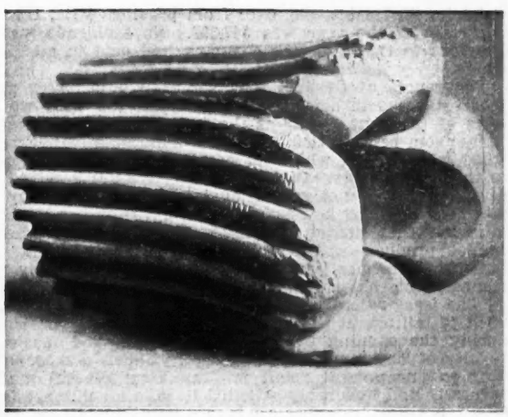
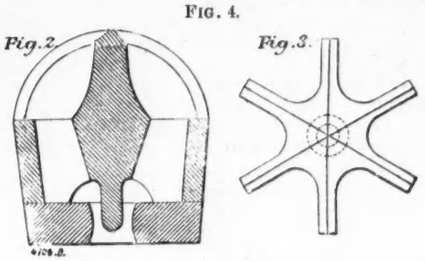


FIG. 4.



TURQUOISE IN PERSIA.—The report of the British Consul-General at Meshed, Persia, says that the turquoise mines near Nishapur in Khorassan are at present held by the Malik-ut-Tujjar (head of the merchants) of Khorassan at a yearly rental of 24,000 tumans (about $24,000). There is great uncertainty about the continuity of the contracts, which naturally prevents any good work or improvements in the mines. The production can only be estimated in a very vague way, as there are no records whatever.

COAL BRIQUETTES IN WALES.—According to United States Consul D. T. Phillips the manufacture of coal briquettes, known as "patent fuel," is conducted on an extensive scale in the consular district of Cardiff, Wales, and elsewhere on the seaboard of the South Wales coal field, and, along with the general coal trade, is making headway every year. The first shipment at Cardiff was in the year 1859, when 4,700 tons were exported, and last year the total reached nearly 400,000 tons, to which must be added shipments from Newport and Swansea, augmenting the quantity named about 50 per cent. In fact, all the fine coal not used in the manufacture of coke—for which, by the way, the harder fine coals are not suitable—is utilized in making patent fuel, most of which is manufactured in the district. The exports are chiefly to European ports, at certain of which briquettes are also made on the spot from the imported coal. A local manufacturer, Mr. T. E. Heath, says that thirty-odd years ago the Coulliard or ordinary French process was introduced into Cardiff, and, being found mechanically much more perfect than the old process—which was both slow and costly—soon became general. The great majority of fuel works here and abroad are merely modifications of the Coulliard.

ABSTRACTS OF OFFICIAL REPORTS.

Hecla Consolidated Mining Company, Montana.

The report of this company covers the year ending December 31st, 1898. During the year there was mined 5,844 tons first-class and 1,799 tons second-class ore, the cost of mining being $19.21 a ton for first-class, or $14.50 for all ore. A large quantity of work was done on development, but with no special results.

The first-class ore goes directly to the smelter. In the concentrator 984 tons of ore were treated, producing 109 tons concentrates averaging 41.9 per cent. lead and 43.24 oz. silver. The cost of concentrating was 66.4c. a ton of ore, or $5.67 a ton of concentrates.

The furnace report shows that there were treated 6,048 tons ore, 112 tons concentrates and 278 tons skimmings, a total of 6,438 tons. The flux used was 1,396 tons iron ore, 681 tons limestone and 2,086 tons slag, 4,163 tons in all. The fuel used was 1,264 tons coke and 1,728 tons charcoal. The cost of fuel was $4.29 to the ton of ore, or $2.60 to the ton of furnace charge. The furnaces were run 289 days 11 hours during the year. The product was base bullion and copper matte, containing 1,582,450 lbs. lead, 121,039 lbs. copper, 367,979 oz. silver and $11,359 in gold (518 oz.)

The general statement for the year is as follows:

	Totals.	Per ton.
Bullion product	$273,688	$35.81
Royalties, etc.	6,581	0.86
Total	$280,269	$36.67
Expenses	234,657	30.70
Profit	$45,612	$5.97

Adding $1,780 brought over from previous year, the total surplus at the close of the year was $47,392. No dividends were paid in 1898. Previous to that year the company had paid in all $2,175,000 in dividends.

The report of General Manager H. Knippenburg says: "The year 1898 leaves us in somewhat better condition than we were in at the close of 1897, but, so far as the feeling of your manager is concerned, is far from being satisfactory. No honorable management is ever satisfied with results which do not bring fair and reasonable dividends to the stockholders. Dividends you have not received for nearly two years, and I am not rash enough at this time to say when the payment of them may be resumed. We have not ore in sufficient quantity in sight. One furnace, running on the grade of ore now being mined, cannot produce enough to put the company on a dividend-paying basis as in former years. The year 1898 is the only year under this management that the stockholders have not received a dividend.

"The lease recently granted to D. H. Haskett & Co. on the large deposit of tailings at the concentrater, which they propose to work over during the ensuing two years, with improved machinery, paying a royalty of 20 per cent., will, I trust, yield us a reasonable income, adding to our present small profits. Your general manager, although earnestly and honorably solicited to take an interest in this lease, declined positively to share in the results, directly or indirectly, except as a stockholder in the royalty which may be paid to the company."

Tamarack Mining Company, Michigan.

The report of this company covers the year ending December 31st, 1898. It contains no statement of copper produced and no details of cost. The statement for the year is as follows:

Gross receipts, copper, interest, etc.	$2,381,389
Total costs	1,862,507
Profit for the year	$518,882
Dividends ($8 a share)	480,000
Surplus for the year	$38,882
Balance from 1897	854,836
Balance, Dec. 31st, 1898	$893,718

During the year there was spent for construction, and charged directly to operation expenses, construction at shafts Nos. 3 and 4, $36,897; sinking and construction at shaft No. 5, $100,364; sundry construction, $63,031; total, $200,292. The average price at which copper was sold during the year netted the company about ⅝c. per pound more than the price for 1897. The average quality of the ore was not quite as good as during the previous year, but improvements in working and the advance in the price of copper allowed an increase of dividends from $6 to $8 per share.

During the year 1899 construction work will be pushed as much as possible, and expenses on that account will be materially increased. On December 31st No. 5 shaft had reached a depth of 3,000 ft., having been sunk during the year 985 ft., leaving about 1,500 ft. more to sink before reaching the lode.

The statement of assets on December 31st shows: Cash and copper on hand, $334,911; accounts receivable at Boston, and Hancock & Calumet Railroad bonds, $172,290; cash and accounts receivable at mine, $125,411; supplies on hand at mine, $205,163; wood and timber lands, $297,989; Hancock & Calumet Railroad stock, $25,000; Lake Superior Smelting Company stock, $132,000; total assets, $1,292,765. The liabilities were: Accounts payable at mine, $185,736; accounts payable at Boston, $213,311; total liabilities, $399,047. This leaves a balance of assets December 31st, 1898, of $893,718.

The superintendent's report says that the amount of rock hoisted during the year was 812,983 tons; 76,868 tons were from crosscuts, shafts and winzes, and 736,115 tons broken from the lode; 65,283 tons were rejected in rock-houses and 670,832 tons stamped. Cost of stamping was 22.402c. per ton. The total cost per ton of rock mined was $1.66; of rock stamped, $2.01. The amount of mineral obtained for the year was 31,127,623 lbs. The amount of opening work for the year was 12,820 ft., including 1,046 ft. of shaft sinking. The rest was drifting and cross-cutting.

Following are the depths of the several shafts December 31st, 1898: No. 1, 3,240 ft.; No. 2, 3,866 ft.; No. 3, 4,596 ft.; No. 4, 4,450 ft.; No. 5, 3,000 ft.

Of the 812,983 tons of rock hoisted during the year 71,304 tons were from No. 1 shaft, 430,262 tons from No. 2 shaft, and 311,417 tons from No. 3 shaft; so that all but 71,304 tons were hoisted from two shafts with respective depths of 3,866 and 4,596 ft. No. 4 shaft, owing to the uncertain character of the lode in the early stages of opening, has not been equipped for hoisting rock. Developments the past year, however, indicate that this shaft will require the necessary plant for the hoisting and manipulation of rock. It is not contemplated that this will be necessary the coming year, and perhaps not until No. 5 shaft reaches the lode and becomes a producer.

The water coming out of the mines used for feed-water purposes is so highly impregnated with destructive acids that a new boiler is soon rendered unsafe, even at low steam pressures. In August the company started to remedy this by the construction of water works on Lake Superior. Since that time it has built five miles of road to handle the machinery and pipe, dug the same length of ditch, and laid a 10-in. main with connections to each branch of the boiler plants. At the Lake end the pump is now being erected. It is a compound flywheel type with capacity of 1,000,000 gals. per 24 hours. The pump is situated on the shore of the lake, 8 ft. above the water, and 40 ft. from its shore line. To ensure against sand, ice, fish or any foreign substance interfering with the intake or suction, a shaft was sunk 40 ft. and a drift run out 480 ft. under the lake. The shaft and drift are in sandstone. Present end of the drift has 14 ft. of rock over it. A series of holes (20 in number and 3 in. in diameter) are drilled in the breast of the drift. The holes are 12 ft. deep and inclined, so as to be about 5 ft. from the water. As the sandstone is porous and jointy at this point, it looks as though there will be no trouble to get a full supply of water.

The superintendent says: "At the stamp mill end we have passed through a very interesting series of experiments, with a view of cheapening the cost of stamping and also of obtaining a larger amount of high-grade copper from the same rock. Most of the new features have been confined to the new Tamarack mill, where the conditions were more favorable to show the results than at any of the other mills. Hence, with the old mill of five heads practically unchanged, and the new mill of two heads working only a part of the year (about nine months) under changed conditions, the record shows that the seven heads combined had a running time equivalent to one head running 2,088 days and 16 hours. The total rock stamped from Tamarack and Tamarack Junior was 736,159 tons, or 352.45 tons per day, for each of the seven heads.

"The outlay at the Dollar Bay Coal Dock consisted of an extension of the dock, two steel towers, and two steel cantilever bridges, 225 ft. long, with the necessary machinery and transfer apparatus for handling and storing coal. Another tower and cantilever bridge will be added before the opening of navigation this spring, which will complete our facilities for unloading and storing any amount of coal which we may need annually in the future."

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

LOCATOR'S INTEREST SUBJECT TO EXECUTION.—A locator's interest in a mining claim on public lands for which no patent has been issued nor applied for is property subject to execution.—Phoenix Mining and Milling Company (54 Pacific Reporter, 777); Supreme Court of Washington.

CONTROL OF MINING OUTPUT.—Where the owner of a mine has a right to control the mining contractor's output, and may reduce his working force according to the orders on hand, his stopping the contractor from work entirely is not a breach unless done while he has orders on hand.—Lamble vs. Sloss Iron and Steel Company (24 Southern Reporter, 108); Supreme Court of Alabama.

FOREIGN CORPORATION.—A corporation organized under the laws of the State of New Jersey is a "foreign corporation" within the meaning of the laws of Pennsylvania, (Act June 7th, 1879, section 16), providing for the taxation of "foreign corporations."—Commonwealth vs. Arizona & New Mexico Prospecting, Developing and Mining Company (1 Dauphin County Reports, 306); Court of Common Pleas of Pennsylvania.

TAX ON MINING COMPANY NOT REGULATION OF COMMERCE.—A tax assessed upon a limited partnership engaged in mining and shipping coal to points outside of the State is not a regulation of commerce, the tax being upon the privilege of the association exercised wholly within the State and not upon coal carried out of the State.—Commonwealth vs. Sandy Lick Gas, Coal and Coke Company (1 Dauphin County Reports, 314); Court of Common Pleas of Pennsylvania.

REPRESENTATION OF CORPORATION BY OFFICERS AND AGENTS.—The president of a New York corporation owning mines in Idaho, who was authorized by the by-laws to sign obligations of the company, with another stockholder, the two owning nearly all the stock, took full charge and management of the business in Idaho, which they conducted for four years, during which time no meeting of either directors or stockholders was held. During his management the president at different times executed notes, in the name of the corporation, which were paid without objection. It was decided by the court that notes so executed to a bank for borrowed money, which was placed to the credit of the corporation and drawn out upon its checks, which notes were recognized by the successors in interest of the managers for two years, during which time payments were made on same, were valid and binding obligations.—First National Bank vs. G. V. B. Mining Company (89 Federal Reporter, 440); Circuit Court of the United States.

COMPRESSED AIR PUMPING.

The problem of pneumatic pumping, how to do it successfully and economically under all conditions and from all sources, has been of difficult solution. The taking of water from deep wells by the air lift system is now in common use. The application of air pressure directly upon liquids contained in submerged receptacles of suitable design as a method of air pumping is old and well known to pneumatic engineers as the "displacement system." By its use existing economical sources of power may be utilized for the production of the required air pressure, which can be transmitted regardless of distance with economy and safety, and, unlike steam, it can be handled by inexperienced men. The low cost of installation, when compared with that of an isolated pumping plant of the usual type, and the remarkably low cost of maintenance, render the system desirable and applicable to many cases.

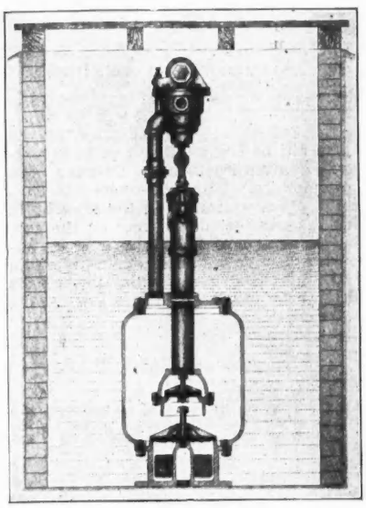


FIG. 1.

MERRILL PNEUMATIC PUMPING SYSTEM.

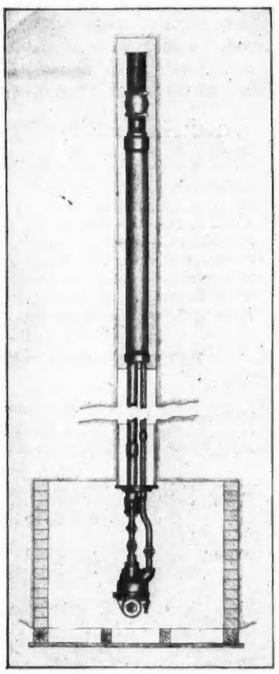


FIG. 2.

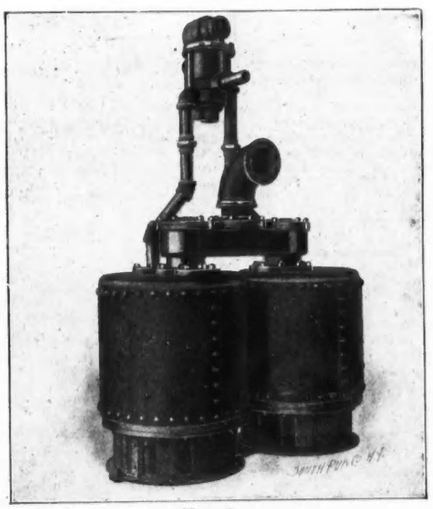


FIG. 3.

This type of pneumatic pump, manufactured by the Merrill Pneumatic Pump Company, of New York, and shown by the accompanying illustrations, embodies recent improvements upon the construction formerly brought out by Mr. F. H. Merrill. Earlier patterns consisted of one or more iron chambers adapted to be submerged in the liquid pumped, having liquid ingress and egress openings closed by suitable valves, and an air valve for controlling the supply and release of air pressure to and from the submerged chamber. The air valve was placed within the chamber, or directly on top, below the water or outside the chambers above the water level. In all cases the movement of the air valve was controlled by floats within the water chamber, arranged to actuate the air valve directly or connected with supplemental valves, which governed the main valve.

The mechanical difficulties with these early constructions and the objections thereto are chiefly as follows:

1. The limited available actuating power of all kinds of floats suitable to be contained within the water chamber, rendering the pump inoperative if the air valves become clogged and fail to work.

2. The great tendency of closed floats to collapse or fill with water under high pressure. With the open-end floats the excessive loss of air required to displace the water which enters the mouth of them until the air entrapped therein corresponds to the external working pressure.

3. The possible disarrangement of the floats or the air valve mechanism from the rapid influx or efflux of water. The injurious elements—sand, mud or sediment—and the chemical action of the water, which causes them to leak and stick.

4. The inaccessibility of working parts, requiring the removal of the entire pump to make repairs of however slight a nature.

The improvements embodied in the new type of displacement pumps consist mainly in the entire elimination of floats, the removal of all valve actuating mechanism from the water chambers and the placing of a self-contained air valve above the water level, thereby avoiding the difficulties mentioned.

Fig. 1 is a sectional view through the chamber of a single-acting type of the improved pump, showing the water admission and discharge valves and the absence of all other moving parts below the water level.

The automatic air valve, which is the subject matter of United States patent No. 609,943, August 30th, 1898, consists of a main air valve controlled by an auxiliary valve, both of which are driven by differentiated pistons, on which the air pressure is applied. By this means the valve motion is prevented from hanging up in a central position. The movement of the air valve is predetermined and adjusted to the maximum filling capacity of the water chamber, which is so proportioned as to exceed the discharge capacity, thereby insuring complete filling of the chamber. Pliable cup packings, held out by brass tension rings, are used on the piston valves to prevent leaking. These cup packings, working in composition cylinder linings, are subject only to the action of compressed air, from which sufficient lubrication is obtained by the oil taken up during the compression of the air. In practice it has been found that these cup packings are exceedingly durable, wearing for several years and remaining pressure-tight; being accessible they are easily and cheaply renewed if necessary.

The automatic air valve may be placed just above the water level or any distance away from the water chamber, as shown by the bored well displacement type (Fig. 2). It is preferable, however, to place the air valve near the water level to avoid the loss of air required to fill the connecting air pipes above. When the water chamber is nominally submerged the velocity of influx will carry the water in the air pipe some distance above the water level, and to a still greater height by an increased submergence, and usually it is sufficient to reduce the clearance loss very materially. The water chambers are now made in various forms and sizes, as required, to conform to the existing conditions of source from which water is to be taken.

For moderate service, up to 50 gals. per minute, the single-acting type is adapted; for heavier service the duplex type, Fig. 3, is constructed. Fig. 4 represents a combination plant, pumping from one or more bored wells by modified types of the well-known Pohle air lift, discharging therefrom into a receiving well at the surface; thence by a duplex displacement pump to any desired place of delivery above the surface. With this combination water may be effectively delivered at distant elevated points by a single air compressing plant from bored wells having a submergence only sufficient for the economical operaiton of the air lift in discharging at the surface.

The pumps are simple in their construction. They are sold to be operated by any make of air compressor, and can be set up without trouble by any plumber or mechanic. For taking water from several sources with a single power plant, or from a distant point by use of an existing power, regardless of distance, this pump is particularly adapted.

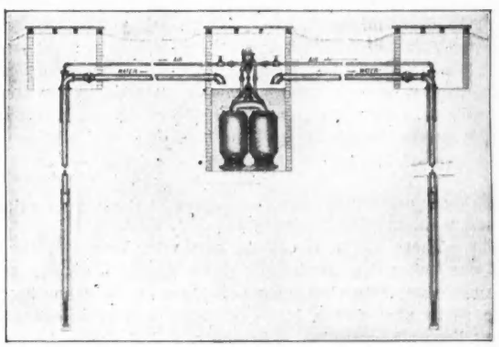


FIG. 4.

MOTHER-OF-PEARL.—The principal mother-of-pearl fisheries are those of Ceylon, Tuticorin, on the Coromandel Coast, Queensland, the Torres Straits, and the Bay of Panama. The true pearl oyster, the "Meleagrina Margaritifera," is a native of the Indian and Pacific oceans, and is divided into two species, one with a gold-colored border, the other of a uniform silvery color, for which there is a much greater demand, the pure white shell being much preferred to the variegated mother-of-pearl for commercial purposes. A good shell should weigh from 3 to 4 lbs., and, in making a contract with the divers, it is usually stipulated that the shells should not weigh less than 2 or 3 lbs. a pair—that means, of course, the two halves which make up the whole shell. The oysters producing the pearls of greatest value are invariably found in the deeper waters, but nowadays it is the mother-of-pearl, and not the pearls, which are the primary cause of these fisheries.

QUESTIONS AND ANSWERS.

(Queries addressed to this department should relate to matters within the special province of this periodical, such as mining, metallurgy, chemistry, geology, mineralogy, machinery, supplies, etc. As it is manifestly impossible to devote space to all the questions and notes constantly received, preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot here undertake to give professional advice on problems requiring special investigation and which should be obtained from a consulting expert. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers should send their names and addresses. Anonymous questions will not be answered.—Editor E. & M. J.)

Sulphur in Water.—There are in the Western States thousands of tons of water saturated with sulphur fumes—SO_2. How can I get rid of the oxygen, so that the sulphur can be obtained?—J. B. B.

Answer.—Your question is one a good many people would like to have an answer for. Unfortunately, there is no satisfactory answer, so far as a commercial process is concerned. Perhaps you can devise one by careful study of the problem.

Breece Mining Company.—What is the reason of the recent advance in the price of the stock of this company?—H. S.

Answer.—One reason for the advance is undoubtedly that the company resumed the payment of dividends in December last, and has kept up such payments since. Previously it had paid no dividends since 1880. This seems to be sufficient basis for a rise; but, in addition to that, there has been some demand for all the Leadville stocks, in view of the present prosperity of that district.

Separating Pyrites from Zinc Ore.—In the "Engineering and Mining Journal" for January 7th it was stated that there is a simple mechanical method of separating iron pyrites from zinc sulphide (jack) by crushing and concentrating. Can you tell anything of that method?—E. M.

Answer.—The method and machine referred to is the Wetherill separator, devised by Mr. J. P. Wetherill. This was fully described in the "Engineering and Mining Journal," July 17th, 1897, page 65. It is in operation at the mines of the New Jersey Zinc Company at Franklin Furnace in New Jersey.

Infusorial Earth.—In what locality or localities in this country is the material known as infusorial earth produced?—G. B. S.

Answer.—Infusorial earth is mined at present in Maryland, Virginia, Nevada and California. Deposits are found in other States, as in Missouri and Florida. The production is about 3,000 tons a year. The Maryland deposits are in Calvert County; those in Virginia are in Henrico and King George counties. The Nevada mines are in Esmeralda County, near the line of the Carson & Colorado Railroad. In California the mining is done at Lompoc, by the California Anti-Caloric Company.

Graphite.—In the "Engineering and Mining Journal" of January 21st a question as to the preparation of graphite was answered in a general way, but more specific informtion is desired. How is graphite separated from its natural impurities after being produced? How is it concentrated without destroying the scaly structure? What is the practice at Ticonderoga?—M. O.

Answer.—Your former question was answered in a general way, because it is not possible for us to go into full details of processes, or to give full descriptions of machinery and methods in the limited space of this column. As to the practice at Ticonderoga you can obtain particulars from the Joseph Dixon Crucible Company. The ore is crushed fine and washed.

Vermont Copper.—What are the names of the copper mines in Vermont, and what is their production?—J. J. C.

Answer.—There are two copper mines in Vermont, the more important one being that of the Elizabeth Mining Company at Strafford, in Orange County. In that mine development work has been going on for two years past and a large ore-body has been opened up. The work has been all preliminary, however, and the mine has not yet produced any fine copper for market. The Ely Mine, also in Orange County, is closed down and is not a producer. A copper claim has been located near Corinth, but no ore, except samples, has been taken out.

Holystone.—What is the source and the commercial value of the stone known as holystone and used for cleaning the decks of vessels? If possible state annual consumption.—W. P. B.

Answer.—Holystone is a close-grained sandstone, slightly micaceous. The greater part of the holystones used in this country are made by the Cleveland Stone Company, of Cleveland, Ohio, and come from the Ohio quarries on what is known as the Berea sandstone. A few are imported from Germany. A stone of what is known in the trade as small size—3½ by 3½ inches and 8 inches long—sells at retail at 60 cents; one 6 by 6 inches and 12 inches long, at $1. In large quantities the price is about half the retail charge. There are no statistics as to the production. The sale is entirely to ships, as the stone in this special form has no other market.

Ferro-chromium.—If a ferro-chromium containing 60 to 70 per cent. chromium could be put on the market at 30 cents a pound of chromium contained, would there be an extended market for it? From what source would the demand arise, and for what purposes would the metal be use? What limiting quantities of carbon, silicon, sulphur or phosphorus would be allowable?—N. J.

Answer.—At present the demand for ferro-chromium is a limited one, the only use for the metal being in the manufacture of chrome steel. The principal manufacturer of this steel in the United States is the Chrome Steel Company, of Brooklyn, N. Y. There is not room, apparently, for any great extension of the demand, unless new uses for it can be devised, which we do not now know. Analyses of commercial ferro-chromium ("The Mineral Industry," Volume VI., page 147) give chromium 63 to 64 per cent.; iron, 24 to 25.5; carbon, 8.4 to 9.8; silicon, 1.5 to 2; sulphur, 0.005 to 0.45; phosphorus, 0.025 to 0.03. A very high grade metal showed 96 per cent. chromium, 2 per cent. iron, 0.75 to 1.25 carbon and 0.05 to 0.75 silicon.

THE POETSCH SHAFT SINKING PROCESS.—An addition to the invention of sinking shafts with the aid of congelation has been patented by Gustav Friedrich Hermann Walter Poetsch, of Dresden, and Friedrich Hermann Poetsch, of Magdeburg. The improvements consists in an arrangement by which the pipes contained in the bore holes sunk round the site of the intended shaft are used for freezing the surrounding measures. They can be made to serve for taking off the underground water, in order to favor subsidence, and these same pipes can afterward be used for freezing by closing their semi-circular lower ends with screw plugs, which were previously taken out for allowing the underground water to enter.

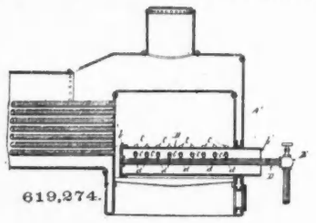
PATENTS RELATING TO MINING AND METALLURGY.

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 February 14th, 1899.

619,274. GAS-FUEL BURNER FOR STEAM-BOILERS. Elmer L. Bush, Coal Hill, Pa. The combination of an outer tube, B, having a cap, b, inclosing the inner end, and having its outer end, b', open; tubes, C,

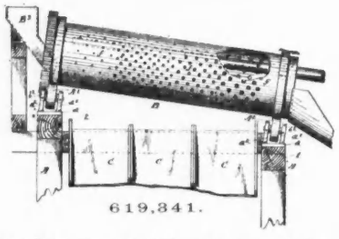

619,274.

projecting radially through the shell of the tube, B, both inward and outward; a gas-supply pipe, D, extending throughout the tube, B; gas-jet tubes, d, projecting radially outward from the pipe, D, in line with the tubes, C, in the tube, B.

619,281. CARBURETER. Harry B. Cornish, Minneapolis, Minn. Assignor, by mesne assignments, to Victor J. Welch, same place. In combination, a tank to contain the volatile liquid, a closed chamber arranged in the lower part of the tank, means for conducting air to the chamber, a series of straight pipes extending through the chamber and having open ends above and below, and having upwardly-inclined openings within the chamber.

619,340. MACHINE FOR MAKING EXPANDED METAL. Frank H. Pitkin, Chicago, Ill. Assignor of one-half to Josiah Thompson same place. A machine for making expanded metal having in combination a plurality of cutters arranged in converging series and a table arranged between said cutters and having knives at its edge co-operating with the cutting-faces of said cutters.

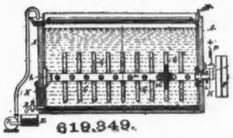
619,341.. ROTARY GRIZZLY OR SEPARATOR. Robert H. Postlethwaite, San Francisco, Cal. Assignor to the Risdon Iron and Locomotive Works, same place. The combination of a rotary cylindrical grizzly of approximately uniform diameter throughout its length, the


619,341.

perforations being arranged in sections and increased in size from the feed end toward the discharge end, separating tables below the grizzly, means for rotating the grizzly, and a tapering water supply pipe extending into the grizzly with the small end nearest the feed end of the grizzly, and rovided with outlet openings so arranged that the outlet of water will be proportioned to the discharge of material from the various sections of the grizzly.

619,349. PROCESS OF AND APPARATUS FOR EXTRACTING PRECIOUS METALS FROM ORES OR SLIMES. Hugo Riecken, London, England. The process of extracting precious metals from ores or slimes by electrolysis, which consists in agitating a mixture of the ores or slimes and an electrolyte in the presence of an anode, causing a stream of mercury to descend in a thin film over a metallic surface forming a cathode, passing a current through the pulp to the cathode and thereby amalgamating the precious metals and depositing them in an adherent layer upon the cathode, collecting the descending mercury and reconveying it to the top of the metallic surface.

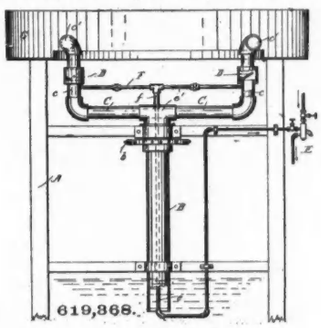
619,354. GRINDING MILL. Joseph M. Schutz, Minneapolis, Minn. Assignor to the Schutz-O'Neill Company, same place. The combination of a pulverizer proper arranged to create a strong blast or current of fluid within it, with a conical separator into which the fluid and the partially pulverized material are discharged, and a disk or plate



619,349.

arranged within the conical separator and separated from the walls by an annular opening.

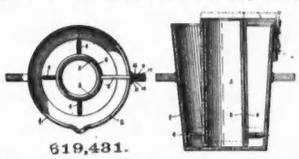
619,368. ROTARY PUMP. Alexander Thomson, Lake Charles, La. The combination, with a revoluble pipe provided with a laterally projecting tubular arm, and a delivery valve carried by the said arm; of an air pipe connected with the space under the valve and revolving with the pipe, a second and stationary air pipe arranged centrally of the pipe and operatively connected with the other air



619,368.

pipe; and means for exhausting the air from the pipe and arm through the air pipes.

619,431. FOUNDRY LADLE. Daniel W. Nash, Eastlake, Ala. Assignor of one-third to James Beauregard Gibson, Woodlawn, Ala. The combination with the ladle of a hollow bottomless cylinder placed therein and arranged to seat on the bottom of the ladle, a connecting arm attached to the head of and having an apertured stem extending downwardly on the outside of the ladle, an eccentric cam operat-

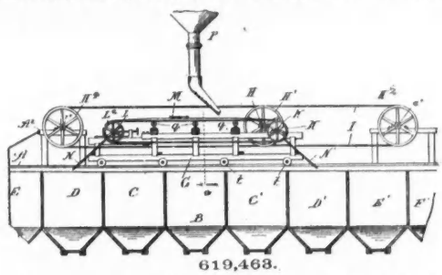


619,431.

ing in the aperture formed in the arm stem, and nut to clamp the cam.

619,433. SAND SCREEN. Conrad E. Smith, Plainfield, Ill. A sand screen shown and described consisting of a frame having stay bars, a plate having integral studs and keepers, screen wires, having each end formed in a loop for fitting on the studs and brace bars and arms provided with notches on their under sides.

619,463. BELT CONVEYOR AND DISTRIBUTOR. George F. Bartlett and Gustave A. Overstrom, Parrot, Mont. The combination of a series of receptacles, a carriage movably supported above the receptacles, an endless conveyer belt, mounted upon the carriage and adapted



619,463.

by the movement of the latter to be brought into position to discharge at one end or the other into any one of the receptacles, a delivery device in position to discharge upon said belt in any position of the latter, and means for driving the belt.

619,479. HYDRAULIC MOTOR. William Haywood, Philadelphia, Pa. Assignor of one-half to Aaron Heiser, same place. The combination with a water chamber of an overshot wheel, mounted in said chamber, a turbine mounted in the bottom of the chamber, a water inlet, outlet passage way, and a tilting chute, pivoted in said chamber, and means to tilt said chute, substantially as for the purpose set forth.

619,512. APPARATUS FOR HEATING OR COOLING GASEOUS MEDIA. Adam Slucki, Warsaw, Russia. The combination of tubes forming a conducting way for one medium, a casing inclosing said tubes, and corrugated partitions separating the tubes, so that thin spaces are formed around tubes and connected slits forming a way or conduit for a second medium.

619,534. PUMP. James M. Berrier, Eyrie, Texas. The combination of the cylinder having a circular bore of uniform diameter therethrough and provided with the supporting legs, the heads secured to the ends of cylinder, the piston working in cylinder and having the connecting rod working through one of the heads, the elbow connected to the outer side of each of the heads, the unions connected to the elbows, the elbow connected to each of said unions, the T connected to each of said elbows, the check valves connected at one end to said T's and at their opposite inlet ends to the suction pipe, the check valves connected at their inlet ends to said T's and at their opposite outlet ends to the discharge pipe and the intermediate elbows and nipples.

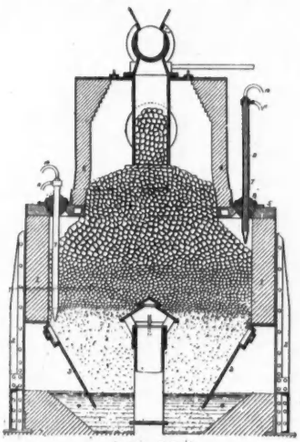
619,574. XANTHOPURPURIN SULPHO-ACID. Max H. Isler, Mannheim, Germany. Assignor to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. A new sulpho-acid of xanthopurpurin, such as can be obtained by diazotizing and subsequent heating 1.3 diamido-anthra-quinone in fuming sulphuric acid solution and which dissolves in water with a yellow color having a greenish tinge.

619,581. DREDGING BUCKET. Harald J. Kromann, New York, N. Y. Assignor of one-half to Cornelius Griffin, same place. A dredging bucket, consisting of a body, a bottom hinged thereto, latch bars, each extending longitudinally of the body on opposite sides thereof and beyond the lower edge of the same, at which point the bars are each formed with a recess, said recesses being turned in opposite directions and a lock bar pivoted to the bottom and arranged to fit in the recesses when the bottom is closed.

619,593. APPARATUS FOR DISTILLING PETROLEUM. Frederick W. Mann, Franklin, Pa. Apparatus, comprising a closed vessel having a portion adapted to be heated, a partition within the vessel lying close to the heated surface, means for introducing a petroleum spray into the surface between the partition and the heated surface, and means for maintaining a uniform pressure.

619,601. DREDGING APPARATUS. Alexander McDougall, Duluth, Minn. A chain and bucket dredge intended to be supported on spuds by means of turnbuckles, so that the water may be pumped out and workmen given access to the ground under the dredge.

619,631. GAS PRODUCER. Benjamin Talbot, Pencoyd, Pa. A gas producer having a contracted upper body and an expanded lower body with



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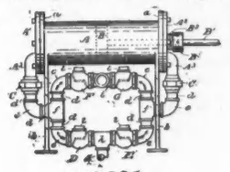

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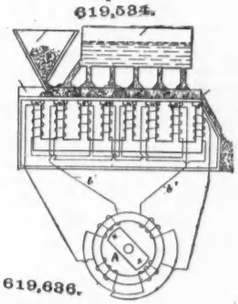

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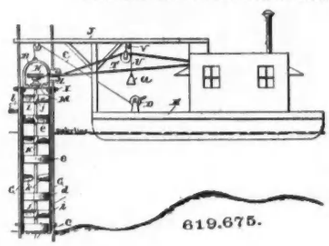
abrupt lateral connection between the two, one or more poke holes in the lateral connection, whereby the poker can act directly upon the fuel in the expanded lower body of the producer, and a gas outlet in the upper portion of the contracted upper body.

619,633. FERTILIZER AND METHOD OF MAKING SAME. Charles H. Thompson, Teignmouth, England. The process consists in first dissolving in water, phosphoric acid, carbonate of potash (pearlash) and nitrate of soda, adding thereto a mixture of soot, gypsum and bone meal with water, boiling therein a spongy or fibrous material as peat moss, and then straining the product, adding yeast and sugar or saccharine matter and fermenting the product.

619,636. APPARATUS FOR SEPARATING MAGNETIC MATERIALS. Otto A. P. Trüstedt, Stockholm, Sweden. The combination was the electromagnet of a magnetic separator, of a generator for multiphase alternating currents, from which each current is led around different poles in the said electromagnet, so as to cause a wandering field of force to be created in the magnet, which field of force carries away the magnetic particles in a direction different to that in which the non-magnetic particles move.

619,647. APPARATUS FOR PLACER MINING. George Wetherby, Duluth, Minn. In an apparatus for use in placer mining for loosening dirt or disintegrating hard or frozen earth by means of steam, the combination of a suitable steam supply and a conveyor or hose for



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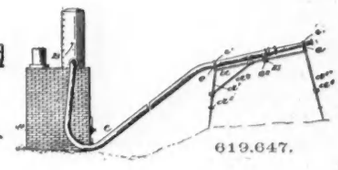

619,647.

delivering steam to the desired point, with a hose support consisting of a rod, having at each end semi-circular holders, a forked leg and a sliding brace connecting the rod and leg and the extensible legs.

619,675. DREDGER AND ELEVATOR. Alonzo W. Cram, Haverhill, Mass. Assignor to the Centrifugal Pump and Mining Company, same place. A dredger and elevator comprising an elevator tube, a combined cutter and propeller at the lower end thereof, an external passageway having an outlet opening at its lower end at a point below the propeller and communicating with the elevator tube, and an external inlet opening at a point above.

GREAT BRITAIN.

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

Week Ending January 14th, 1899.

30,444 of 1897. WHITE LEAD MANUFACTURE. G. Bischof, London. Recovering acetate liquor in the manufacture of white lead.

3,406 of 1898. SMELTING IRON ORES WITH GAS FUEL. D. Tschernoff, St. Petersburg, Russia. A system of smelting iron ores with gases instead of with solid fuel.

24,652 of 1898. DRILL. H. Aylmer, Richmond, Quebec, Canada. Easily removable miners' drills.

Week Ending January 28th, 1899.

24,809 of 1898. PLUGGING BLAST FURNACE TAP HOLES. J. W. Miller, Pittsburg, Pa., U. S. A. Apparatus for plugging cupola or blast furnace tap holes.

PERSONAL.

Mr. L. T. Warren, Jr., mining engineer from Caribou, B. C., is in San Francisco.

Mr. A. M. Welles, who has been examining mines in Nevada, has gone to Honolulu.

Mr. C. H. Macintosh, of the British America Corporation, is en route to London, Eng.

Prof. Theodore B. Comstock, recently of Tucson, Ari., sails from New York for Europe March 4th.

Mr. I. R. Gordon, of Sudbury, Ont., has been stopping in Denver and San Francisco on his way to British Columbia.

Mr. J. S. Carmichael has left Prescott, Ariz., for Terra Putea, Peru, where he will be millman for the Inca Mining Company.

Messrs. R. J. Donnen and Link Reynolds, both prominent Leadville mining men, are making a two months' tour of California.

We desire the present address of Mr. A. Walker, formerly of the Ozark Mining and Milling Company, of Florence, Idaho.

Mr. G. L. Whittaker, superintendent of the Baisley-Elkhorn mine, Baker City, Ore., has returned to the mine from Norwich, Ct.

Mr. A. O. Ihlseng, of Joplin, and Mr. F. L. Garrison, of Carthage, Mo., were at the New York meeting of the mining engineers.

Professor Klockmann, of the Clausthal School of Mines, has been appointed Professor of Geology and Mineralogy at Aix-la-Chapelle.

Dr. W. B. Phillips, of Pittsburg, Pa., is to examine a large tract of copper bearing land, near Granby, N. C., for a Pittsburg syndicate.

Mr. J. H. Lee, of Baltimore, Md., attended some of the meetings of the American Institute of Mining Engineers in New York last week.

Mr. Felix C. Vogel is no longer at Silver City, New Mexico, but, in company with his brother, has established a technical bureau at Mexico City, Mexico.

Mr. C. Laforgue, director general of the Santa Rosalia Mining Company, in Lower California, has been making his annual visit of inspection to that property.

Mr. W. H. Jeffrey, a mining engineer, of Rossland, B. C., has been making an examination of the Rathsmullen Mine, in the Boundary District of British Columbia.

Mr. J. Stanley Muir, manager of the Gold and Silver Extraction Company of America in Denver, has gone to Port Limon, Costo Rica, to examine mining properties.

Mr. Joseph D. Fraser, superintendent of the Nova Scotia Steel Company, Limited, at Ferrona, N. S., has been in Pittsburg, Pa., and Birmingham, Ala., this week.

Mr. W. S. Ayres, of Hazleton, Pa., was one of the Pennsylvania anthracite men who attended the New York meeting of the American Institute of Mining Engineers.

Mr. C. T. Mixer, of Ishpeming, Mich., has just returned to Boston from a third trip of inspection to the gold-fields of Nicaragua. He expects to return to Joplin, Mo., shortly.

Messrs. S. Hein and F. Calmer, two mining engineers from Siberia, accompanied by Mr. Sheestakceff, are in San Francisco, on their way to New Zealand, to engage in mining.

Mr. Edward L. Dufourcq, of the firm of Olcott, Fearn & Peele, mining engineers, has left New York City on an extended professional trip to Peru, Bolivia and Chile, in the interests of a New York syndicate.

Mr. Samuel Sloan resigned his position as president of the Delaware, Lackawanna & Western Railroad Company on March 2d, Mr. W. H. Truesdale succeeding him. Mr. Sloan has been president of the company since 1867.

Mr. George Barrack, partner of Alex. McDonald, passed through Colorado Springs, Colo., last week on his way from London, Eng., to the Klondike. He is one of the representatives of the Yukon-Klondike Gold Company.

Mr. J. Sloat Fassett of New York, is in San Francisco on his way to Korea, with men and machinery to work mining properties conceded by the Korean Government. Mr. L. S. J. Hunt also interested in mines in Korea, accompanies him.

Mr. L. T. Upton, superintendent of the Bessemer department of the Duquesne Steel Works, has resigned his position to take effect as soon as his successor is appointed. Mr. Upton has been in the service of the Carnegie Steel Company for 23 years.

Mr. E. A. S. Clarke, who has been appointed general manager of the Illinois Steel Company with headquarters in Chicago, has been in the employ of the company for 15 years past, most of the time as superintendent of the works at South Chicago.

Mr. E. Van Etten, general superintendent of the New York Central Railroad, who is interested in the Randsburg Railroad in Kern County, Cal., is in San Francisco, acompanied by I. W. Boothby of New York and A. A. Howlett of Syracuse, N. Y.

Mr. Guy R. Johnson, who has been general manager of the Embreeville Iron Company, Limited, of Embreeville, Tenn., has been appointed superintendent of the two furnaces which the Ohio Steel Company is now building at Youngstown, O.

Mr. Ernst Weiner, American representative of Mr. Arthur Koppel, manufacturer of mining and railway machinery and supplies, has recently returned to New York from the home office in Berlin, Germany, where he has been on a professional visit for the past 2 months.

Mr. R. H. Stretch is at present in Skaguay, Alaska. He informs us that the first excursion over the Yukon & White Pass Railroad to the summit of White Pass was set for February 19th, and that the road will be completed to Lake Bennett by the time the ice is out of the Lake.

Mr. John J. Vandemoer, the Denver representative of the "Engineering and Mining Journal," who is favorably known in many a Colorado mining camp, having spent about 20 years in the different districts, is at present in New York. He has secured an option on a dividend paying gold mine in the richest portion of the Cripple Creek District, which he will try and place on a business basis.

OBITUARY.

Reuben F. Richards, head of the firm of Richards & Company, metal dealers, in Boston, Mass., died suddenly of blood poisoning in New York on February 26th. He was 35 years old and represented the fourth generation that had conducted the business under the same firm name.

Mr. John Kreusi, chief mechanical engineer of the General Electric Company, died at Schenectady, N. Y., on February 22d, at the age of 56 years. He was born in Switzerland and came to this country in 1870, entering the employ of Thomas A. Edison, at Menlo Park, N. J. Mr. Kreusi was the inventor and perfector of the underground tubing system now in general use.

David J. Telfair, who is reported dead in Atlanta, Ga., February 27th, was known in Georgia and Western New York by some extraordinary stories told to mining men and others. He claimed to have invented a machine, which he called the "epilepsoro," by which he could extract the precious metals from the ground without mining, by a sort of electrolysis. He told wonderful tales of the sale of his machines to Barney Barnato and Cecil Rhodes in South Africa, and of the organization of a company with $100,000,000 capital to build machines for use in Georgia, China and elsewhere. He claimed to have capital contributed by the Vanderbilts, Senator Brice and other well-known capitalists. His stories were so wild and extravagant that few people believed them, in spite of an occasional boom from the newspapers, and he seems to have died in great poverty. Nothing is known of his early life, but he was said to be about 50 years old.

SOCIETIES AND TECHNICAL SCHOOLS.

Society of Chemical Industry—New York Section.—At the regular monthly meeting on February 24th, the attendance was unusually large. The following papers were read, the last one by title:

"The Development of Colors on the Fibre," by Dr. H. Schweitzer; "The Occurrence of Acetic Aldehyde in Petroleum Products," by C. J. Robinson; "White Lead Processes and Products," by J O. Handy.

Chairman Parker spoke of the approaching fifth anniversary of the section. It is proposed to give an entertainment in celebration of the anniversary on May 2nd. As New York city looks its best in May, it is hoped that the attendance of out-of-town members and chemists will be large.

Montana Society of Engineers.—At the meeting in Helena on February 11th, William H. Harrison, Carlisle Mason, John D. McLeod, Charles H. Repath and Charles D. Vail were elected members. A committee, consisting of Messrs. E. H. Wilson, A. S. Hovey and C. W. Goodale, appointed at the twelfth annual meeting to report upon the feasibility of changing the headquarters of the society, and also of holding a part of the meetings in Butte and other places during the present year, submitted its report recommending that special meetings of the society be held in Butte on the second Saturday of March and the second Sunday of every second month thereafter during the present year. The report was adopted. A question arising as to what business could be transacted at these special meetings, resolutions were adopted that at these special meetings any business of the society should be transacted or papers read and discussed, as at any regular meeting.

Engineers' Club of Philadelphia.—At the meeting on February 18th, 42 members and visitors were present. Mr. J. W. Ledoux presented a paper describing a sand filter plant, having a nominal capacity of 1,500,000 gals. per day, constructed for the Berwynd Water Company at the Pickering Creek pumping station. The water has been filtered through mechanical filters of the Warren gravity type, having a nominal capacity of 750,000 gals. per day; and while the result from the mechanical filters was perfectly satisfactory the sand filter was built to provide for future needs, and to have the two best recognized systems of filtration for constant comparison. The details of the construction and operation of the sand filter plant were described, and the actual cost of the construction was given in detail. At the conclusion of the paper, the subject of sand filters was discussed by Messrs. John C. Trautwine, Jr., P. J. A. Maignen, Henry Leffmann, Francis Schumann, E. M. Nichols, James Christie and the author. Upon motion of Mr. Nichols, it was resolved that the Information Committee be requested to make the annual report of the Chief of the Philadelphia Bureau of Water for the year 1898 the subject of a topical discussion, to be held at a meeting of the club in the near future.

American Chemical Society — Northeastern Section.—At the meeting in Boston on February 17th, about 50 members were present. President A. Noyes presided. He introduced Mr. Clifford Richardson, who presented an address on "Asphalt." The interesting asphalt lake on the Island of Trinidad, whence comes the greater part of the asphalt of our pavements, was described as the crater of an extinct mud volcano of about 150 acres area. This is filled with a solid emulsion of bitumen, mineral and organic matter and water, and boring of 135 ft. found no bottom. In spite of the fact that millions of tons of asphalt have been removed, the supply has been inappreciably dimnished, owing to the continued exudation of this mineral pitch from the depths of the earth. The chemical composition of the bitumen was also considered, as well as the technical uses and methods of application. Several other brief papers were presented.

Professor H. P. Talbot, of the Institute of Technology, presented a review of the new chemical work, "Traite d'Analyse," by Carnot.

Professor Kinnicut, of Worcester Polytechnic Institute, exhibited a new form of compound blowpipe for use with air-blast or oxygen in glass-blowing or analytical work. He also brought before the section the neat little device arranged by Dr. Fitz, of Harvard College, by which an untrained person can easily determine with considerable accuracy, the extent of the pollution of the atmosphere by carbonic acid.

Mr. A. D. Little, of Boston, showed two different kinds of artificial silk, one made from nitrocellulose and the other from ordinary glue treated with formaldehyde. These silks are made by forcing the material through fine openings in steel plates into solutions which immediately harden the fine threads, the perforated plates thus taking the place of the spinnerts of the silk worm. Both samples were of very good strength and possessed a remarkable gloss. Mr. Little also exhibited a number of colored photographs printed or dyed on cotton cloth. The cloth, properly sensitized with bichromate of potash, was exposed under negatives in the usual way, and the reducing effect of the light altered the bichromate so that subsequent dyeing of the goods resulted in the development of the photographs in the colors of the dyes used.

INDUSTRIAL NOTES.

The Carnegie Steel Company is to duplicate its present splice bar mill at the Duquesne Steel Works.

The Ætna-Standard Iron and Steel Company, Bridgeport, O., recently made a small shipment of mine rails to Japan.

Shipments of refined petroleum from the Corsicana, Tex., oil field have begun. The Waters-Pierce Oil Company recently sent out 4 cars of oil.

It is stated that the Federal Steel Company has purchased the steel plant of the Jackson & Woodin Manufacturing Company, near Berwick, Pa., for $1,300,000.

The Harbison-Walker Company of Clearfield, Pa., states that its daily capacity is 175,000 fire and silica brick, which are manufactured in 7 different buildings.

The firm of Taylor & Company, Pittsburg, Pa., is to erect a 1,200 ft. trestle, ore and fuel bins, etc., for Pickands, Mather & Company, at the Julia Furnace, Sharon, Pa.

The Crawfordsville, Ind., iron and rail mill, now owned by the American Steel and Wire Company, is to be dismantled and the machinery removed to Anderson, Ind.

The Wells Light Manufacturing Company, of New York City, has recently shipped 20 of its outfits to points in Alaska and the Klondike District for thawing frozen ground.

The Birmingham Machine and Foundry Company has been awarded the contract for a tandem compound Corliss engine of 1,500 H. P., for the new steel wire and rod mill, at Ensley, Ala.

The Riter & Conley Manufacturing Company of Pittsburg, Pa., has been awarded the contract for a new steel building, 100 by 45 ft., at the works of the American Steel Company, at Sharon, Pa.

The Briquette Coal Company has been organized in Chicago and has put up a small plant there for the purpose of making briquettes of coal dust by a method patented by Gardner Corning, of Chicago.

The Reading Iron Company, Reading, Pa., has made a voluntary advance in wages of all its employees, dating from March 1st. The advances will apply to all departments of the company, and will affect between 3,000 and 4,000 employees.

The Walburn-Swenson Company, of Chicago, Ill., has recently booked a large number of orders for evaporating machinery. It reports an excellent foreign inquiry for its multiple effect evaporators, and anticipates a large export trade this year.

The Norton Emery Wheel Company, of Worcester, Mass., has completed important additions to its large plant at Greendale, near Worcester, consisting of a 3-story and basement brick building, to be used for office purposes, shipping rooms and stock rooms.

At the Lorain Steel Company's new furnace plant at Lorain, O., the work of erecting the hoisting apparatus to carry the ore from the stock pits to the top of the furnaces is well under way. The hot blast stoves for the furnaces are practically completed.

The National Tube Works Company, of McKeesport, Pa., and the American Tube and Iron Company, have received a large order from the Indiana Natural Gas Company. It calls for 150 miles of 10-in. pipe. The order is equally divided between the two companies.

The stockholders of the Lackawanna Iron and Steel Company of Scranton, Pa., have elected the following directors: Samuel Sloan, Walter Scranton, W. E. Dodge, D. C. Blair, Moses Taylor Pyne, Henry Wehrum, S. S. Palmer, Austin B. Blair and Arthur Scranton.

The Pennsylvania Salt Manufacturing Company of Philadelphia, which several months ago purchased 100 acres on the river front, just below Wyandotte, Mich., is reported to have closed a deal for 32 acres more, and will put up a $3,000,000 chemical factory, employing 2,500 men.

The Anatron Chemical Company, of West Virginia, of which Franklin H. Kalbfleisch is president; James W. Eaton, treasurer, and P. S. Tilden, secretary, has its new buildings at Elizabeth, N. J., nearly finished. The buildings of this company cover about 1¼ acres of ground.

The M. C. Bullock Manufacturing Company, of Chicago, states that it has received orders during the past month for central valve engines from Colorado, for diamond drills from Canada and Pennsylvania, for Champion mine ventiliators from Japan and Canada, and some special machines to be built for local concerns.

The Erie Railroad has placed an order with the Brooks Locomotive Works, of Dunkirk, N. Y., for 10 consolidation engines, which will weigh 160,000 lbs. with 142,000 lbs. on the drivers and will have 21 in. by 28 in. cylinders, 68 in. wagon-top boilers and 57 in. driving wheels with cast steel center.

The Pennsylvania Natural Gas Company held its annual meeting March 1st. These directors were re-elected: William H. Hurley, Henry Lewis, John Morgan, Erskine Smith, E. C. Markley, Aaron Fries and William H. Hurley, Jr., all of Philadelphia, and W. H. Longwell, of Oil City.

The Manufacturing Investment Company, which operates 2 sulphite mills in Wisconsin, 1 in Appleton, has gone into the hands of a receiver. The property is valued at $1,000,000 and $1,200,000. In addition to the Appleton and Madison mills the company owns a water power in Maine.

The Curtis & Company Manufacturing Company, St. Louis, Mo., reports a very good demand for air compressors and hoists. It has recently installed air compressors in the shops of the Union Electric Company, Cleveland, O.; Stow Manufacturing Company, Binghampton, N. Y.; Davis Brothers Manufacturing Company, Milwaukee, Wis.; D. M. Dillon Boiler Works, Fitchburg, Mass., and Missouri Car and Foundry Company, Madison, Ill.

At the annual meeting of the stockholders of the Franklin Steel Casting Company, Franklin, Pa., officers were elected as follows: Charles W. Mackey, president; Charles Miller, first vice-president; James W. Rowland, second vice-president; W. J. Bleakley, treasurer; Robert McCalmont, secretary, and W. B. Corinth, general manager. The company has a large number of orders on hand, among them one for rolls for shipment to Russia. A quarterly dividend of 1½% was declared.

Rogers, Brown & Company, pig iron dealers, with offices in Cincinnati, Chicago, St. Louis, Cleveland, New York, Philadelphia, Buffalo, Pittsburg, and Boston, have issued a statement showing that they sold 1,001,356 tons of pig last year. The export business in pig iron amounted to 78,460 tons, sold to more than 500 foundries and rolling mills. As compared with 1897 this firm increased its sales of pig iron by 29%, and its sales of coke by 60%. The New York offices of the firm are now in the Empire Building.

A combination of the salt producers in New York, Ohio and Michigan, is reported to be under way. Several plants in the Warsaw, N. Y., field are reported under option. One of the prominent concerns in the combination is reported to be the United Salt Company of Cleveland, O., and Standard Oil interest are said to be back of the new consolidation. The authorized capital stock of the company, it is said, will be $10,000,000, of which $4,000,000 will be non cumulative preferred stock and $6,000,000 will be common stock.

The Ruud Manufacturing Company of Pittsburg, Pa., has been incorporated under the State laws of New Jersey, with a capital stock of $100,000. The Ruud Company manufactures the Ruud instantaneous automatic water heaters and the Ruud automatic water distillers, and controls the full Ruud patents on these devices for the United States. It proposes also to manufacture the inventions of Edwin Ruud, a mechanical engineer of Pittsburg. The company recently enlarged its factory and now employs an additional force of workmen.

The Westinghouse Machine Company, of Pittsburg, Pa., received during January orders for export as follows. One 5 H. P. engine for the City of Mexico; two 15 H. P. engines for Stockholm, Sweden; one 35 H. P. engine for Iquique, Chile; one 35 H. P. engine, with generator, for Valparaiso, Chile; one 35 H. P. engine for Hamburg, Germany; three 160 H. P. engines, with generators, for Paris, France; two 160 H. P. and one 300 H. P. engines, with generators, for England, and one 400 H. P. engine, with generators, for Havana, Cuba.

The Grant Machine Tool Works, Cleveland, O., have appointed Markt & Company of New York City, sole agents for the Continent, with offices in Paris, Hamburg and St. Petersburg; and Chas. Churchill, Limited, of London, sole agents for the United Kingdom. The firm makes milling machines, semi-radial drills, hand lathes, engine lathes, special cylinder ring lathes, and improved countershafts containing 7 parts only. John J. Grant, formerly mechanical expert of the Cleveland Machine Screw Company, is mechanical engineer for the company.

The Keystone Bridge Works department of the Carnegie Company, is to supply the steel superstructure for 3 river bridges for the San Francisco & San Joaquin Valley Railway, road west of Stockton, Cal. The Carnegie Company is also supplying the rails for the new section of this road. One of the bridges will cross the San Joaquin River proper and will have a draw span of 233 ft. Another will be over the middle river and will have a draw span of 202 ft., and one approaching span of 60 ft. The third will cross the old river with a draw span 202 ft. in length and one approach 45 ft. long.

The Pressed Steel Car Company of Pittsburg, Pa., has received an order from the Lake Superior & Ishpeming Railroad Company for 100 steel hopper cars with a capacity of 100,000 lbs. of iron ore each. The cars will be used in hauling ore from mines about Ishpeming to the dock at Marquette, Mich. The order is the second received from that company. The smallest steel cars built by the Pressed Steel Car Company are in use in the yards of the Eliza furnaces of Laughlin & Company, Limited, at Pittsburg. They weigh only 10,000 lbs., are not over 22 ft. long, and have a capacity of 28,000 lbs.

The American Soda Company was incorporated at Trenton, N. J., on March 1st, with an authorized capital stock of $1,000,000, divided into $250,000 preferred and $750,000 common stock. The preferred stock is to pay 8% cumulative dividends. The company is authorized to manufacture and deal in bicarbonate of soda, salsoda, caustic soda, alkalies, and all the products deductible from salt. Also to mine salt and refine the same, and to use all such products in commercial combinations. The incorporators are James S. Warden, Lewis E. Carr, Louis C. Ilfield and Francis N. Whitney, New York, and Edward A. MacClean, Glen Ridge, N. J.

It is stated that the Pressed Steel Car Company of Pittsburg, Pa., is to build its new works at McKee's Rocks, near Pittsburg, on the Ohio River. About 3,000 men will be employed. The building will cost $250,000, and orders have been placed for $700,000 worth of machine tools. The contracts for these tools have been placed. The Shaw Electric Crane Company has a contract for sixteen 15,000 lb. electric cranes. The Cahall Boiler Company will furnish 5 batteries of boilers with an aggregate capacity of 1,400 H. P. The company will get its steel from the Carnegie Company, and the works will have a capacity of 40 cars daily.

The Lanyon Zinc Company has filed articles of incorporation with the Essex County Clerk at Newark, N. J. The capital stock is $3,000,000, divided into 30,000 shares, of which 10,000 are common stock and 20,000 preferred. The preferred stock is guaranteed 8%. The company proposes to engage in all kinds of mining, smelting and refining, and "the construction of works of any description." The incorporators of record are Benjamin Haskill, of Bloomfield, N. J.; Martin N. Littlejohn, of Brooklyn, and L. B. Grant, of Manhattan. The purchase of the Lanyon zinc smelters in the Kansas natural gas and coal belt by a syndicate containing among other parties the Palmer Oil Company, of Cleveland, O., was noted in our mining news columns last week.

The John Muirhead Company, of Pittston, Pa., informs us that it has been appointed sole agent for Pennsylvania by the M. C. Bullock Manufacturing Company, of Chicago, for the sale of its diamond prospecting core drills and supplies. The John Muirhead Company also states that it takes all kinds of diamond drill work on contract, having from 10 to 16 drill outfits in operation, and that its contract work since 1869 has amounted to 306,000 ft. of drilling, or nearly 56 miles, of which 56,000 ft. was for one company in Pennsylvania. The firm also contracts for churn drill work, as in prospecting for oil, gas or artesian water supply, for running bore holes to underground workings, either for electrical cables or for running down to fill old coal mine workings. This company makes a specialty of casing bore-holes and states that it can put down diamond drill holes up to 4 in. diameter and churn drill holes from 4 in. to 24 in. diameter.

The Cleveland "Iron Trade Review" says: "With the taking over of the plants of the Ohio Steel Company and the Union Iron and Steel Company, at Youngstown, by the National Steel Company, and the probability that four blast furnaces will be built at Youngstown instead of two, the furnaces in the two valleys have again taken up the question of building a steel plant. The project has not assumed tangible shape by any means, but is being discussed, and it is not improbable that some of the best equipped blast furnaces in the Valleys will go together and build a steel plant, with an output of not less than 2,000 tons per day. The need of another Valley steel plant is recognized, and with the ore and coke properties owned by some of the furnaces, it is believed a plant could be erected that could compete with the National Steel Company and be a profitable investment."

The Edward P. Allis Company, Milwaukee, Wis., through J. Weidman Murray, manager of its Pittsburg office, has closed several large contracts with Laughlin & Company, Limited, Pittsburg. One is for 4 large cross compound condensing blowing engines of the "Steeple" type. Each machine has two 84-in. by 60-in. stroke air cylinders, one 42-in. high and one 80-in. low pressure steam cylinder, each 60-in. stroke. The air cylinders are fitted with Reynold's delivery and Kennedy's induction air valves, so that the clearance in the air cylinder is reduced to three-quarters of 1% of the piston displacement. The steam cylinders are fitted with Reynolds-Corliss gear. The main shaft is 24-in. diameter, on which is carried a 24-ft. fly wheel, weighing 100,000 lbs. The shipping weight of these machines is 800,000 lbs. each. This makes a total of 6 like machines the Allis Company has under contract with Laughlin & Company, and it is building 7 others of similar type for other firms.

The National Steel Company has perfected its organization by electing the following officers at a recent meeting in Chicago: President, W. E. Reis; vice-presidents, Henry Wick, R. M. Gilbert; secretary and auditor, William S. Baldwin; treasurer, F. S. Wheeler; directors, W. E. Reis, New Castle, Pa.; Henry Wick and Myron Wick, Youngstown, O.; R. M. Gilbert, Columbus, O.; A. M. Carter, Bellaire, O.; James McLain and James D. Hill, New York; D. G. Reid, Warner Arms, W. B. Leeds, W. T. Graham, W. H. Moore, J. H. Moore and F. S. Wheeler, Chicago; John Topping, Wheeling, W. Va.; Executive Committee, W. E. Reis, W. H. Moore, R. N. Gilbert, Henry Wick, D. C. Reid, W. R. Leeds, F. S. Wheeler. The company has an authorized capital stock of $59,000,000. The companies absorbed are the following: Ohio Steel Company, Youngstown, O.; Shenango Valley Steel Company, New Castle, Pa.; Bellaire Steel Company, Bellaire, O.; Aetna-Standard Steel and Iron Company, Bridgeport, O.; King, Gilbert & Warner, Columbus, O.; Buhl Steel and Sharon Iron Companies, Sharon, Pa.; Union Iron and Steel Company, Youngstown, O. The capacity of the company in tin plate bars, sheet bars and steel billets is about 1,800,000 tons annually, and the blast furnace capacity is stated to be 1,600,000 tons annually. There are mining interests carried with the combination in the Gogebic, Vermilion, Marquette, Mesabi and Menominee Ranges about Lake Superior.

TRADE CATALOGUES.

The Skillin & Richards Manufacturing Company of Chicago is now circulating a neatly gotten up 200 page catalogue of the various articles the firm sells. Among its specialties are power insulating appliances, elevating and conveying machinery, gas and gasoline engines, etc.

Henion & Hubbell of Chicago are mailing to their friends an attractive catalogue in which every article of their business in the way of pumping machinery, steam, mill and mining supplies is illustrated and described. This company is agent for a number of steam pump concerns, etc., and is well located to reach the many mining fields west of the Mississippi.

Keene's Compound Vertical Safety Boiler, for which claims of safety, economy, good circulation, accessibility and small floor space are made, is described in a 16-page pamphlet issued by George J. Rockwell, of Chicago. The merits of the invention are set forth in detail, while its construction is plainly shown by several diagrams. The pamphlet is worth reading by all parties interested in the economical production of steam.

The Robins Conveying Belt Company, of New York City, published advance sheets from its 1899 catalogue for distribution at the New York meeting of the American Institute of Mining Engineers, making a very attractive 15-page pamphlet. Numerous half-tone cuts show how the conveyor looks in use at mines, quarries, &c., and what are its points of merit. The device seems to have made a well defined place for itself as an economical handler of large amounts of rough or heavy material.

The Scully Steel and Iron Company of Chicago publishes a very attractive 88-page catalogue of air compressors and pneumatic tools. The air compressors shown are compactly built with single acting or compound air ends, and may be driven by a belt or by a steam or gasoline engine. The compressor driven by a gasoline engine is so built that it can be readily transported with its engine on a truck. Some of the pneumatic tools described are the "old" and "new" Boyer pneumatic hammer for driving all kinds of rivets; the Boyer riveter for quicker work; the Boyer pneumatic stone hammer, and the Boyer and the Whitelaw drills.

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, and shall be pleased to furnish them information concerning goods of any kind and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

Coal Miners' Strike in Arkansas and Indian Territory.—A dispatch from Fort Smith, Ark., under date of March 1st, says: "The long threatened general strike of miners in Arkansas and the Indian Territory took place this morning. Every mine in the Territory and western part of the State is shut down. Between 8,000 and 10,000 men are out. The strikers demand an advance in wages both for miners, from 47½c. to 56c., and for mine laborers, from 10c. to 25c. per day. They also demand pay every two weeks, and that all coal shall be weighed before being screened. The operators say that they cannot comply with the demands, as they would lose money.

"Advices from Texas indicate that the miners of that State will make common cause with those of Arkansas and the Indian Territory. The stock of coal on hand has been pretty well exhausted as a result of the unprecedented cold weather during January and February, and a coal famine is feared."

ALABAMA.

Smith Mining Company.—The Tennessee Coal, Iron and Railroad Company has purchased this company's mines at Hillman, Ishkooda, Fossill and Smythe. The price paid is said to have been $38,000, with all debts and liabilities. The Smith Mining Company held a contract with the Tennessee Company to supply it with ore. The Tennessee Company has bought these contracts, and with its own ore mines, will be able to reduce the cost of pig iron.

ALASKA.

Douglas Island.

Alaska-Mexican.—The annual meetings of this and the Alaska-United Mining companies were held in San Francisco February 21st, when the old directors, which are nearly the same in both companies, were re-elected as follows: Alaska Mexican—William Alvord, president; J. D. Fry, E. W. Hopkins, R. D. Fry and Captain Thomas Mein; Alaska-United—William Alvord, president; J. D. Fry, E. W. Hopkins, Captain Thomas Mein and Robert M. Mein. A. T. Corbus was re-elected secretary and treasurer of both companies. J. P. Corbus, assistant superintendent. The Bank of California acts as banker for both corporations.

ARIZONA.

Yuma County.

(From Our Special Correspondent.)

Sheep Trail.—It is reported that these quartz gold mines, 6 miles east of the Colorado River, have been sold to Eastern parties at a fair price by G. W. Grayson of San Francisco, Cal. This group was discovered some 3 years ago, its owners shipping small quantities of selected ore yielding up to $400 per ton. Mr. Grayson purchased the proposition, about one year ago, and constructed a 10-stamp mill on the left bank of the Colorado. The group lies some 3 miles northwest of Union Pass, through which the old Prescott wagon road runs.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Pocahontas.—This mine at Drytown has made its first shipment of bullion and sulphurets, the result of a 20-day run with the 10-stamp mill. Development work still goes on, and the west ledge will probably be cut on the 700 level very soon.

Mariposa County.

(From Our Special Correspondent.)

Mountain King.—This mine on the north bank of the Merced River, 14 miles north of Mariposa, owned by Eggenhoff & Merritt, is being developed with fine prospects. There are 2 veins of high grade ore, and a tunnel run from the river will cut them about 1,500 ft. below the surface.

Placer County.

(From Our Special Correspondent.)

Big Dipper Mining Company.—This company has a large force of men at work repairing the damage done to the property by the breaking of the reservoir above the mine. The mill will be running early in March.

Dutch Flat Blue Lead Mining Company.—This company has been incorporated with a capital of $100,000 to work a claim near Dutch Flat. The directors are A. J. Bruner, M. J. Curtis, G. K. Rider, W. Lampert, D. W. Carmichael, J. A. Bruner, G. S. Brand and E. Bruner.

Shasta County.

(From Our Special Correspondent.)

Dorland & Smith.—This firm is reported to have made an important discovery on Mosquito Creek, near Delta. The vein is said to be 15 ft. wide, carrying $40 rock. Prospecting has begun.

Mount Shasta.—At this property in the Clear Creek District, near Shasta, 40 men are employed under the superintendency of W. G. Scott. The shaft is down about 250 ft. and stoping is going on in the several drifts. The ore, which is high grade, is being shipped to Keswick at the rate of 10 tons per day. Several buildings are in course of erection.

Sierra County.

(From Our Special Correspondent.)

Alaska.—This property, ¼ mile northeast of Pike City, comprising 4 claims, is to be worked under a new management. The mine will be drained and work commenced through the old shaft. Arizona parties are said to have control.

Tuolumne County.

(From Our Special Correspondent.)

Blue Lead.—This quartz mine, about 1½ miles east of Soulsbyville, has been bonded to William Crites and others of San Jose, who will equip and develop the property.

Buchanan.—Sinking still goes on at this mine, 12 miles southeast of Sonora. The connection with the vein, about 200 ft. below the old workings, will be made in about 60 days.

Dreisam.—The main shaft at this mine, near Arrastraville, is down over 230 ft., and sinking still continues with three shifts of men. At the 100 ft. a drift has been run 600 ft. to the north, and at the 200 drifts have been run both north and south about 150 ft. The ore developed is fair grade. Thirty men are employed and the new 16-drill air compressor will start up soon.

Hope.—One hundred tons of ore from this mine on the Bonanza lead, ½ mile east of Sonora, are to be run through the Mason mill. Development work in the mine has not begun yet, but a full force of men will be put at work within 30 days.

Sierra Pacific Railway.—This railroad which connects the Southern Pacific Railway with the Mother Lode at Jamestown, has been extended to Sonora, and the management has announced that work will begin at once on another extension to Angel's Camp, a distance of 14 miles. The road has been well patronized, and is considered a paying proposition.

Spring Gulch.—This mine, between Big Canon and the North Fork of the Tuolumne River, about 2½ miles southeast of Carters, has been bonded to F. H. Baker & Company, who have a froce of men at work freeing the old workings from water. The old shaft, said to be down 400 ft., and the old drifts will be cleaned out and re-timbered.

COLORADO.

Clear Creek County.

(From Our Special Correspondent.)

Centennial.—In driving the lower level to the east at a depth of 400 ft., a streak of high grade gold ore has been found. The first shipment is claimed to have reached $1,500 in gold to the ton. It is located at Georgetown in the heart of the silver belt. Some other gold strikes have just been made in the same locality, while at Silver Plume Roberts Brothers have made a find of mineral that is believed to be tellurium.

Mammoth Tunnel.—The Black Lode is the find reported last week. It is 18 ft. wide, showing both milling and smelting ore. The latter is worth $70 per ton. Missouri people are the principal owners.

Lake County.

(From Our Special Correspondent.)

Snow Storms and Ore Production.—Leadville has been visited by another heavy snow that lasted 2 days and closed many roads that had been opened. There has been this winter more snow than we have ever had before. The Ibex, the Resurrection and a number of other big properties are still blockaded. Around Mosquito Pass, Weston Pass, Kokomo, Robinson, Twin Lake, Red Mountain and other remote sections work has ceased entirely, and it will take weeks yet to open up the roads and resume work. While the railroads are the heaviest sufferers, the mining men are also out a large amount of money.

Ballard.—The new owners are not shipping from this new Breece Hill property, but are pushing work on the new shaft.

Greenback.—The new hoisting plant made by the Ottumwa Iron Works has just arrived, and will be put in at once. While the management expects to reach the ore at 1,250 ft., it is the intention to go down 1,500 ft. The work is in charge of Mr. P. Mulrooney, who, with Mr. T. S. Wood, Mr. Peters and others, own the ground.

Mike & Starr.—This property has resumed after a long idleness and is being worked by John McAllister. He has with him Mr. Morley, of the Buena Vista smelter, and others. Iron shipments have been resumed, and prospecting is being pushed.

Manganese Ore.—On February 23d, Geo. W. Cook closed an additional contract for manganese ore with the Illinois Steel Works, calling for the delivery of 30,000 tons more before the close of this year. This means that the production of manganese for this year will be three times as large as last year, or about 60,000 tons. It goes to Chicago and to the Colorado Fuel and Iron Company at Pueblo, and comes from the Catalpa-Crescent and the Garden City, the former operated by lessees under the direction of Jos. F. Horner, and the latter operated by Mr. Cook. About 200 tons daily will be shipped from now on. The stuff must run at least 30 per cent. manganese.

Willard.—This property, on the west side of Red Mountain, has been bonded to Colorado

Springs parties for $210,000. There are 100 acres included in the bond and lease.

El Paso County—Cripple Creek.

(From Our Special Correspondent.)

Gold King Mining Company.—At the annual meeting the old board of directors was re-elected, as follows: A. E. Colburn, C. H. Dudley, Wm. Lennox, John Lennox and W. S. Jackson. At a meeting of the directors later E. A. Colburn was elected president; John Lennox, vice-president; C. H. Dudley, secretary and treasurer, and Wm. Lennox general manager. The reports of the officers cover the time from the organization of the company, in 1892, to January 1st, 1899. The president's report shows that the shaft has been sunk to 600 ft. and 6 levels have been run. In these levels about 7,400 ft. of drifting and crosscutting has been done. The ore shoot on first level is 250 ft. long, and the average width is about 5 ft. Second level, 220 ft. long; average width, 7 ft. Third level, 130 ft. long; average width, 9 ft. Fourth level, 160 ft. long; average width, 9 ft. Fifth level, 400 ft. long; average width, 8 ft. The sixth level has only been driven about 25 ft. from the shaft. In the first level most of the ore has been stoped nearly to the surface. In the second level it has been stoped to the height of about 50 ft. above the sill. In the third to about 40 ft., and in the fourth and fifth to about 25 ft. each. The company owns 8 patented claim, comprising in all about 40 acres. The principal development work has been on the El Paso claim. The treasurer's report shows the expenditures of the mine during the last 2 years to be as follows: 1897—Ore receipts, $73,132; expenditures, $68,570; profit, $4,562. 1898—Ore receipts, $158,450; expenditures, $88,424; profit, $70,026. Net profit, $132,109 to date. Cash on hand December 31st, 1898, $48,961.

Hoosier.—Lessee Anstie has encountered some good ore in the main workings. A report some time ago stated that a strike had been made, but it could not be verified. There seems to be no doubt that ore has been found, though how much is not known. The property is on Tenderfoot Hill, some distance from where any ore has been shipped before, and developments are being watched with interest.

Isabella Gold Mining Company.—Matters at the mine seem to be going on much as usual, though reports of various descriptions continue to be circulated. A heavier hoisting plant is to be erected at the Lee shaft.

Nugget Gold Mining Company.—There now seems but little doubt that the Jack Pot vein passes through this company's property. There is also talk that the Jack Pot is now taking out ore that belongs to the Elizabeth Cooper claim of this company on account of having apex rights on the vein; but it is rather too early yet to tell whether this is so or not. Several leases are worked, but they have not yet cut the ore.

Gilpin County.

(From Our Special Correspondent.)

The roads are about open again, and both the quartz teams and the Gilpin Tramway Company have been handling a larger tonnage than usual. February's output has been seriously cut down by storms, but part of the deficiency may be made up during March.

Annie Mary.—McKay & Company are leasing this property, near Central City, and are taking out smelting ore running from $75 to over $200 per ton. A new plant of machinery is to be put up.

Cook.—This mine is being operated by Boston capitalists under management of C. K. Colvin. Daily shipments average over 100 tons, largely of mill ore, although the smelting ore is increasing of late. The management reports that the ore in the lower levels is carrying increased values. Large bodies are being opened, and there are plenty of reserves. The working force is about 90 men.

Justice.—This mine is being worked by A. Cole, of Chicago. Developments have opened up a nice body of ore, from which shipments of smelting ore run over $60 per ton, the mill ore netting 4 oz. gold per ton.

New York Mill.— An electric lighting dynamo of 60 lights is being put in the mill at Central City.

Pittsburg-Meeker.—Cleveland, O., parties are working this mine. Tributers are shipping smelting ore running nearly 10 oz. gold per ton and the mill ore cleans up about 4 oz. gold per cord. W. Blake is manager.

Prompt Pay.—Aspen parties who recently took hold of this property have let a contract to sink 100 ft. at once. E. W. Davis, of Central City, is agent.

IDAHO.

Shoshone County.

Idaho Mill.—Ten stamps of this 20-stamp mill, at Murray, are now dropping.

Morning Mining Company.—A large stream of water was cut recently in No. 4 tunnel, near Mullan. Work has been resumed on the You Like lead. The crosscut in the main lead of the Morning is completed. It shows the vein 20 ft. wide throughout.

Springfield.—On this Stevens Peak property, near Burke, recently incorporated, contract has been let to drive a tunnel 200 ft.

MINNESOTA.

(From Our Special Correspondent.)

The Duluth & Iron Range road is in the market for 400 ore cars of the largest size and most solid construction. The Duluth, Missabe & Northern has ordered 200 ore cars from the Terre Haute Car Company, and the Great Northern, which now controls the ore business of the Duluth, Superior & Western, is about to order 1,000 cars and 50 locomotives, a part of which will be for the ore traffic. The Great Northern this year will handle little less than 1,000,000 tons, of which about 800,000 will be from the Mahoning Mine, and over 100,000 from the Penobscot. When its new dock is completed, the Duluth, Missabe & Northern road will have 2 docks larger than any in the world, each being 2,400 ft. long, with 384 pockets of the largest capacity and each capable of storing, with sufficient space left for handling, not less than 62,000 gross tons. The 2 docks will cost about $1,000,000.

Iron—Mesabi Range.

(From Our Special Correspondent.)

Auburn Iron Company.—At the big milling pit Superintendent Lawton will use a steam shovel, and make a novel experiment in pit work. The mine is worked on the milling process, which requires shafts, drifts under the ore, and raises into the ore body. The shovel will be lowered into the ore body. The shovel will be lowered into the milling pit, where it will load ore direct into the tramming cars, which will be trammed as now to the shafts and hoisted to surface.

Franklin Mining Company.—The pumps are working and men will be in the mine soon.

Fayal Iron Company.—Drake & Stratton, contractors, will resume stripping March 1st, with several hundred men, and will run a force of 500 for some months. The company has leased a property adjoining, in section 6 T. 57 R. 17, from the C. N. Nelson Lumber Company, and will mine this portion largely. The deal was made, in all but form, some time ago.

Genoa Iron Company.—About 150 men are at work, and it is stated that nearly as many more will be put on later. The mine is preparing for a very large output. Its product for the year has been almost all taken.

Hale and Cincinnati.—These properties have been leased at 10c. and 20c. a ton royalty, respectively, to G. A. St. Clair, who opened the Sparta, now in the hands of Pickhands, Mather & Company. Neither has any large quantity of ore, and that of the Hale is non-Bessemer, but good as a mixture. Mr. St. Clair will begin work in the spring. The fee to these mines has been relieved of the legal tangles inherited from the boom days of the Mesabi, and is now held by a number of Duluth men.

Pettit & Robinson Lands.—A lease has been given to G. C. Howe of Duluth, for 40 acres in the northwest quarter of section 25 T. 58 R. 17. If he finds ore, he will take a 20-years' lease at a royalty of from 17½c. to 25c. a ton. The property lies close to a portion of the Elba lands, owned by the Minnesota Iron Company.

Roberts Iron Company.—This mine is working 60 men, and will get out some 60,000 tons. It is reported that it has sold half its output in silicious ore to the American Steel & Wire Company.

Sparta Iron Company.—Two diamond drills are at work in the mine, to ascertain whether ore continues under a serious rock horse that comes into the open pit.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The week ending February 25th was unsatisfactory in many respects. The weather was changeable, and a cut of $6 per ton was made in the price of zinc ore, top grade jack selling at $42 per ton, as against $48 per ton last week. The operators regarded the cut as arbitrary, in view of the quotations for spelter, and refused to sell until the last of the week, while the ore buyers retaliated by buying as little as possible. As a result transactions were light. The Eagle at Belleville sold 33 tons at $42, and the Sam Moore Mining Company sold 25½ tons at $41 per ton, but outside of these two sales the price was $40 per ton and under. Lead opened and closed the week at $26 per 1,000, the same as last week. The big Matthiessen & Hegeler Zinc Company, of La Salle, was out of the market altogether, and it is rumored on excellent authority that the Lanyon Spelter Company, popularly believed to be the Standard Oil Company's zinc trust, has an option on the Mathiessen & Hegeler property, if it has not already closed a deal for it. Smelter men outside of the combine and heavy operators are alike suspicious of the new organization, and some of the big producers of zinc ore have raised a fund of $500, and sent A. O. Ihlseng to Europe to negotiate directly with the big metal manufacturers to handle the surplus ore of the district while the Missouri & Kansas Zinc Miners' Association, at a meeting of the directors on Friday, February 24th, raised a big fund to enable operators with small capital to hold their ore until the buyers would make a satisfactory price.

During the corresponding week last year, jack sold at $22 per ton, and lead at $23 per 1,000 and the shipments were greater than for the week just closed by 519,760 lbs. of zinc and 574,070 lbs. of lead, but the value was less by $55,757, zinc ore being $20 per ton higher this year. For the first 8 weeks of 1898, the zinc sales were less than for the same period this year by 4,075,130 lbs., but the lead sales were greater by 3,008,543 lbs., the value being less by $417,634. As compared with the previous week, the zinc sales show an increase of 1,562,770 lbs., but the lead shipments were less by 268,130 lbs., and notwithstanding the heavy increase in the zinc shipments, the value was only $1,875 above that of last week, owing to the big cut in the price of jack. Following are the sales of lead and zinc ore from the various camps in the Joplin District for the week ending February 25th:

	Zinc. Lbs.	Lead. Lbs.	Value.
Joplin	1,337,600	214,730	$32,335
Webb City	327,900	18,770	6,728
Carterville	1,006,680	205,430	24,468
Oronogo	820,910	12,140	15,611
Duenweg	130,000	.....	2,405
Galena-Empire	2,255,900	.....	44,415
Aurora	990,000	30,000	16,785
Stotts City	143,370	.....	2,867
Central City	694,100	6,680	13,360
Hell's Neck	27,030	.....	540
Alba	60,830	.....	1,232
Granby Newton Co.	406,000	5,000	7,438
Belleville	149,560	.....	3,066
Total for week	8,349,880	595,850	$171,250
Total for 8 weeks	69,079,600	6,577,360	$1,289,670

Kohinoor Ground.—The new 100-ton mill on the Detroit lease has started work.

Mining Deals.—Sales of mines and mineral lands have been reported during the week aggregating $344,500. Ex.-Gov. Wm. C. Renfrow of Oklahoma, made the biggest sale on February 24th which has been recorded this year when he disposed of 1,240 acres of his holdings in the Joplin district for $250,000 to the American Zinc, Lead & Smelting Company of Boston, Mass., a new company just organized to operate in the Joplin zinc fields. One thousand acres of this land is known as the Armil tract, and is undeveloped land, lying just outside of the city limits of Joplin. It sold for $75,000. Two hundred acres known as the Midway land, lies ½ mile east and a mile north of Joplin, and contains a large number of paying mines and several mills. The transfer simply covers the fee of the land, giving the new owners the royalty from the leases but not the control of the land until the leases expire. This tract brought $125,000. The third tract included in the sale was the Inter-Urban lease of 40 acres at Central City, 3 miles southwest of the city limits, and, like the Midway tract, this is also developed and paying. This tract brought $50,000. Governor Renfrow has acquired all these tracts within the last 2 years and according to the county records, made a profit of over $75,000 by the sale. Little or nothing is known here of the American Zinc, Lead & Smelting Company, but owing to the large number of valuable properties which have changed hands in the last few weeks, the suspicion has been aroused that a big Eastern syndicate has been formed to acquire control both of the smelting and mining interests of this section. The Missouri, Kansas & Texas Trust Company, through its attorney at Kansas City, not only purchased the P. E. mining property at Oronogo last week for $100,000, but has taken a lease of 30 of the most valuable lots on the Granby Company's ground at Oronogo, on which immense ore bodies have been proved up by the Granby Company, and is in the market for more property. None of the names of the parties who purchased the property in the recent deals have been given out for publication, and an air of profound mystery has pervaded all the transactions, even after the deals were all closed. Other sales made this week were that of the Missouri Central lease at Central City to unknown parties, at $30,000, the Kindergarten at Cave Springs for $45,000, the lease of 8 lots known as Staffleback lots on the land of the Galena Lead & Zinc Mining Company, for $12,000, the lease of a couple of lots on the Yale & Barbee land at Joplin for $1,000, the Gem and Quincy leases on the Moonshine land in the city limits of Joplin for $7,500, the Dew Drop Mine at Oronogo for $16,000, the fee of 60 acres of the Campbell land at Hell's Neck, sold to W. B. Kane, cashier of the First National Bank of Carterville for $12,000, an eighth interest each in the Opal and Wonder mines on the Beckwith-Hall lease at Carterville for $5,000, an eighth interest in the Dead Mule Mine on the Empire Zinc Company's ground at Joplin for $5,000 and an eighth interest in two partially developed

mines at Joplin, known as the Schley and Mascoutah for $1,500.

Roaring Springs.—The Scotch Company is building a 150-ton mill on this ground, and is sinking another shaft so as to have 2 shafts to hoist from when the mill is completed.

MONTANA.

A dispatch from Helena, dated February 28th, says that both branches of the Legislature passed over Governor Smith's veto the bill empowering the owners of ⅔ of the stock of a corporation to compel the holders of the rest of the stock to sell at an appraised valuation, or accept stock in another corporation for their holdings. The bill will enable the Montana copper companies to go into a trust if owners of ⅔ of the stock so wish.

Jefferson County.

(From Our Special Correspondent.)

Cleveland & Montana.—This company is working 10 men on the Sarsfield & Eureka claims, on the upper Little Boulder.

First Shot.—The lessees having completed the shaft to the required depth of 200 ft., have a fine streak of high grade ore in the bottom, from which regular shipments will be made as soon as stopes are opened.

Hope.—Manager Hewett, of the Basin Gold and Copper Company, has been instrumental in placing the property on option at $500,000 to Baltimore parties. The terms are a payment of $100,000 in 45 days, $250,000 in 60 days, and balance, $150,000, in 90 days. Cross-cutting from the 600-ft. level is now going on.

Katie.—Sinking has now reached 400 ft. The smelter is about ready, and the 500-ton concentrator is waiting for machinery now on the road from the East.

Silver Bill.—This Galena Gulch property is about to be bonded to Eastern parties at $40,000, running 2 years.

B. & G. Consolidated Mining Company.—The manageemnt will drive a crosscut tunnel from the Gulch to tap the lead at a depth of 500 ft. The tunnel will be about 1,300 ft. long. A power drill plant will be installed to do the work.

Bum.—The shaft is now 75 ft. deep, with 18 in. of good shipping ore in the bottom. The owners have been offered a bond of $20,000 on the property, but have refused it.

Liverpool.—The company owning this property has issued a call for a meeting to authorize the management to mortgage the property for $30,000 to carry on further exploration.

Pen Yan.—Regular shipments are made from this property of a car every 3 days. The ore goes to the East Helena smelter.

Madison County.

Madisonian.—At this mine, near Norris, a second pump has been installed, and the water is being lowered at the rate of about 4 ft. daily. R. B. Turner, of Butte, has charge of the work.

(From Our Special Correspondent.)

Broadway.—Mr. Merk, who is the present owner of this mine, has leased it to John Berkin and associates.

Conrey Placer.—The company working this property have purchased the dredge "Mollie Gibson," on Grasshopper Creek at Bannack. It is now being hauled in sections to Virginia City. This addition will give the Conrey people 3 dredges for the coming season.

German Bar Mining Company.—The A frame of one of the company's excavators, together with boiler, engine and other machinery, weighing over 100 tons, was blown over last week by the heavy wind, causing quite a loss.

Red Bluff.—Henry Elling has given a bond on this mine to G. D. B. Turner, who has gone to Montreal, Can., where he has placed it with Canadian capitalists. The shaft on the property is about 225 ft. deep, and is said to have 3 ft. of shipping ore.

Park County.

(From Our Special Correspondent.)

Daisy.—A snowslide did considerable damage to the works of this Cook City property last week.

Horr Coal Mines.—After 3 weeks of idleness the 225 miners who went on a strike have returned to work under a compromise with the management. The difficulty was not over wages, but arose from the discharge of 90 miners who were union men.

Trail Creek Railroad.—The contractors who have the grading of this roadbed have found it necessary to file a lien on the property for part of their money. The road is being built to open up the Trail Creek coal mines.

Silver Bow County.

(From Our Special Correspondent.)

Anaconda.—A connection was made on February 25th between the Never Sweat shaft and the Nipper claim at the 500-ft. level.

Butte & Boston.—At the East Gray Rock the station at the 1,600-ft. level has been completed and is one of the most convenient in the mine. Crosscutting is in progress, and the ledge will soon be struck.

Boston & Montana.—At the 100-ft. level, at West Colusa, raising to the 40-ft. level to prove up disputed territory with the Montana Ore Purchasing Company, is in progress. At the 200-ft. level, work is pushed drifting, and in 3 raises to prove up the ledge, ore of exceptional value has been discovered. At the 400, 500, 600, 800 and 900 levels, a great deal of development work is being done, and the usual amount of ore is extracted. A crew of men is at work behind shaft timbers between the 900 and 1,000-ft. repairing. A great deal of trouble is experienced in keeping this shaft in order, owing to heavy ground.

Colorado Mining and Smelting Company.—The Gagnon Mine is laying off its mining force about one-third time, as the company is raising more ore than the smelter can handle.

NEVADA.

Storey County—Comstock Lode.

Comstock Pumping Association.—The Evans elevator is now in place in the Gould & Curry shaft on the 1,700-ft. level. On February 20th water was turned on and the elevator work, which was installed by the Risdon Iron Works, of San Francisco, was found to work in a very satisfactory manner.

NORTH CAROLINA.

Ashe County.

(From Our Special Correspondent.)

Some activity is reported regarding copper deposits in this county. Ore Knob Mine, it is said, paid $210,000 in dividends prior to 1881 from an 8% ore, and hauled its supplies and ingot copper 40 miles in wagons. The ore is a sulphide. An effort is being made to reopen the mine.

Copper Knob.—This mine at Gap Creek, once operated by a New York company, will open again and concentrate ore for shipment to smelters. The vein is bornite in quartz and contains paying quantities of gold and silver as well as copper.

Rowan County.

(From Our Special Correspondent.)

Gold Hill Mines.—The property has been purchased by Walter George Newman, of New York city, and his brother, J. J. Newman, of Salisbury, N. C., who say they have made the first payment and will at once work it with a large force and spend $500,000 in its development. These same gentlemen have purchased and are working the Union mine, adjoining the Gold Hill. All properties showing gold and copper in the vicinity are attracting attention.

OHIO.

Harrison County.

Scio Oil Field.—February operations show a decided increase over January. At present there are 150 drilling wells and rigs up in the field, as against 100 at the close of January. During January 36 wells were completed, while February completed 86 wells. In January but 1 duster was completed, but February completed 3. The average new production from the February wells was a little below that of January. The pool will probably not have an area of more than 2,000 acres. To the northeast and southeast the end has been reached, and some of the wells completed during the month show they are approaching the edge in other directions.

PENNSYLVANIA.

Anthracite Coal.

Delaware & Hudson Canal Company.—John Muirhead & Son, of Pittston, Pa., are sinking a 20-in. bore-hole for this company at its No. 1 shaft, near Plymouth. The hole will be 600 ft. deep and will be used for pumping water from the mines.

Elk Hill Coal Company.—The New York, Ontario & Western Railroad has secured control of Richmond Colliery No. 3, at Dickson, and Richmond Colliery No. 4, at Richmond, belonging to this company, through John B. Kerr, vice-president of the road.

Lehigh Coal and Navigation Company.—At the annual meeting in Philadelphia this week, President Lewis A. Riley and the old board were re-elected, the only change in the directory being Henry Pratt McKean, in place of Thomas McKean, deceased.

Bituminous Coal.

The report of Barnard Callaghan, mine inspector of the Ninth Bituminous District, includes coke plants along the Mt. Pleasant branch, Adelaide and Fort Hill, the plants at Broadford and Moyer. The total production of coal at these plants during 1898 was 6,607,730 tons, a gain over 1897 of 1,533,345 tons. The production of coke in the district was 2,028,177 tons, a gain of 1,424,952 tons over 1897. In 1898 the Darr Mine produced 457,966 tons of coal and Ocean No. 2 333,437 tons. In the production of coke W. J. Rainey's Fort Hill plant leads with 203,608 tons. The H. C. Frick Coke Company's Adelaide plant comes second, with 183,802 tons. The number of mules and horses employed was 669; the number of steam boilers and plants, 167, and the number of mine locomotives, 11. The number of active coke ovens in the district was 4,567, a gain of 444. The total number of accidents in the district was 56, of which 28 were fatal.

Slate.

(From Our Special Correspondent.)

Albion.—The great slide of rubbish of two years ago is now removed, and active operations have been resumed. Other Pen Argyl quarries compelled to shut down through the severe winter weather have begun spring operations.

Bangor & Portland Railroad.—Danielsville has prospects of another outlet for its products. The Bangor & Portland Railway is making a preliminary survey for a line to that region. It wil not be built this year, however.

Bangor Roofing Slate Manufacturers Association.—After a year of internal strife, this organization, comprising 12 of the larger concerns of the Bangor Valley, has formulated a schedule of uniform prices and agreed on their enforcement. The price list was issued March 1st. Prices are listed from 10c. to 25c. per square less than quoted February 1st.

Bangor Superior Slate Company.—William H. Speer and Lorenzo Pearson, trustees for the bondholders, have had an execution for $16,275 issued against this company.

Bangor Superior Slate Company.—This quarry property is in the sheriff's hands to satisfy an execution for $16,275, held by W. H. Speer and Lorenzo Pearson, trustees for the bondholders. A $15,000 mortgage, given to indemnify the bondholders, is overdue, and unpaid. A reorganization will be necessary. Keenan Bros., the lessees, are working the quarry at a profit.

William Masters' Sons.—A change is noted in the management of this Pen Argyl quarry. John and A. W. Masters have retired from the firm, which continues with Thomas Masters, Jr., and W. J. Masters, as partners. Two workmen were killed in a slide at this quarry last week.

SOUTH CAROLINA.

Beaufort County.

Central Phosphate Company.—The first annual meeting of this company, of Beaufort, was held at the company's works at Dales Creek, on February 1st. Messrs. Alphonse Cajot, M. Cheronnet, E. Sautter, J. Kromer and J. B. West were re-elected directors for the ensuing year.

SOUTH DAKOTA.

Lawrence County.

(From Our Special Correspondent.)

Snowstorms.—Cold weather and snow have prevailed for 7 weeks. The narrow gauge roads from Deadwood to Bald Mountain are still blockaded. The trains succeeded in reaching the Portland and Clinton mines, at Portland, and the Crown Hill mines two or three days, and the mines started up again. Increased snow, with high winds, blockaded the tracks, and the mines closed again. Snow is very badly drifted in the mountains, and traffic, even by wagons, is almost impossible.

American Mining Company.—This company, backed by the Kilpatrick brothers, of Newcastle, Wyo., has started to sink the Dacy shaft to quartzite. A large hoisting plant has been erected. The shaft is already down 430 ft. The company has bonded over $200,000 worth of mining ground surrounding this shaft. The owners of the claims have reserved the right to mine to the first 100-ft level. The rich strike of ore in the A. J. Smith tunnel, recently made, holds good values.

Homestake Mining Company.—The company has purchased the Laird group of claims on the west side of Poor Man's Guch, one mile northeast of Lead. The ground is considered valuable. The group is not located on the trend of the Homestake belt, and it is stated that this is the first instance where the company has purchased mining ground not within the belt.

Spearfish Cyanide Plant.—This plant has started up again after a shutdown owing to freezing up of the water power.

Pennington County.

(From Our Special Correspondent.)

Blair Group.—Satisfactory tests on ore from this group of claims, in the Hornblend Camp, have been made in the Montezuma Mill, at Rochford. The ore gave average of $5 a ton. Other tests are being made on ore from this camp.

Bullion.—W. E. Hymer and associates, of Deadwood, who leased and bonded this mine north of the Keystone, and the Ingram custom mill, have started the mill on ore from the mine. A test run is to be made, and if satisfactory the property, mine and mill, will be purchased.

Wild Horse.—This group of claims, located

near the Sunnyside Mine, is reported sold to an Eastern syndicate.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending February 25th, the bullion and smelter products forwarded east from the different smelteries and camps of the State were 20 cars, or 804,205 lbs. lead-silver bullion; 1 car, or 42,089 lbs. copper bullion; 63 cars, or 2,960,100 lbs. lead-silver ore.

Juab County.

Red Rose.—This old producer has passed into the control of W. L. Hogue, of Montana, and A. W. McCune, of Salt Lake City. The shaft, which is 300 ft., is to be sunk deeper and a steam hoist will be installed for this purpose. The property has been in litigation several years.

Salt Lake County.

Utah Consolidated Gold Mines, Limited.—A statement has been issued from the London office of this company, which owns the Highland Boy Mine, to the effect that the Standard Oil interests have acquired large holdings in the company, and that Messrs. Albert C. Burrage, Charles D. Burrage, Jesse Lewisohn and Urban H. Broughton have been appointed directors of the company to represent shares, while Messrs. J. F. A. Clark and G. E. Armstrong have resigned.

Summit County.

(From Our Special Correspondent.)

Daly-West.—At Salt Lake City, on February 20th, was held the annual meeting. The following directors were chosen: John J. Daly, R. C. Chambers, Charles Read, Allen Fowler and O. J. Salisbury. It is needless to add that Messrs. Chambers and Read represent the Haggin-Hearst interest. After the annual meeting the directors met and elected John J. Daly president and manager; R. C. Chambers, vice-president; Allen Fowler, secretary, and O. J. Salisbury, treasurer. President Daly assured the shareholders that everything in and about the mine is in first-class condition, with splendid ore reserves opened.

Nail Driver.—On this claim, South of the Ontario, owned by Jack Creen, a good find of high-grade galena ore is reported.

Park City Shipments.—In the week ending February 25th, the ore and concentrate products sent forward through the Mackintosh sampler made a total of 1,672,720 lbs. The shipments were contributed as follows: Silver King, crude, 1,058,210 lbs.; Anchor, concentrates, 406,470 lbs.; Ontario, crude, 208,040 lbs.

Silver King.—At this Park City mine a shaft has been cut at the 1,200-ft. level and sinking has been resumed.

Tooele County.

Sinder Mining and Milling Company.—This company, recently incorporated, is putting a new steam hoist on its ground, comprising 8 claims lying southeast of Sunshine. John Sinder is president and Frank Kimball secretary.

Silver King.—On this property, near Stockton, development is being pushed by 3 shifts of men.

VIRGINIA.

Virginia Iron, Coal and Coke Company.—Negotiations have been completed for the purchase and consolidation of large coal, coke and iron interests in Southwestern Virginia. These interests are to be consolidated under the above name, with a capital of $7,500,000, and are in addition to have authority to issue $10,000,000 first mortgage 5% gold coupon bonds. The various properties now under consideration include, among other things, 5 coal mines now in operation and also, it is stated, practically all the available iron mines in the Virginia District. Messrs. Moore & Schley conducted the negotiations. The properties also include 9 blast furnaces.

WASHINGTON.

Stevens County.

(From Our Special Correspondent.)

Anaconda.—The tunnel is in 60 ft. The vein may be cut 65 ft. further in.

Ben Hur.—The tunnel now shows 8 ft. of quartz, and the vein will again be crosscut to ascertain its full width. The values are not as high as they were, but will average from $10 to $12 per ton.

Butte & Boston.—The north drift is in 28 ft., showing 3 ft. of granulated quartz on the footwall side, and apparently more behind it. It is reported that quartz showing free gold is coming in under the changing.

El Caliph.—The tunnel is in 154 ft.

Golden Harvest.—The winze going down from the upper tunnel is down 38 ft. The vein has widened and shows 7 ft. of clean white quartz. The values run about $13 per ton.

Iron Monitor.—Nothing new is reported. Prospecting goes ahead.

Mountain Lion.—The compressor plant has begun to arrive, and all work in the mine is suspended pending its installment.

North San Poil Fraction.—Work will be resumed in the shaft, which is down 18 ft., with 16 ft. of quartz showing at the surface. At the bottom of the shaft 5 ft. of the quartz will average $10 per ton.

Republic Gold Mining and Milling Company.—The south drift on the ore shaft, on No. 3 level, is within 90 ft. of the Jim Blaine north end line. The intermediate drift is being pushed south in very fine ore. On the No. 1 level the vein is being crosscut to determine the foot wall, and rich ore has been developed westward, a porphyry horse intervening.

San Poil.—The upraise and winze are each in hard quartz. The values are simply reported as being very good.

Trade Dollar.—The winze is down 57 ft. A drift has passed westward through it into solid porphyry and the ledge may be cut any day.

White Horse Group.—Some rich free gold float quartz has been found on one of the claims about 1,900 ft. due west from the northwest corner of the Troubadour.

FOREIGN MINING NEWS.

AUSTRALASIA.

Tasmania.

Mount Lyell Mining Company.—For the four weeks ending February 8th, this company reports 15,899 tons (dry weight) of ore smelted. The yield was 481 tons black copper, containing 476 tons fine copper, 55,912 oz. silver and 1,984 oz. gold. The average return was 2.99% copper. 3.52 oz. silver and 0.12 oz. gold to the ton.

CANADA.

British Columbia—Cassiar District.

(From Our Special Correspondent.)

Atlin, B. C., Feb. 1.

About all the business being done here at present is recording claims. Last year the Queen's Reserve land, in British Columbia, was placed at 5 miles around all the principal lakes. Now this clause has been removed, and the Gold Commissioner, Mr. J. D. Graham, will regulate holdings in the whole Atlin District. There is a saw mill here cutting 2,000 ft. of lumber daily. The lumber sells readily at $150 per 1,000 ft. One load of goods has been brought in by horse and sled from Skaguay, but dog trains are reported to be more economical. The best way for those who wish to bring in large amounts of supplies is to have goods delivered at Bennett, and bring them in from there when spring opens. There has been, and is, so much confusion in the way claims go on record that the Gold Commissioner will find it difficult to settle all disputes. For instance, there have been a number of stampedes this winter to ground near Surprise Creek, and a lot of ground has been located. The locators have named the streams O'Donnell River and Cariboo and Dixie Creeks, and filed discovery claims on each. As a matter of fact, these 3 streams named with their discovery claims, are all the same creek.

Timber is so scarce on what is called Cariboo Creek, that locators have to pack their location stakes 2 or 3 miles.

Fred Miller, of Juneau, located the first claim in the Atlin District, on Pine Creek, about a year ago, though his brother George found gold here in the summer of 1886. As a result of the stampede in the summer of 1898, more than a dozen streams were found that gave surface pannings of 25c. to $11 per pan, and on a number of streams are benches that will pay to work by hand for 300 ft. back.

On January 31st I saw 2 miners on Spruce Creek, on claim 104 below Discovery, sluicing surface gravel, the water running clear through the sluice, though the temperature was 10° below zero. I panned out a shovel full that went 10c. The 2 miners are taking out about 2 oz. a day, and losing half as much more over the riffles. At 22 below on Spruce Creek, 4 miners have driven a tunnel into the side hill 70 ft., and are taking out dirt which goes as high as 20c. a pan. Spruce Creek is 20 miles long, and will pay for almost its whole length. The Atlin gold is coarse, not even smooth like that on the Yukon flats, and has evidently not been transported far. On Pine Creek, above Discovery, kidneys of quartz were found on bed rock, showing free gold.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Iron Mask.—The new 12-drill compressor has started work. It is run by a 107 H. P. electric motor, made by the Royal Electric Company of Montreal. The power is furnished by the Bonnington Falls Company. From the compressor is taken the compressed air necessary to do all the work in the mine, including the running of the hoist, pump and drills. Heretofore compressed air has been taken from the War Eagle compressor.

Le Roi.—The injunction proceedings recently obtained by J. B. McLaren, of Vancouver, against the Le Roi Mining Company, to compel the company to pay the holders of 17,000 shares a price per share in excess of what the minority interest represented by Senator Turner received, have been dissolved by Judge Martin. McLaren wanted $9.50 per share for his stock, but Judge Martin advised him to take $8.50, the price paid by the British America Corporation to Senator Turner for the minority interest.

Rossland Ore Shipments.—The output of the Rossland Mines continues about 500 tons weekly. The shipments to March 1st this year will amount to about 6,000 tons. According to a statement made by W. A. Carlyle, general manager of the Le Roi, 300 tons in all probability will be the daily output when ore shipments are resumed. Mr. Carlyle, since the suspension of shipments, has been giving most of his attention to overhauling the mine thoroughly.

Nova Scotia—Cape Breton.

A bill has been introduced in the Nova Scotia Legislature to incorporate the Dominion Steel and Iron Company. The incorporators are Henry M. Whitney, of Boston; H. F. Dimock and Almeric H. Paget, of New York, and W. B. Ross and R. F. Pearson, of Halifax. The people interested are practically the same as those now in the Dominion Coal Company. Their purpose is to carry on an extensive iron business in Cape Breton and to develop the iron ore at Belle Isle, N. F., which they have bonded for $1,000,000. The capital of the company is $10,000,000, with power to increase to $20,000,000. Before they can commence operations $1,000,000 of the capital must be subscribed and 25% of this paid up.

Dominion Coal Company.—The coal shipments in February were 37,000 tons. For the fiscal year ending February 28th, the shipments were 1,157,828 tons, against 1,107,500 tons in 1897 and 1,068,029 tons in 1896.

Ontario.

Petroleum Shipments.—The movement from Petrolia in the year 1898 amounted to 150,436 bbls. crude and 180,033 bbls. refined. These shipments are equivalent to 601,522 bbls. of crude oil. The barrel is calculated at 35 imperial gallons.

Ontario—Sudbury District.

(From an Occasional Correspondent.)

Mr. Ronaldo McConnell, of Sudbury, is reported in a cable from London to have sold his nickel properties in Denison County, near Sudbury, to Ludwig Mond, the great chemical manufacturer and metallurgist of London. The properties referred to are undeveloped, but have very fine outcrops of nickel-copper ore. It is considered, in fact, to be as large and promising of ore as any in the Sudbury district.

The advent of Ludwig Mond in the nickel industry of Canada must be considered an important event both for Ontario and for the nickel industry, which at present is controlled by the Canadian Copper Company. It had been reported that this company through its agent, Major R. G. Leckie, had made an offer for the McConnell property, but it would seem that Mr. McConnell, who recently went to London, had found a better market. The advent of the Mond Company, by furnishing another purchaser for property in that district, will no doubt add to the values of good deposits of nickel ore.

MEXICO.

Lower California.

(From Our Special Correspondent.)

Rich placer diggings are reported discovered by Mexicans 80 miles south of Calmalli, and 15 miles north of Asuncion Bay on the coast. It is said that many miners have gone in from Calmalli and vicinity, among whom was Don Emiliano Ybarra, who discovered and located the Calmalli mines. Large amounts of gold are reported to be taken out daily.

SOUTH AFRICA.

Rhodesia.

The Rhodesian Chamber of Mines reports the gold output for the year 1898—all the 4 months, September to December, inclusive—at 18,085 crude oz., equal to 15,011 fine oz., or $310,087.

The output for January is reported at 6,370 crude oz., equal to 5,287 fine oz., or $109,282.

SOUTH AMERICA.

Bolivia.

Corocoro Copper Mines.—Late dispatches report that 1,000 Indians recently surrounded the Corocoro mining works, which are the property of Chileans, and sacked all the houses. The manager of the works, his wife, and an official tried to make their escape. On the refusal of the Indians to accept their offer of $3,000 to spare their lives, the manager shot his wife and the official and then committed suicide. The incident is likely to cause difficulty between the Bolivian and Chilean governments.

Huanuni Tin Mines.—Late advices report that the Supreme Court at Sucre has granted possession to Henry Claxton Harrison, of the rich tin mines at Huanuni, near Oruro.

COAL TRADE REVIEW.

New York. March 3.

Anthracite.

The anthracite trade at present is in about as satisfactory shape as can be expected. At the head of the Lakes the demand for coal is reported to be almost as good as during the cold snap, shipments from the docks overaging over 300 cars daily. The amount left in stock is very small, the Lehigh Valley docks being cleaned out, and the Reading having only broken left. In Chicago territory the market is quieter though still strong. A large amount of coal is going into the territory between Buffalo and Chicago by rail. The shortage of chestnut continues as marked as ever. It is now reported that by the time navigation opens, docks will be cleaned up better than in any spring for the past 25 years.

At Eastern points business is generally satisfactory, though buying has fallen off with mild weather. A considerable amount of coal has gone forward to points beyond Cape Cod, and more would follow, but for the high vessel freights from New York and Philadelphia. Buying at Boston, however, is likely to be purely of a hand-to-mouth order from now until May 1st, Vessel freights are likely to come down and on May 1st taxes are assessed in Boston, so dealers will not care to buy ahead of needs. At New York and Philadelphia a large amount of coal has changed hands at prices which show little change except for chestnut. This size commands a premium for prompt delivery.

Stories about controlling the independent operators continue, but just what shape this control will take is still a somewhat hazy matter. The one point about which there seems to be substantial agreement is that the proposed new railroad from Scranton is not to be put through this year. The report of an advance in prices March 1st proved as true as other stories of the same sort that have come from Philadelphia before and the date of the general advance has been changed to April 1st. The simple truth of the matter is that so much ground is now opened up in the anthracite region that the addition of a few miners all around means a big increase in output. Productive capacity is well in excess of any probable demand. Prices to-day for all prepared sizes, except chestnut and possibly stove, are as low as they were last month, and if the large companies, induced by the general feeling of good times, loosen all checks on production, prices are liable to get as low as any time last year. Any talk of advancing prices amounts to nothing unless accompanied by assurances that the companies are cutting down their outputs. At present it looks as if a moderate tonnage at present prices would pay better than attempted restriction or a free-for-all tonnage race.

We quote for free burning anthracite, net, f. o. b. New York: Broken, $3.15; egg, $3.30; stove, $3.75; nut, $3.70.

Notes of the Week.

The Lehigh Valley Coal Company makes the following statement for January and the two months of the fiscal year from December 1st to January 31st:

	January.	Two Months.
Earnings	$1,622,582	$3,393,394
Expenses	1,660,558	3,517,842
Net loss	$37,976	$124,448

For the two months the gross earnings increased $468,100, and the expenses $502,102.

The statement of the Philadelphia & Reading Coal and Iron Company for January and the seven months of the fiscal year from July 1st to January 31st, is as follows:

	January.	Seven Months.
Earnings	$2,272,350	$14,593,726
Expenses	2,077,724	13,595,362
Net earnings	$194,626	$998,364

For the year the gross earnings decreased $733,557, and the expenses $968,703, the result being an increase of $235,146 in net earnings.

Bituminous.

There is a great demand for soft coal all along the Atlantic seaboard. So great has been the pressure for coal for prompt delivery that companies, even those not on the best of terms, have been forced to buy coal of one another to help out on "must" orders.

Not only is there this heavy demand at all seaports, but the all-line trade is active and calls for a very large tonnage. There is also a continuous good demand for coal for export. Contracts for the coming season continue to be taken. So far as we know these contracts are in most instances taken at the regular prices. Consumers generally are striving for delivered contracts, which producers, with the experience of the past winter in mind, are not anxious to close.

Transportation from mines to tide is better than it has been, but is still irregular. Some cars come through promptly, while others are held up in a very annoying way. Car supply is better, but not at all up to the demand. In the coastwise vessel market, freights are weaker. Continued mild weather will bring out many of the smaller craft from harbors where they have been ice-bound. We quote current rates from Philadelphia as follows: Providence, New Bedford and the Sound, $1.20@$1.25; Boston, Salem and Portsmouth, $1.40@$1.45.

Birmingham, Ala. Feb. 27.

(From Our Special Correspondent.)

The coal trade in this State is just as active as it can be. There is a large amount of coal being mined and every bit of it is finding a ready sale. More coal could be sold if it could be mined and at places there are miners wanted. The trade this winter has been unprecedented, indicating that the Alabama product is going to points heretofore unvisited. There are some heavy contracts held by the mining companies in this district for delivery during the next two or three months. The miners are expecting an advance in prices of coal digging in a week or so, and at all mining camps the best of feeling seems to prevail.

A fair price is being obtained for the product and all mines are being worked to their fullest capacities. Miners are wanted at several of the places.

There was an explosion in Mine No. 2, Blocton, last week, in which five miners lost their lives. A "windy" shot was made which caused a dust and gas explosion with the above result. The mine had to be shut down for three or four days until repairs were made.

Good contracts are on hand at some of the mines, and especially with the smaller companies which refused to make contracts with the larger companies so that their coal would be taken for a few weeks during the rush spell. All coal being mined, however, is finding a sale and there is no slack work at a single place.

Some heavy railroad contracts are being worked for, while contracts with large fuel-using concerns are also being sought for. There will be work at the mines in this State all during the summer, judging from present conditions and prospects.

In accordance with a contract between the miners and the Tennessee Coal, Iron and Railroad Company and the Sloss Iron & Steel Company, the wages of the coal miners were increased March 1st. The contract between the miners and the companies is based on the selling price of iron, and as the average price for pig was more than $7.60 per ton, the miners were entitled to the advance. The contract has, as a basis, pig iron at $7.50 per ton. General Manager McCarmock, of the Tennessee Coal, Iron and Railroad Company, states that the average price of iron is between $7.60 and $8.10 per ton. There are over 5,000 miners to feel the advance. Heretofore the price for coal mining has been 40c. per ton. It is now 2½c. better.

Chicago. March 1.

(From Our Special Correspondent.)

Anthracite Coal.—The demand for anthracite coal has slackened somewhat, but the market continues to be firm. There continues a great shortage in chestnut coal, of which article but little is coming to town from eastern points. The weather being milder, has occasioned a drop in tonnage, and it is likely that business will decrease gradually from now on and get back to normal condition. Supplies of all grades of hard coal are small, but with the coming of warmer weather enough coal will be received to more than make up any deficiency. Prices of carload lots are, on egg and stove, $5.25; chestnut, $5.50.

Bituminous coal continues in good demand, though a gradual decrease in sales is noted, the colder weather having passed, and the demand is for smaller quantities. All grades of soft coal have been in demand during the past month or so, and prices obtained were in nearly every case very satisfactory. The railroads are now bringing considerable soft coal to town, and the possibility of a shortage is now not thought of. Prices continue firm.

Coke sales have fallen off somewhat, but altogether business is very good, buying by those interested in foundries and metallurgical works being large. Prices are steady.

Pittsburg. March 2.

(From Our Special Correspondent.)

Coal.—Since the cold weather has passed away the coal men feel considerably relieved; the ice in the three rivers passed out nicely, inflicting but little damage. The local price of coal has returned to its usual level. The passing away of the ice enabled the coal men to send out a small fleet of boats with about 2,500,000 bushels of coal, nearly all destined for the Southern markets.

Coal operators met this week in order to fix scale details for the Pittsburg District at the Monongahela House, with the miners. The meeting was short and harmonious and did nothing toward forming a business association. A committee of 10 was appointed to meet the miners' scale committee, and it is expected that this joint committee will close up the scale details without the necessity of another convention. The check-off system is to be re-established at the Rend Mines.

Prices of coal are to be advanced. An important proposition is before the Pittsburg operators. A lake shippers' combine, allotment of tonnage and better market figures, are desired. The proposed formation of the Lake Shipping Operators' Association is a modification of the original plan to control prices and production in the Pittsburg District by handling all the tonnage through a central agency and purchasing the output of sellers to lake shippers upon a five year contract based on an average output for a similar period.

At Columbus, O., the conference of the Ohio miners and operators adjourned without an agreement being reached, and the prospects are that there will be a suspension of work in the Ohio mines April 1st.

Connellsville Coke.—The demand was brisk and the outlook for the coke business never was better. The roads are from 400 to 500 cars short, a condition of affairs that has not been noticed for several months. A large amount of coke was stocked, ranging from 35,000 to 40,000 tons. Western and Eastern shippers were the principal sufferers.

The week showed 18,897 ovens in the region with 15,875 ovens in blast, and 3,044 idle. There were 105 ovens fired during the week, which goes to increase the active list. Production of the region for the week was 163,901 tons as against 162,825 tons the week previous; increase 1,076 tons; a large increase in production is promised the present week. The shipments from the region were as follows: To Pittsburg, 2,670 cars; to points West, 3,849 cars; sent East, 1,005 cars; total, 7,524 cars.

The H. C. Frick Company sold 15,000 tons furnace coke for Pittsburg delivery at $2 per ton of 2,000 lbs. at maker's works this week.

Shanghai, China. Jan. 23.

(Special Report of Wheelock & Co.)

Coal.—A fairly large clearance of our stock of inferior Japan coal has been made, at prices which must show a considerable loss to importers. In fact, all kinds have sold at lower prices. Cardiff is much weaker, with little or no demand. Sydney Wollongong shows no new business. Arrivals of all kinds of coal during the past fortnight were 21,544 tons. Quotations are, per ton, as follows: American anthracite, 15 taels, nominal; Welsh Cardiff, 19 taels; Australian Wollongong, 12 taels for steamer cargo, and 6.75@7 taels for other sorts; Japan, all contracted for; Chinese Kaiping, lump, 7@8 taels; dust, 6 taels, and mixed, 5.80@6.50 taels.

Kerosene Oil.—In American ordinary retail business has been done at a slight advance in prices. Deliveries have not been so large as the preceding fortnight, amounting to 80,000 cases. Stocks are 904,228 cases. Batum oil has also advanced slightly, but business has not been large. Stocks aggregate 203,000 cases. Sumatra Langkat oil was short in stock until the arrival of 85,000 cases. At present writing stocks amount to 71,000 cases. Quotations per case are as follows: American Devoe's, 1.75 taels; Russian Batum, Anchor and Horse Chop, 1.68½ taels, and bulk oil, 1.57½ taels; Sumatra langkat, 1.65 taels.

SLATE TRADE REVIEW.

New York. Mar. 3.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries is given below:

In Brownville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3-16 in. thick, and Peach Bottom 25c. extra per square. Purple sizes run 24x12 and 14x7, and vary from $3.75 to $4 per square. Variegated and mottled, $2.25@2.90 per square, according to size. Intermediate seagreen, $2@$2.25 per square. Intermediate red, 14x7 and larger, $6; 12x6, 12x7 and 12x8 in., $5 per square, net.

Business is quiet and prices, especially for roofing slate, are very variable. In some cases quarrymen who have a fairly large supply are asking somewhat lower prices than quoted herewith, while others ask slightly higher prices. The quarries are gradually getting into shape for active operations.

Efforts have lately been made to induce the railroads running through the Middle and Western States to lessen the rates on roofing slate. These endeavors have so far been unsuccessful. If a reduction in freight rates can be secured a larger business will be built up in that territory.

An interesting question engaging the export business is how large are the claims for breakage of slate shipped abroad. At least two exporters are understood to have been caught lately with heavy claims for breakage. It is further

said that when these claims come to be settled little or no profit will be left. There is no doubt that much of this breakage is caused by poor loading in steamers on this side by stevedores. On the other hand it often happens that the transport steamers do not arrive in port until a day or two before sailing, consequently loading must be hurried. Taking everything into account we think a 5% breakage sufficient to allow our foreign buyers. Even at this rate the profit is limited. In this connection we may say that the Penrhyn quarries in Wales allow only 1 cwt. over in every ton or 60 slates over in every thousand at the time of delivery on the wharf for loading to cover the ordinary breakage. As the purchaser never pays for any excess he may receive beyond the quantity invoiced (1,200 slates to the thousand or 20 cwt. to the ton) no abatement or further allowance can be made for any deficiency from breakage, short delivery or other cause. The purchaser therefore takes his chances. In the case of the Portmadoc Slate Company, North Wales, no allowance for breakage is made, as the slates are carefully loaded by approved stowers. The terms of payment to the Portmadoc Company are generally cash on receipts of invoice, less 2½% discount or, if so specially arranged, three months' approved acceptance net from date of invoice. The Penrhyn people's terms of payment, where reference is satisfactory, are cash or bank order not exceeding seven days' date payable in London, to be remitted within one week from date of invoice, less 2½% discount.

Prices of Roofing Slate.

Size, inches	Monson & Br'n ville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
28 x 14	.....	.....	.....	.....	.....	.....	2.50	.....	.....
26 x 14	.....	.....	.....	.....	.....	.....	2.50	.....	.....
24 x 16	.....	.....	.....	.....	.....	4.75	.....	.....	.....
24 x 15	.....	.....	.....	.....	.....	4.75	.....	.....	.....
24 x 14	6.10	3.35	2.90	3.10	3.50	4.85	2.50	3.50	.....
24 x 13	.....	.....	.....	.....	.....	4.85	.....	.....	.....
24 x 12	6.60	3.35	2.90	3.10	3.50	5.00	2.50	3.50	.....
24 x 10	.....	.....	..	.....	.....	5.00	.....	.....	.....
22 x 14	6.10	.....	.....	.....	.....	5.00	2.40	3.50	.....
22 x 13	.....	.....	.....	.....	.....	5.00	.....	.....	.....
22 x 12	6.60	3.50	2.90	3.10	3.50	5.00	2.50	3.50	.. ..
22 x 11	6.50	3.50	3.00	3.10	3.75	5.00	2.75	3.75	.....
20 x 14	6.40	..	.....	.....	..	.....	2.40	3.50	.....
20 x 13	..	.....	.....	.....	.....	5.00	.....	.....	.....
20 x 12	6 90	3.50	3.00	3 10	3.75	5.00	2.50	3.75	.....
20 x 11	6.80	.....	.....	3.35	.....	5.00	2.50	3.75	.....
20 x 10	6.80	4.00	3.25	3.35	3.80	5.10	2.75	4.00	10.50
18 x 18	.....	4.00	.....	.....	..	.....	.....	.....	.....
18 x 14	6.50	.....	.....	.....	.....	.....	.....	.....	.....
18 x 12	6.80	3.50	.....	3.10	.....	5.00	2.50	3.50	....
18 x 11	7.00	.....	.....	.....	..	5.00	2.50	3.75	.....
18 x 10	7.20	4.00	3.25	3.35	3.80	5.10	2.50	4.00	10.50
18 x 9	7.10	4.00	3.25	3.35	3.80	5.10	2.50	4.00	10.50
16 x 16	7.00	4.00	.....	.....	.....	.....	.....	..	.....
16 x 14	....	4.25	.....	.....	.....	.....	.....	.....	.....
16 x 12	6.80	3.50	.....	3.10	.....	.....	2.40	3.50	....
16 x 11	6.90	.....	.....	.....	.....	5 00	.....	.....	.....
16 x 10	7.10	3 75	3.25	3.35	3.80	5.00	2.40	4.00	10.50
16 x 9	7.00	4.00	.....	3.35	3.80	5.10	2.40	4.00	10.50
16 x 8	7.20	4.00	3.15	3.35	3.80	5.10	2.40	4 00	10.50
14 x 14	7.00	4.00	.....	.....	.....	.....	.....	.....	.....
14 x 12	6.50	.....	.....	.....	.....	.....	2.25	.....	.....
14 x 10	6 60	3.50	3.15	3.10	3 75	5.00	2.25	3 75	10.50
14 x 9	6.50	.....	.....	.....	3.40	4.85	2.25	3.75	10.50
14 x 8	6 60	3.50	3.15	3.10	3.40	4.85	2.25	4.00	10.50
14 x 7	6.40	3.50	3.15	3.10	3.40	4.85	2.20	4.00	10.50
12 x 10	5.80	3.50	..	.....	.....	4.60	2.20	3.25	.....
12 x 9	5.60	.....	.....	.....	.....	4.60	2.20	3.25	.....
12 x 8	5.50	3.25	.....	3.10	3.25	4 60	2.20	3.25	9 00
12 x 7	5.00	3.25	.....	3.10	3.25	4.60	2.20	3.25	9.00
12 x 6	4.80	3 25	.....	3 10	3.25	4.60	.....	3 25	8.50
11 x 10	.....	3.50	.....	.....	.....	.....	.....	.....	.....
11 x 8	4 50	.....	.....	.....	.....	.....	.....	.....	.....
11 x 7	4.00	.....	.....	.....	.....	.....	.....	.....	.....
10 x 12	.....	..	.....	.....	.....	.....	.....	.....	.....
10 x 11	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 x 8	4.00	.....	.....	.....	.....	.....	.....	.....	6.50
10 x 7	.....	.....	.....	.....	.....	.....	.....	.....	6.50
10 x 6	..	.....	.....	.....	.....	.....	.....	.....	6.50
9 x 7	3.50	.....	.....	.....	.....	.....	.....	.....	.....

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

Freight rates are practically unchanged. We understand that an outside steamer has offered a rate of 10s. ($2.40) to London; this is 3s. 9d. (90c.) per ton less than is generally quoted. A number of car-loads of roofing slate have been booked on this steamer, which is to sail this week.

Exports from New York within the past two weeks included 100 car-loads of roofing slate to London, 13 car-loads to Liverpool, 4 car-loads to Hull, 1 car-load (valued at $1,000) to Bristol, 1 car-load to Bremen and 191 boxes slabs (valued at $2,100) to Antwerp. There were also exported a large quantity of school slates, which included 65 cases to the British East Indies and 439 cases to Australia.

The exports from Baltimore were 76,678 pieces (185 short tons) roofing slate to Dublin, Ireland.

CHEMICALS AND MINERALS.

(For current prices of chemicals, minerals and rare elements, see also page 286.)

New York. March 3.

Heavy Chemicals.—Deliveries have improved, and the increased arrivals of bleaching powder have eased prices somewhat. Imports at this port this week included 609 bbls. and 210 casks bleaching powder, and the domestic receipts were 405 sacks soda ash and 43 bbls. potash. The imports thus far show a large decrease outside of bicarb. soda as compared with last year.

Quotations are: Caustic soda, domestic, high test, $1,40@$1.45 per 100 lbs. f. o. b. works; $1.50@$1.65 delivered. Foreign caustic soda, high test, $1.60@$1.70 delivered, according to test and quality. Powdered caustic soda, 2½@2¾c. Alkali, domestic, 60@65c. f. o. b. works; 70@75c. delivered; foreign 75@80c. Bleaching powder, English prime brands, $1.60@$1.70 per 100 lbs.; other brands, $1.50@$1.60. Continental F, prime, $1.55@$1.60. Bicarb. soda, domestic, ordinary, $1.12½@$1.25 per 100 lbs. f. o. b. works. Natrona brand, $1.65; "Arm and Hammer brand," $3.25@$3.50, less the usual discount; foreign, $2.12½@$2.25 per 100 lbs., according to brand and style of package. Sal soda, domestic, 50c. per 100 lbs., f. o. b. works, less the usual discounts; English, 60@62½c. per 100 lbs. Concentrated sal soda, foreign (crystal carbonate), $1.60@$1.70 per 100 lbs.; domestic (mono-hydrate crystals), $1.25@$1.35 per 100 lbs.; "snowflake," $1@$1.12½ f. o. b. Syracuse. Chlorate of potash, crystals, 8⅞@9⅛; powdered, 9½@9¾c. per lb.

Acids.—Drawback orders are being rapidly filled. Stocks are not large. The General Chemical Company is getting into shape for active business and already the concerns in it have opened a new set of books and are trading under the new name. It is understood that a department will be established to purchase all the raw material necessary to operate the respective plants. Rumors are afloat that prices will be advanced on some acids, particularly on those that have been shopped at extremely low prices of late. Blue vitriol is still firm, though it is said an offer of 5½c. has recently been made on a car-load lot. A good export business is being done in this article, especially with Italy, where blue vitriol is used largely in vineyards. In Great Britain the exports of blue vitriol in January amounted to 3,185 tons, or 2,221 less than a year ago. Oxalic acid is moving on contract in a fair way, and imports this week at New York amounted to 113 casks and 20 bbls.

Quotations per 100 lbs. for New York and vicinity are as follows: Acetic acid, commercial, No. 8, $1.30@$1.40; muriatic acid, 18°, $1.10 for drums, and $1.15@$1.75 for carboys; 20°, $1.20@$1.87½; 22°, $1.35@$2.25, according to quantity and brand. Nitric acid, 36°, $3.50@$4.75; 38°, $3.75@$4.62½; 40°, $4@$4.87½; 42°, $4.62½@$5.25. Oxalic acid, $6.25@$6.50. Mixed acids, according to mixture. Sulphuric acid, 66°, $1.10 for drums and $1.15@$1.75 for carboys. Chamber acid, 50°, in a jobbing way, $11.50@$12 per ton f. o. b. factory. Blue vitriol (copper sulphate), $5.75@$6 per 100 lbs. for best grades.

Brimstone.—The market is stronger, as most of the supply afloat has already been contracted for. Spot best unmixed seconds have been quoted at $23.50 per ton, and thirds at $21. Shipments of best unmixed seconds are offered at $22@$22.25.

Pyrites.—No arrivals are noted at this port, and business is generally good.

Spanish pyrites contain from 46% to 51% sulphur, the American from 42% to 44%, and Pilley's Isand, N. F., about 50%. Quotations are: American lump ores (basis 52%), $3.25 per long ton f. o. b. mines, Mineral City, Va.; $5 per long ton f. o. b. mines, Charlemont, Mass., and $6.50 per long ton for Pilley's Island, delivered in New York. Fines are $3 per long ton f. o. b. Mineral City, Va.; $4.25 at Charlemont, Mass., and $4.50 for Pilley's Island, delivered in New York. Spanish pyrites, 11@13c. per unit, according to percentage, delivered ex-ship New York and other Atlantic coast ports.

Nitrate of Soda.—Spot goods are comparatively small; consequently holders are asking higher prices. Spot is quoted at $1.65, and shipments at $1.55 per 100 lbs. The Permanent Nitrate Committee reports that the exports to Europe in January amounted to 2,644,000 qtls. and the imports at 129,870 tons. Loading for Europe on February 1st, 1,329,000 qtls. Deliveries in Europe in January were 83,850 tons, and the visible supply in Europe, February 1st, stocks and afloat, 737,880 tons.

Saltpetre.—The arrivals of crude saltpetre in February amounted to 2,917 bags, as against 2,496 bags in the same month last year. The consumption in February is reported at 2,058 bags, which compares with 6,644 bags in February, 1898. Stocks on hand on March 1st amounted to 1,980 bags, as against 10,177 bags last year. There is expected 16,664 bags, which brings the visible supply up to 18,644 bags, as against 26,798 bags in 1898. The price of crude saltpetre is 4@4¼c. per lb., and of the refined 4¼@5½c.

Fertilizing Chemicals.—A slightly better demand is reported for the leading ammoniates. Potash salts are not moving on contract in as large a way as last year, when the Western planters had such extraordinary crops. A small export business is being done, and imports included 1,080 bags of manure from London, 1,002 bags manure salt and 1,750 bags muriate of potash from Germany. Prices are easier in some fertilizers.

Quotations are: Sulphate of ammonia, gas liquor, $2.57@$2.60 (basis of 25%) per 100 lbs.; bone, $2.52½@$2.57. Dried blood, high grade Western, $1.92@$1.95 per unit; New York, $1.70@$1.72½ per unit. Azotine, $1.70@$1.75, basis New York. Concentrated phosphates (30% available phosphoric acid), 57½c. per unit. Acid phosphates, 13@15% av. P_2O_5, 60@65c. per unit at sellers' works in bulk. Dissolved bone black, 17@18%, P_2O_5, $16@$16.50 per ton. Acidulated fish scrap, $9.75@$10; dried, $18.75@$19 f. o. b. fish factory. Ammonia superphosphates, high grades, $25@$26 per ton. Tankage, high grade, $15@$16 per ton f. o. b. Chicago; $18.50@$19 at New York. Concentrated tankage, $1.90@$1.95 per unit f. o. b. Chicago; low grade, $13@$13.50 per ton. Bone tankage, $19.50@$20.50; ground bone, $20@$21 delivered. Bone meal, Calcutta, to arrive, $25@$26, and domestic steamed, $21@$22 per ton.

Phosphate.—Foreign business has been quiet and the same may be reported at home. The shipments from Mt. Pleasant, Tenn., in January amounted to 26,786 long tons. It is reported that the new Sumner County, Tenn., deposits have an area of about 2,000 acres, containing, according to estimate, 3,000,000 tons of rock, averaging from 60 to 79% phosphate. These deposits are about two miles from the railroad, and it is expected they will soon be actively worked. Charters noted in export circles include a British steamer of 2,400 tons from Fernandina to Stettin, Germany, at 18s. 6d. ($4.44) per ton, sailing April 15. The latest quotations, c. i. f., United Kingdom or North Sea ports, are as follows: Florida hard rock, 77@80%, 5⅝ @8¾d. per unit, according to position; Florida land pebble, 68@73%, 7¼d.; Florida Peace River, 58@63%, 7d.; Tennessee, 78@80%, 7¼d. The Algerian, 63@70%, rock is quoted at 7¼d. per unit. We note 500 bags of phosphates were imported from Antwerp, Belgium, this week at New York.

Quotations are: Florida high grade, 75@80% rock, $9@$9.25 per long ton f. o. b. Fernandina. The freight rate of New York is about $1.90 per ton. Florida land pebble, 68@73%, quoted at $5.50@$6 per ton, delivered in New York; South Carolina ground rock is worth $5.50 to $5.75 per short ton, delivered in New York; sun dried, $3 per 2,240 lbs. f. o. b. Ashley River; hot-air dried, $3.25 f. o. b. same place, and $3.45 f. o. b. Charleston, S. C. Tennessee phosphate, $3.50@$4 f. o. b. Mt. Pleasant, according to quality.

Liverpool. Feb. 22.

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

The chemical market is quiet generally and without any special feature of interest. For the year ending Dec. 31, 1898, the United Alkali Company has declared the full dividend on the 7 per cent. preference shares, but nothing on the ordinary stock, and carrying forward a balance of about £29,000. This is rather better than the result of the previous year's working, which is some satisfaction, taking into account the changed position of the trade owing to the keen foreign and home competition. The report and balance sheet of the Salt Union have just been issued for the 12 months ending Dec. 31 last. Not only is there no dividend for the preference or ordinary shareholders, but after paying interest on the debentures there is a deficit on the year's working of £8,676.

Soda ash is quiet with varying prices, according to destination. We quote maximum range for tierces about as follows: Leblanc ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton net cash. Ammonia ash, 48%, £4@£4 5s.; 58%, £4 5s.@£4 7s. 6d. per ton net cash. Bags 5s, per ton under price for tierces.

Soda crystals are in request and £2 17s. 6d. per ton, less 5%, is quoted for barrels, with special quotations for certain favored markets.

Caustic soda is rather slow so far as fresh business is concerned, but quotations are unchanged, the nearest spot range being as follows: 60%, £5 17s. 6d.@£6; 70%, £6 17s. 6d@£7; 74%, £7 7s. 6d.@£7 10s.; 76%, £7 15s.@£7 17s. 6d. per ton, net cash.

Bleaching powder is quoted at £5@£5 s. 6d. per ton, net cash, for hardwood packages but without special feature.

Chlorate of potash is rather slow, but steady at 3½d. per lb. for crystals and 3⅝d. per lb. for powdered.

Bicarb soda is selling at £5 5s.@£6 15s. per ton, less 2½%, as to market,for the finest quality in cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia is meeting with rather more inquiry and is quoted at £10 7s. 6d.@£10 10s. per ton, less 2½% for good gray, 24@25% in double bags f. o. b. here as to quality.

Nitrate of soda is dearer, holders now asking from £8 2s. 6d@£8 5s. per ton, less 2½% for double bags f. o. b. here, as to quantity and quality.

Valparaiso, Chile. Jan. 28.

(Special Report of Jackson Bros.)

Nitrate of Soda.—Although the collapse of the proposed combination was officially announced on January 14th prices have only given way 1d. per qtl., due to a firmer tone in the spot price of the European market. There has also been a fair amount of business done for future shipments during the fortnight. Sales have been made at 4s. 6d.@4s. 6½d. for 95%, and at 4s. 8¾d. alongside, for 96%, February-April deliveries, and for monthly parcels of 96%, February-December delivery, 4s. 9½d. alongside is reported to have been paid. We quote 95%, February-April, 4s. 6½d.; May, 4s. 6½d.; June, 4s. 7d.; July-August, 4s. 8d.; September-December, 4s. 9d., and 96%, February-June, 4s. 9d., all sellers. The price of 4s. 6½d., with 25s. freight stands in 6s. 3½d. per cwt., net cost and freight, without purchasing commission. Sales reported during the fortnight were 833,100 qtls.

IRON MARKET REVIEW.

NEW YORK, March 3, 1899.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Mar. 5, 1898		Week ending Mar. 3, 1899.		From Jan., '98.	From Jan., '99.
	F'ces.	Tons.	F'ces.	Tons.	Tons	Tons
An' racite	26	17,250	32	26,450	162,223	220,764
Coke.....	144	206,750	146	207,250	1,843,923	1,873,061
Charcoal.	15	5,150	17	5,150	47,348	49,908
Totals..	185	229,150	195	238,850	2,053,494	2,143,733

The iron market has run away from control during the past week, and prices have risen sharply in almost all directions. Bessemer pig has sold up to $13.50 in Pittsburg, and steel billets to $22, with prospects of a further increase. Many other products have gone up in proportion, though the rise has not been altogether an even one. For foundry iron there has been an unexpected demand, and prices are also higher. The Southern furnaces are not in a position to increase their production just now, and are getting advances for what they have to sell. Mill iron is called for, without any supplies for immediate delivery.

The fact is that the market has lost its head for the time. There is more demand for material than had been expected, so that many mills which had provided, as they supposed, for the raw material they needed, have had to make additional purchases. The situation has been complicated by people who ought to have learned something from experience—but apparently have not—and are in a panic for fear of a possible shortage by-and-by. These people are rushing to lay in supplies ahead for fear they may not be able to get them when they want them, and are helping to make the very situation which they fear. It is this class which is largely helping to make big prices.

Meantime, there are indications that the scarcity of pig iron, which only exists in excited imaginations at present, will not exist at all. We have referred heretofore to the new furnaces which may be expected to come into blast before long, adding largely to the production. In addition to these we hear of preparations being made to put into blast a number of Eastern furnaces which have not been in operation since the short-lived boom of 1895. Some of these can blow in at comparatively short notice, and production can be and will be increased at a rate which ought to relieve the fears of the uneasy people who are now crying out about a pig-iron famine.

The high prices are necessarily checking export business, though there are plenty of inquiries on hand. Some large engagements are still to be filled, and there is plenty of iron and steel going abroad. Exporters are hoping that the present quarrel among the steamship companies may result in lower rates.

Talk of trusts and combinations continues. The union of the blast furnaces in Southwest Virginia has been completed, so far as organization is concerned. The bridge-builders combine is arranged, it is said, and will include all the leading builders of bridge and structural work. The outside blast furnaces in the Mahoning and Shenango Valleys are arranging for new steel works, to be under their own control.

Birmingham, Ala. Feb. 27.

(From Our Special Correspondent.)

There is absolutely nothing new to report in the pig iron market in this district this week, except that the production is not as great as it has been at times this year. The Pioneer Mining and Manufacturing Company has one of its furnaces banked on account of the lining falling in. There are only four of the furnaces at Bessemer in blast. The stocks on hand or in the warrant yards are not great enough to stand much strain, and the report that some good blocks of iron in the yards are to be removed in the near future makes matters interesting. The shipments of iron, and especially the export movements, are still very active. There is a good price being obtained for the product here and a report is current that No. 2 foundry and No. 2 soft are bringing almost as good a price as the No. 1 foundry and No. 1 soft grades. There are orders on the books of the furnace companies which will last for several months to come.

Local buying is active also. The rolling mills are working steadily, the pipe works demanding quite a bit of iron, the structural iron works and foundries also in the demand.

The following are the quotations given for the products: No. 1 foundry, $8.00@$8.50; No. 2 foundry, $8.00; No. 3 foundry, $7.50@$7.75; gray forge, $6.50@$6.75; No. 1 soft, $8.00@$8.50; No. 2 soft, $8.00.

For finished iron there seems to be a good demand with a fair price. Both the mills here and at Gate City, near by, are in full blast with all departments going. As has been stated before the Birmingham mills, while in the hands of receivers, will not make any iron for stock, therefore the conditions are good, inasmuch as every department is going and with a fair prospect for a continuation until the hot weather sets in. There were no advances for the employees of the mills in this district, as in the North and other points. The same prices which were adopted last July are still in force and there will be no others until the Amalgamated Association meets again this year.

The export iron shipment seems to be the most important item of interest in this district now. During the month of January over 26,000 tons of pig iron were exported from this district. The Birmingham District during the year 1898 shipped 861,279 tons of pig iron, showing an increase of 112,460 tons as compared with the shipments of the year 1897. There were shipped from Alabama and Tennessee during the year 1898, 118,401 tons of cast iron pipe, an increase of 5,228 tons as compared to the year before. There were exported from this State during 1898 a total of 202,673 tons of pig iron, a decrease of 20,784 tons as compared with the export shipment of 1897.

According to the best figures obtainable Alabama and Tennessee during the year 1898 shipped 56,525 tons more pig iron than they produced.

Indications point to the production in this district as to pig iron being at its regular pace within the next three or four weeks. In the meantime the production will be a little off.

Buffalo, N. Y. March 1.

(Special Report of Rogers, Brown & Co.)

The week just past has been one of unnatural activity. Lake Superior charcoal has been the leading feature. Several good sized contracts for this class of material have been placed at full advanced prices. In foundry iron there has been very little offered outside of odd lots and these have been immediately picked up by foundries who have found their increasing sales of castings necessitated further purchases of pig iron. Those foundries who have not fully covered seem to be more interested in placing the contracts where they will be sure of getting the iron than of saving a few cents per ton, as heretofore. We quote for cash, f. o. b. cars, Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $13.25; No. 2 strong foundry coke iron, Lake Superior ore, $12.75; Ohio strong softener No. 1, $13; Ohio strong softener No. 2, $12.50; Jackson County silvery No. 1, $14; Southern soft No. 1, $14.25; Southern soft No. 2, $13.75; Lake Superior charcoal, $14@$14.50; coke malleable, $13.25.

Cleveland, O. March 1.

(From Our Special Correspondent.)

Iron Ore.—During the past week the activity of the market has been as marked as could be expected after the large transactions of a few weeks ago. Moderate amounts have been reported sold, and it is said more ore would have changed hands if agents had felt justified in making the buyers an offer. So far as can be offered under the present mining estimates, certain grades of ores have been practically closed out. Up to the present time very little has been done in the way of taking tonnage to bring down the season's ores. The ore company officials have offered the vessel owners last season's price, 60c. a ton, from the head of Lake Superior, and 50c. from Escanaba, but the vessel men generally refuse to make season contracts at that price. On account of the frozen condition of the ore the shipments to the furnaces have been light for a week or ten days. Following are the prices of ores: Specular and magnetic ores, Bessemer quality, $3.35@$3.55; specular and magnetic ores, non-Bessemer quality, $3.05@$3.25; hematite ores, Bessemer quality, $2.75@$3.25; hematite ores, non-Bessemer quality, $2@$2.25.

Pig Iron.—There is an active demand for all varieties and as a result the market is firm. The inquiry for certain grades has been so strong that the full limit of production for the next two or three months has been sold. This is especially true of foundry metal. The tendency of the market is upward, and all the quotations are slightly higher than they were last week. Following are the quotations, f. o. b. Cleveland: Bessemer, $12.65; No. 1 strong foundry, $12.65@$13.15; No. 2, $12.15@$12.65; No. 1 Ohio Scotch, $12.65@$13.50; No. 2, $12.15@$12.65; gray forge, $11.65.

Philadelphia. March 2.

(From Our Special Correspondent.)

Pig Iron.—It is very difficult to report intelligently and with exactness on the iron trade today. Turmoil prevails. Rumors befog all possible intelligent conception of the situation. At the Foundrymen's meeting Wednesday evening at the Manufacturers' Club, the president predicted that we would be into $25 pig iron by spring. This took the members' breath away. Large purchases of foundry iron have been made every day this week, but there were several turn-downs since 10 o'clock this morning, and it looks as if the furnace managers and brokers were going to turn their backs on the consumers. Quotations might as well be omitted, but for the sake of telling what they were thirty minutes ago in the leading offices of the city they will be given. No. 1 X foundry was then $15; No. 2, $14; plain, $13.25; standard mill iron, $13.25. The consumption of all kinds is increasing and every one is anxious to secure more iron, but it is simply impossible. A panic has struck us. It is no use to guess what may happen tomorrow.

Billets.—Brokers say that billets are worth anywhere from $24@$25, but they are unable to arrange with their principles for deliveries. Buyers will pay no such ridiculous prices, they say, and will wait for the storm to blow over. The billet mill representatives look wise and say very little. They do not care to sell billets at any figure.

Merchant Bars.—Prices have moved up all around since Monday. Common iron sold to-day as high as 1.20c. for quick delivery, which is a difficult thing to obtain at any price. Refined bars are worth 1.30c., and are hard to get at that. The car-builders are making it hard for others to get iron. Test bars are worth 1.30c., and steel bars, 1.30@1.40c.

Sheets.—The rush of orders for sheet iron is pushing prices upward. No. 10 is 1.90c., No. 28, 2.70c. These prices are liable to be advanced at any time. The consumption is evidently increasing, and those who have delayed covering spring requirements are much disturbed.

Pipes and Tubes.—At the fresh advance a large amount of business has been offered, but not accepted. The pressure of orders in other markets is felt here. All our mills are oversold, and the pressure is forcing prices to a higher level.

Merchants' Steel.—The prices of all kinds of merchant steel have been again advanced, and the markets are greatly excited. Large consumers have been obliged to come to manufacturers' terms. A great deal of work was refused this week. The high prices turn some work away, but the necessities of buyers are urgent, and higher quotations are daily looked for.

Skelp.—Prices have been once more advanced. Grooved skelp, 1.35c.; sheaved, 1.55c.; iron, 1.50 @1.55c.

Plates.—The plate iron and steel makers report no abatement in the demand for plate. Prices have been advanced $2 to $3. A great deal of work is being ordered, or, rather, presented for consideration. New enterprises are projected, calling for plate work, but they stand no show at present. Tank is 1.80c.; shell, 1.85c.; flange, 2c., and firebox from 15c. upward. The bridge builders are getting out specifications for a large amount of work.

Structural Material.—Prices have been advanced, and to-day's quotations are: Angles, 1.45c; beams, 1.55c; ties, 1.60c.; Z bars, 1.60c. The mills are filling up, and a great deal of late delivery work is now under consideration.

Steel Rails.—Steel rails are quoted as high as $25, though some urgent buyers were accommodated at $24. Urgent inquiries from foreign sources for large lots have met with no encouragement. The future of the trade is very uncertain. A good many intending buyers will not attempt to purchase at present.

Old Rails.—Quotations are very unreliable. To-day's quotation is $16. Rails are not to be had. Buyers are unwilling to pay such a price. Old-rail people say holders have suddenly put up their figures. It is deemed in some quarters that the present high prices of old rails will bring out a great many lots that have been held a long time. A good deal of old track will, it is believed, be taken up and sold.

Scrap.—All kinds of scrap are higher, and a further advance is probable. Steel axles are quoted at $15; iron axles, at $17; railroad scrap, $15. Heavy steel scrap is $13@$13.25; machinery, cast, $11; old car wheels, $14; wrought turnings, $10@$10.25.

Pittsburg. March 2.

(From Our Special Correspondent.)

Business in all departments so far as relates to iron and steel continues very active, the de-

mand being largely in excess of the supply. Pig iron is becoming very scarce, as a number of furnaces are kept busy in filling contracts made the past three months and in fact have no iron for sale just now. The advance last week was $1@$1.25 a ton. Producers who have iron for sale are puzzled to know what price to ask for their product. The production report of the furnaces in blast for March will be looked for with considerable interest. The situation is without precedent. Business has never been better, taken as a whole, and in most of the great industries the gain is astonishing. Exports surpass last year's as much as imports, though the excess over imports was heavy. Clearly we are using more than 1,000,000 tons of pig iron per month, and stocks have dwindled to a point which is causing more or less of an alarm. Undoubtedly we are working on a narrow margin of supplies, but the situation in this respect is on the eve of improvement and there is no reason to fear serious embarrassment so far as material is concerned. Prices have advanced to a point which, while it may not decrease the demand, is pretty sure to increase the supply, which will be amply demonstrated during the next 60 or 90 days. Quite a number of additional furnaces will be in operation as early in March and April as they can be got ready.

Finished Material.—Prices are still advancing; at the same time it is almost impossible to place orders, as mills are swamped with business; it is difficult to give even exact quotations, as prices depend entirely upon the circumstances in each particular case.

Ferro-manganese.—The market is steady with sales of 80% delivered, $52.50; the market supply is not large.

Muck bars firm and higher; last sale contract, $22.00.

Sheet Bars.—The market is firm and excited; prices uncertain; quoted nominally $23; market bare of stock.

Wrought Iron and Steel Pipe.—Mills continue crowded with work; the recent advance will soon be followed by another.

Wire Rods.—The market is bare; prices nominal $26@$26.50.

Wire Nails.—The advance was maintained; prices nominal $1.65@$1.75 a keg.

Scrap material and old rails are firm and advancing.

Latest.—The market is unsettled with prices still going up. In fact producers do not know what price to ask for iron or steel; prices of today are no criterion for to-morrow. There seems to be little offering of certain grades, the market being bare. Foundry irons are scarce. No. 1 sold at $13.50, No. 2, $12.90. Mill iron scarce, advanced to $12.65. Bessemer pig sales $13.50, advance 95c. Pittsburg Valley Bessemer advanced 50c. Muck bar advanced with sales $22. Billets are away up, sales at $22.50, an advance of $2, with reports of sales at higher figures. There are rumors of sales at prices above those we have quoted; any quotations we have given are backed by sales.

Skelp iron firm and advancing; ground, $1.35 4 m.; sheared, $1.60 4 m. Skelp steel, ground, $1.20; sheared, $1.50 4 m.

COKE SMELTED LAKE AND NATIVE ORE.

Tons.	Cash.
40,000 B., M., J., P.	$12.65
3,000 B., M., J., P.	12.75
3,000 B., A., M., V.	12.50
3,000 Mill I'n, M., J., P.	12.50
3,000 M. I'n, F., M., P.	12.25
3,000 B., M., A., P.	13.00
2,500 B., A., M., P.	12.70
2,000 B., A., M., J., P.	12.75
2,000 B., prompt, P.	12.75
2,000 M. I'n, pro'pt, V.	12.00
2,000 Mill I'n, F., M., P.	12.65
1,500 B., M., A., M., P.	13.00
1,000 B., A., M., J., P.	13.50
1,000 B., A., M., P.	12 90
1,000 B., M., J., P.	13.25
600 Mottled, M., P.	10.00
500 No. 2 F'dry, P.	12.25
500 Mill Iron, P.	12.50
200 No. 2 F'dry, P.	12.65
50 No. 1 F'dry, P.	12.50
25 No. 1 F'dry, P.	13.00

BLOOMS, BILLETS, SLABS.

7,000 Blts., M., J., P.	$19.50
2,000 Billets, A., M., P.	21.40
1,200 Billets, M., J., P.	20.75
1,000 Billets, M., P.	21.75
800 Billets, A., M., P.	22.25
500 Billets, A., P.	21.35
400 Billets. M., P.	21.25
100 Slabs, prompt P.	21.50

MUCK BAR.

Tons.	Cash.
1,000 N'l, M., A., M., P.	$21.50
500 Neutral, pr'pt, P.	21.75
150 Neutral, P.	22.00

FERRO-MANGANESE.

50 80%, delivered, P. $52.50

CHARCOAL.

300 Warm Blast P.	$16.25
100 No. 2 Ex. C. B., P.	27.00
100 Cold Blast, P.	21.50
100 No. 2 Foundry, P.	16.25
100 No. 2 Foundry, P.	16.25
50 Cold Blast, ex., P.	23.75

OLD RAILS.

1,200 Iron Rails, gr., V.	$14.75
1,000 Steel Rails, gr., P.	10.75
800 Steel Rails, gr., V.	10.80

SCRAP MATERIAL.

1,000 H'y S. Sc. gr., P.	$10.75
750 Bu. Scrap, net, P.	9 50
500 W. S. No. 1, gr., P.	12.00
500 Cast Scrap, gr., P.	9.50
500 Cast B'gs, net, P.	6.00
500 Ma. T'ngs, net, P.	7.00
400 St. Ma. Sc., gr., P.	11.00

New York. Mar. 3.

The iron market shows a general advance all around, from pig to finished steel. Transactions, except in pig, have not been especially heavy, but buyers realize that the higher figures are likely to last some time, and are trying to get as favorable terms as possible for orders that must be filled. On speculative business the higher figures act as a damper.

Foreign trade remains good. We note orders for mining machinery, iron pipe and shipments of 10,799 kegs of wire nails, valued at $22,120 to Japan; shipments of iron pipe, manufactured iron, and railway equipment to Japan; a shipment of $11,600 of agricultural implements to Argentina; shipments of $30,000 worth of track tools, car materials, etc., to Mexico; some good sized shipments of machine tools to Germany, and shipments of $22,160 worth of mining machinery and $19,000 worth pumps, etc., to South Africa.

Pig Iron.—Prices have again advanced sharply, but so much iron has been contracted for recently that some furnaces are now out of the market altogether. Present quotations are about as follows: Northern brands, tide-water delivery, No. 1 X foundry, $14.25; No. 2 X foundry, $13.50; No. 2 plain, $13; gray forge, $12.50; Southern brands, New York delivery; No. 1 foundry, $14.25; No. 2 foundry, $14; No. 1 soft, $14.25; No. 2 soft, $14; No. 3, $13.50; basic, $13.75.

In warrant irons, also, prices are higher. Alabama No. 2 has advanced from $9½ to $9¾; No. 3 from $9 to $9¼; No. 4 from $8¾ to $9, and gray forge from $8¾ to $9. We note an auction sale of 1,400 tons of Southern charcoal iron at $10⅜.

Bar Iron.—Prices have climbed up decidedly. Local demand is not heavy, but mills are firm. We quote, for large lots on dock: Common, 1.25c.; refined, 1.33c.

Plates.—New York offices of Eastern mills report mills sold ahead for months. Quotations have advanced to: Tank, ¼-in. and heavier, 1.75@1.80c.; 3-16-in., 1.80@1.85c.; shell, 1.80@1.85c.; flange, 1.90@1.95c.; marine, 2.10c.; firebox, 2.15@2.20c. Eastern mills are taking no orders for tank, even at these quotations. Universals are up to 1.65c.

Structural Material.—Mills have put up prices as a result of higher billets. We now quote: Beams, 1.60c.; angles, 1.45c.; channels, 1.55c.; tees, 1.55c.

Steel Rails.—Prices are higher, just how high for anything like immediate delivery is hard to say, but sales at as high as $24 for standard sections are reported.

Nails.—The American Steel and Wire Company, finding how easy it is to send up prices, has given the market another shove. Cut nails in large lots are now quoted on dock, New York, at $2.05. Owing to this advance cut nails are also higher, and carload lots on dock are now $1.55.

Old Material.—There is a very brisk demand for scrap, with prices firm. We quote, for New York deliveries: Old iron rails, $13.50@$14; old steel rails, $10.50; hammered car axles, $16; old car wheels, $11; No. 1 wrought, $11; machinery cast, $10; burnt iron, $5.50.

METAL MARKET.

NEW YORK, Mar. 3, 1899.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports, January and year.

	January.		Year.	
	1898.	1899.	1898.	1899
GOLD.				
Exports	$2,658,663	$2,330,503	$2,658,663	$2,330 563
Imports	6,493 414	6,066,080	6,493,414	6.066,080
Excess	I. $3,834,751	I. $3,735,577	I. $3,834,751	I $3,735,577
SILVER.				
Exports	4,301,820	5,358,900	4,301,820	5,358,900
Imports	2,535,461	2,591,718	2,535,461	2 591,718
Excess	E. $1,766,359	E. $2,767,182	E $1,766,359	E. $2,767,182

This statement includes the exports and imports at all United States ports, the figures being Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending March 2d. 1899, and for years from January 1st, 1899, 1898, 1897, 1896.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports	
We'k	$177.924	$20,799	$630,698	$27,901	E. $759,931
1899..	563,035	3,700,403	5,226,590	536,184	E. 1,553,038
1898..	3,429,886	4,099,884	7,491,635	477,740	E. 6,353,097
1897..	780,661	704,411	6,981,827	396,732	E. 6,661,345
1896 .	9,748,885	15,915,833	7,155,245	306,001	E. 682,296

Imports of gold and silver were from the West Indies and South America. Exports of gold were chiefly to the West Indies; of silver to London.

The United States assay office in New York reports the total receipts of silver at 106,000 oz. for the week.

Financial Notes of the Week.

Business generally continues very active, notwithstanding some reaction in the speculative markets. The bank clearings continue very large, railroad traffic is good and all the usual signs indicate an enormous volume of trade. Money in New York is a little less abundant, owing to calls from the interior, and the rates for loans are somewhat higher. Large purchases of securities abroad and heavy loans made in London and Berlin have kept the rate of exchange above the gold importing point for the present.

The short session of Congress ends to-morrow. Little or nothing has been done beyond the passage of the appropriation bills, and no financial or currency legislation has been attempted. It is not probable that any extra session will be called, unless some emergency now unforeseen should arise; and there will, therefore, be no meeting until next December.

Silver has been steady, both for spot and futures. The demand has been normal, and there is no disposition to speculate on either higher or lower prices.

The statement of the United States Treasury on Thursday, March 2d, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date of last week:

	Feb. 23.	Mar. 2.	Changes.
Gold	$228,226,278	$232,147,027	I. $3,920,749
Silver	8,810,437	7,302,187	D. 1,508,250
Legal tenders	15,257,749	14,969,159	D. 288,590
Treas. notes, etc.	1,726,071	1,377,486	D. 348,585
Totals	$254,020,535	$255,795,859	I. $1,775,324

Treasury deposits with national banks amounted to $85,140,308, a decrease of $1,386,797 during the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending February 25th, gives the following totals, comparison being made with the corresponding weeks in 1898 and 1897:

	1897.	1898.	1899.
Loans and discounts	$497,609,700	$641,878,400	$771,574,900
Deposits	573,769,300	729,214,300	910,573,600
Circulation	16,491,100	13,727,700	14,516,300
Reserve:			
Specie	83,940,900	119,186,500	202,658,300
Legal tenders	117,022,400	86,076,400	55,320,000
Total reserve	$200,963,300	$205,262,900	$257,978,300
Legal requirement	143,442,325	182,303,575	227,643,400
Balance surplus	$57,520,975	$22,959,325	$30,334,900

Changes for the week, this year, were increases of $12,963,900 in loans and discounts, $13,401,300 in deposits, $4,000 in circulation, and $523,000 in specie; decreases were $1,211,600 in legal tenders, and $4,038,925 in surplus reserve.

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 dates last year:

Banks.	1898. Gold.	1898. Silver.	1899. Gold.	1899. Silver.
N. Y. Asso.	$119,186,500	.....	$202,658,300	.....
England	169,212,270	.....	173,713,385	.....
France	384,156,280	$242,827,214	364,555,200	$238,709,400
Germany	162,290,000	83,605,000	145,415,000	74,155,000
Aus.-Hun.	181,945,000	62,230,000	178,945,000	62,355,000
Spain	47,590,000	53,550,000	55,780,000	46,025,000
Belgium	14,370,000	7,185,000	15,865,000	7,935,000
Netherlands	13,215,000	34,430,000	21,565,000	34,160,000
Italy	77,490,000	9,705,000	78,055,000	11,860,000
Russia	585,040,000	20,600,000	499,865,000	22,240,000

The returns for the Associated Banks of New York are of date February 25th, the Bank of England March 2d, and the others are of date February 23d, 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 coin. The Bank of England reports gold only.

The coinage of the United States Mints in February and the two months of the present year are reported by the Bureau of the Mint, as below:

Denominations.	—February.— Pieces.	Value.	—Two Months.— Pieces.	Value.
Double eagles	662,190	$13,243,800	1,435,290	$28,705,800
Half eagles	321,000	1,605,000	835,000	4,175,000
Total gold	983,190	$14,848,800	2,270,290	$32,880,800
Dollars	1,512,000	1,512,000	3,048,000	3,048,000
Half dollars	164,000	82,000	270,000	135,000
Quarter dollars	16,000	4,000	216,000	54,000
Dimes	.....	.....	30,000	3,000
Total silver	1,692,000	$1,598,000	3,564,000	$3,240,000
5-cent nickels	446,000	22,300	890,000	44,500
1-cent bronze	1,157,000	11,570	2,096,000	20,960
Total minor	1,603,000	$33,870	2,986,000	$65,460
Total coinage	4,278,190	$16,480,670	8,820,290	$36,186,260

The total coinage in February shows a falling-off of $3,224,920, as compared with January; this decrease was principally in gold.

Shipments of silver from London to the East for the week ending February 16th, 1899, are reported by Messrs. Pixley & Abel's circular as follows:

	1898.	1899.	Changes.
India	£858,400	£509,000	D. £349,400
China	120,596	230,380	I. 109,784
The Straits	94,784	5,000	D. 89,784
Totals	£1,073,780	£744,380	D. £329,400

Arrivals for the week this year were £294,000

in bar silver from New York, £5,000 from the West Indies, and £2,000 from Australia; total, £301,000. Shipments were: £50,000 in bar silver to Bombay, £25,000 to Shanghai, £12,400 in British Colonial coin to Hobson's Bay and £5,000 to Malta; total, £92,400.

Indian exchange continues steady, though the demand has not been quite so heavy. The average price for Council bills in London was 16.03d. per rupee. Recently there has been a strong demand for rupee paper in India, and a large amount has been transferred, lessening the demand for Council bills to some extent.

The revenue and expenditures of the United States Treasury for February and the eight months of the fiscal year from July 1st to February 28th, were as follows:

	February.	Year.
Revenue	$37,979,332	$325,414,187
Expenditures	43,918,929	424,523,732
Deficit	$5,939,597	$99,109.545

Of the revenue for the eight months, $130,876.651 came from customs, $178,628,453 from internal revenue and $15,909,083 from miscellaneous sources.

Imports of specie at San Francisco in January are reported as follows:

	Gold.	Silver.	Totals.
Coin	$2,965,098	$29,365	$2,994,463
Bullion	89,634	159,626	249,260
Totals	$3,054,732	$188,991	$3,243,723
Totals, 1898	921,467	103,211	1,027,678

The receipts were from the following countries: British Columbia, $18,788; Mexico, $270,022; Central America, $106,538; Australia, $2,433,250; Japan, $259,025; China, $156,100. The increase this year was chiefly in gold from Australia.

Daily Prices of Metals in New York.

Feb.-Mar.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, P'nce	Copper. Lake, cts. ℔ lb.	Copper. Elec-tro-lytic, ℔ lb.	Copper. Lond'n stand-ard £ ℔ ton.	Tin, cts. ℔ lb.	Lead, cts. ℔ lb.	Spel-ter, cts. ℔ lb.
25	4.86¼	59½	27⅜	18	17	.....	24½	4 40	6.50
27	4.86¼	59½	27⅜	18	16¾	72 0 0	24¼	4.35	6.45
28	4.86¼	59½	27⅜	18	16¾	71 5 0	24	4.30	6 40
1	4.86¼	59⅝	27½	18	16¾	71 10 0	24	4.30	6.30
2	4.86	59⅝	27⅜	18	17	72 5 0	24¼	4.25	6.30
3	4.86	59⅝	27⅜	18	16¾	71 0 0	23¾	4.25	6.25

Average Prices of Silver per oz. Troy.

Month.	1899. Lond'n Pence.	1899. N. Y. Cents.	1898. Lond'n Pence.	1898. N. Y. Cents.	1897. Lond'n Pence.	1897. N. Y. Cents.
January	27.42	59.36	25.29	56.77	29.74	64.79
February	27.44	59.42	25.89	56.07	29.68	64.67
March	.....	.....	25.47	54.90	28.96	63.06
April	.....	.....	25.95	56.02	28.36	61.85
May	.....	.....	26.31	56.98	27.86	60.42
June	.....	.....	27.09	58.61	27.58	60.10
July	.....	.....	27.32	59.06	27.36	59.61
August	.....	.....	27.48	59.54	24.93	54.19
September	.....	.....	28.05	60.68	25.66	55.24
October	.....	.....	27.90	60.42	26.77	57.57
November	.....	.....	27.93	60.60	26.87	57.93
December	.....	.....	27.45	59.42	26.83	58.01
Year	.....	.....	26.76	58.26	27.55	59.79

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. 1899.	COPPER. 1898.	TIN. 1899.	TIN. 1898.	LEAD. 1899.	LEAD. 1898.	SPELTER. 1899.	SPELTER. 1898.
Jan	14.75	10.99	22.48	13.87	4.18	3.65	5.34	3.96
Feb	17.99	11.28	24.20	14.08	4.49	3.71	6.28	4.04
March	.....	11.98	.....	14.38	.....	3.72	.....	4.25
April	.....	12.14	.....	14.60	.....	3.63	.....	4.26
May	.....	12 00	.....	14.52	.....	3.64	.....	4.27
June	.....	11.89	.....	15.22	.....	3.82	.....	4.77
July	.....	11.63	.....	15.60	.....	3.95	.....	4.66
August	.....	11.89	.....	16.23	.....	4.00	.....	4.58
Sept	.....	12.31	.....	16.03	.....	3.99	.....	4.67
October	.....	12.41	.....	17.42	.....	3.78	.....	4.98
Nov	.....	12.86	.....	18.20	.....	3.70	.....	5.29
Dec	.....	12.93	.....	18.30	.....	3.76	.....	5.10
Year	.....	12.03	.....	15.70	.....	3.78	.....	4.57

The price given in the table is for Lake Copper. The average price of electrolytic copper in January was 14.26c.; in February it was 17.02c.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47¼	$ .48½
Peruvian soles and Chilean pesos	.42½	.43
Victoria sovereigns	4.85	4.87
Twenty francs	3.84	3.88
Twenty marks	4.73	4.78
Spanish 25 pesetas	4.78	4.84

Other Metals.

Copper.—The market remains quiet but steady. This week a larger business was done, as a number of buyers found that their wants were not fully supplied. Prices here have not followed those of the London market, which has been dominated by conflicting speculative interests and has fluctuated violently, while domestic values have held firm. Manufacturers are exceedingly busy and greatly hampered by the non-arrival of supplies in transit. Producers, as we have before pointed out, are very heavily sold for months to come and copper for spot delivery is unobtainable, while early deliveries are very scarce. The closing prices here are, for Lake copper, 18c.; electrolytic, in cakes, wirebars or ingots, 17c.; electrolytic cathodes, 16¾c.; casting, 16¾c.

The London market, which closed last week at £72 12s. 6d., opened on Monday at £71 15s.; advanced on Tuesday to £72 5s., declining on Wednesday to £71 10s. On Thursday, however, values rose to £72 7s. 6d., receded on Friday, and the market closes at £70 18s. 9d. for spot and £70 15s. for three months. For refined and manufactured we quote: English tough, £76@£77; best selected, £77@£78; strong sheets, £81; India sheets, £78; yellow metal, 7d. According to our cable, the statistics for the second half of February show a decrease of 1,500 tons.

Tin.—The market has been very quiet, and while the metal was held for 24¾c. at the end of last week, it is now quoted at 23¾@24c.

The London market has fluctuated considerably. Last week it closed at £109; this week it declined to £106, but rallied to £108 17s. 6d. and closes to-day at £106 15s. for spot and £106 10s. for three months. Statistics for the month of February show a decrease of 400 tons.

Stocks of tin reported on March 1st are as follows, in long tons:

	In store.	Afloat.	Total.
London	6,740	2,464	9,204
Holland	3,348	1,258	4,606
U. S., exc. Pacific ports	1,590	5,230	6,820
Totals	11,678	8,952	20,630

The total shows an increase of 499 tons over February 1st, but a decrease of 8,669 tons from March 1st, 1898.

Tin imports in the United States reported for January and February were: English, 10 tons; Australian, 50; Banka.

Lead.—The market has been very quiet, and some pressure to sell brought prices down to 4.25c. New York and 4.05c. St. Louis. Consumers have held aloof, but may have to enter the market any moment.

The market abroad is lower, at £13 17s. 6d. for Spanish and £14 for English lead.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: "Lead is dull and slowly declining. The latest sales are on a basis of 4.10c. Buyers are looking for lower prices, and can only be induced to lay in supplies from hand to mouth."

Spelter.—Consumers appear to have supplied their wants for some little time to come and business is very much restricted. Prices have declined to 6c. St. Louis and 6.25c. New York.

The foreign market has also declined, and is now nominally £27 12s. 6d. for ordinary brands and £27 17s. 6d. for specials.

Antimony.—No change: Cookson's, 10½c.; Halletts, "C" and U. S. Star, 9¾@10c.

Nickel continues on unchanged lines, and no alteration in prices can be reported. We quote for ton lots 33@36c. per lb., and for smaller orders 35½@38c. London prices are 14@16d. per lb., according to size and order.

Platinum.—Demand is active and prices continue high. For large lots $15.50 per ounce is now quoted in New York; for smaller order $16@$17. The London quotation is 62@64s. an ounce.

Quicksilver.—The New York quotation remains $42 per flask. The London price is £8 5s., with £8 4s. named from second hands.

The Minor Metals.—Quotations are given below for New York delivery:

	Per lb.		Per lb.
Aluminum.			
No. 1, 98% ingots	.30@40c.	Bismuth	$1.40
No. 2, 90% ingots	.31@34c.	Phosphorus	.48@50c.
Rolled sheets	.38c. up	Tungsten	70c.
Nickel alloy	.33@39c.	Ferro-tungsten, 60%	60c.

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

Imports and Exports of Metals

Port.	Week, Mar. 1. Expts.	Week, Mar. 1. Impts.	Year, 1899. Expts.	Year, 1899. Impts.
***New York.**				
Aluminum.....long tons	26	.....	138	10
Antimony ore... " "	.....	.....	.....	184
" regulus.. " "	.....	.....	.....	30
" oxide ... " "	.....	.....	.....	11
Chrome ore ..... " "	.....	.....	.....	110
Copper, fine .... " "	768	271	8,628	2,029
" wire..... " "	.....	.....	189	.....
" matte... " "	25	.....	252	403
" ash..... " "	.....	.....	.....	31
" sulphate " "	295	.....	1,619	.....
" other ... " "	.....	.....	.....	30
Ferro-chrome... " "	.....	.....	.....	.....
Ferro-mangan'se " "	.....	.....	.....	.....
Ferro-silicon..... " "	.....	.....	.....	.....
Iron ore..... " "	.....	.....	5	.....
" pig, bar, rod " "	210	‡25	1,196	464
" pipe..... " "	624	.....	4,961	.....
" plates..... " "	.....	.....	85	.....
" other..... " "	13	.....	248	.....
Lead..... " "	650	1,050	8,438	9,200
" ore..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	‡5	.....	134
§Metals, old .... " "	8	‡80	167	458
Composition... " "	559	.....	1,132	.....
Nickel ..... " "	125	.....	392	.....
§Tailr'd material " "	155	‡230	1,595	450
Rails, old..... " "	385	.....	2,618	.....
Spiegeleisen..... " "	.....	‡35	.....	103
Steel bars, plates " "	2,554	‡557	8,820	2,508
" rails..... " "	1,801	.....	14,635	.....
" hoops..... " "	25	.....	295	.....
" wire..... " "	674	.....	4 340	.....
" nails..... " "	195	.....	3,116	.....
" not spec'd. " "	444	‡111	2,027	400
Tin..... " "	.....	845	.....	5,030
" dross or ashes " "	.....	.....	48	.....
" and black plates, boxes	.....	‡18,570	.....	65,382
Zinc.....long tons	.....	14	.....	16
" dross..... " "	76	.....	147	.....
" dust or ashes " "	26	10	228	10
" ore..... " "	.....	.....	801	.....
" oxide..... " "	51	.....	646	48
" skimmings. " "	31	.....	201	.....
†Baltimore.				
Aluminum.....long tons	.....	.....	.....	.....
Antimony regulus...casks	.....	.....	.....	.....
Brass scrap.....long tons	.....	.....	.....	.....
Chrome ore..... " "	.....	.....	.....	.....
Copper, fine..... " "	235	.....	4,643	.....
" matte... " "	.....	.....	.....	.....
" sulphate " "	.....	.....	518	.....
Ferro-manganese " "	.....	180	.....	827
Ferro-silicon..... " "	.....	80	.....	130
Iron pig, bar, etc. " "	419	329	2,519	2,429
" ore..... " "	.....	8,759	.....	35,383
" pipe..... " "	.....	.....	1,741	.....
" pyrites..... " "	.....	.....	.....	6,584
" other..... " "	253	.....	254	5
Lead..... " "	.....	.....	.....	.....
Machinery..... " "	.....	.....	115	.....
Manganese ore.. " "	.....	2,200	.....	5,403
Metals, scrap.... " "	.....	.....	207	.....
Spiegeleisen..... " "	.....	135	.....	169
Steel, bars, pl'es, &c. " "	284	.....	9,053	48
" wire ..... " "	.....	.....	144	114
" rails..... " "	500	.....	2,500	.....
" nails..... " "	2	.....	127	.....
" pipe..... " "	.....	.....	573	.....
not specified.. " "	22	.....	45	.....
Tin..... " "	.....	58	.....	119
" dross..... " "	.....	.....	.....	.....
" and black plates, boxes	.....	.....	.....	440
Zinc.....long tons	.....	.....	18	.....
" dross..... " "	13	.....	30	.....
" skimmings.. " "	34	.....	34	.....
***Philadelphia.**				
Antimony ..... casks	.....	.....	.....	.....
Chrome ore.....long tons	.....	320	.....	320
Copper ore..... " "	.....	‡4,472	.....	11,646
Ferro-manganese " "	.....	‡134	.....	204
Iron, pig..... " "	.....	.....	.....	.....
" ore..... " "	.....	15,300	.....	12,350
" pyrites ..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	.....	.....	11,360
Spiegeleisen..... " "	.....	‡196	.....	496
Steel ..... " "	.....	.....	.....	.....
Tin..... " "	.....	.....	.....	235
" and black plates, boxes	.....	.....	.....	.....
Zinc ore .....long tons	480	.....	2,155	.....

*New York Metal Exchange returns. †By our Special Correspondent. §Not mentioned elsewhere. ‡Imports for week. February 23d.

MINING STOCKS.

Complete quotations will be found on pages 283, 284 and 285 of mining stocks listed and dealt in at:

Baltimore.	New York.	Mexico.
Boston.	Philadelphia.	Paris.
Butte.	St. Louis.	Rossland.
Cleveland.	Salt Lake.	Shanghai.
Colo. Springs.	San Francisco.	Toronto.
Denver.	London.	Valparaiso.
Spokane.		

New York. Mar. 3.

The mining share market is settling to its normal condition again, and in a number of instances prices have softened.

In the Colorado group the Cripple Creeks have been influenced by a smaller gold production in February, owing to the heavy snowfall. Of the stocks dealt in, Isabella has been sold down to $1.15, and bids are being made at less to-day. Portland brought $2, though 15c. less is now being bid for it. Gold Coin of Victor is held around $1.87½, while Elkton is quoted steady at $1, and Anchoria-Leland at 97c. The cheaper priced stocks are finding a fair market in the East.

The Comstocks are quiet, and a little off in price. Consolidated California & Virginia, which sold at $2.35 last week, is now quoted at $2.10. Assessments are again in evidence, and at least four companies have made levies within the past two or three weeks. Belcher has levied an assessment of 10c., and in consequence the stock is quoted around 55c. Challenge Consolidated, Alta and Overman have each levied 5c. delinquent this month. Hale & Norcross is again quoted at 40c., after the late slump to 6 or 7c. Sierra Nevada has sold up to $1.50, a gain of 40 points since last week.

In the California section, Standard maintains its position at $2.75, while Brunswick has changed hands at 30c.

The Utah stocks, Horn Silver and Ontario are both in better place; the former is up to $1.60 and the latter has bidders at $5.75.

The other stocks on the list are moving quietly, at regular fluctuations.

The Consolidated Kansas City Smelting and Refining Company has declared its regular quarterly dividend of 1½% of the common stock, payable March 15th.

The Willson Aluminum Company, at a meeting of its stockholders this week, increased its capital stock from $120,000 to $750,000, for the purpose of further developing its business.

Boston. March 2.

(From Our Special Correspondent.)

The publication of another manifesto from the irrepressible Mr. Lawson, announcing that the great and mysterious copper combination is now approaching completion and will soon be publicly announced, opened the week. This was followed by a raid on the stocks of all the companies not supposed to be in the consolidation. The object was apparently to show the public that all the companies not in Mr. Lawson's deal are bound to suffer; and perhaps it was also meant as a little bluff for directors and stockholders who might be influenced to come in. Thus, Calumet & Hecla, which last week sold at $850 ex-dividend, was sold down to $760 on Monday and Tuesday, but later recovered to $775. Other stocks were carried down in proportion, but care was taken to support the combine stocks.

The reports of the Lake companies for 1898 are beginning to make their appearance, three having been published this week. Those of the Tamarack and Osceola are vague and unsatisfactory, as usual, giving no details and not even the production of copper. The Quincy report is a little better, but leaves unsaid many things one would like to know. The financial results shown are fairly satisfactory, but not as good as might have been expected.

The stock of the Santa Fe Copper Mining Company of New Mexico has been listed on the Exchange, and will be dealt in hereafter regularly, and not among the outside stocks on the curb. It is selling at about $18 a share.

The directors of the St. Mary's Canal Mineral Land Company have voted to distribute to stockholders on record March 1st $15 in cash and 1½ shares of the stock of the Trimountain Mining Company to every share of St. Mary's stock; the cash to be paid March 8th, and the Trimountain stock to be delivered March 15th. Stockholders who, under this distribution, would be entitled to a half share of Trimountain stock will receive $8 in cash in lieu thereof, or they may purchase from this company an additional half share for $8 by remitting the same on or before March 8th.

The Boston & British Columbia Copper Mining and Smelting Company has been incorporated under the laws of Maine, with a capital of $3,000,000, to consist of 300,000 shares of a par value of $10 per share. It is understood that the company has secured control of the Standard Group of mines in the West Kootenay mining district in British Columbia. The stock will be offered for sale in Boston.

The Cape Breton Copper Company is a new organization, to work mines in Cape Breton. It was reported that Mr. Henry M. Whitney was to be a director, but he has since stated that he holds no interest in the company at all.

It is stated that 100,000 shares of the capital stock of the Melones Gold Mining Company have been sold quietly in Boston at $5 per share. The total capitalization is 200,000 shares, of which 53,820 shares were sold two years ago for $120,000 and the proceeds used for development work. The property is located on Carson Hill, Calaveras County, Cal., three miles south of the Utica and four miles north of the Rawhide mines. It is on the Mother Lode, and comprises six claims, together with three mill sites and six placer claims. A 100-stamp mill will be completed in November. The directors are W. E. C. Eustis, C. Minot Weld, I. T. Burr, James Parker, J. C. Whitney, C. N. Felton and W. C. Ralston. The stock will be listed on the Boston Exchange.

3. P. M.—The market to-day has been stronger and nearly all the copper shares gained, the gold stocks also coming out well. It was the reaction from the raid of the earlier days of the week. Quotations this afternoon are as follows: Calumet, $775; Osceola, $93; **Franklin, $25; Quincy,** $170; Montana, $373; Old Dominion, $38¾; Arcadian, $90; Butte, $92; Copper Range, $45 bid; Mass, $15½; Baltic, $30; Tri-Mountain, $13½; Wolverine, $45¼; Atlantic, $34½; Mohawk, $30½; Rhode Island, $14⅛; **Adventure, $14½; Cochiti,** $10; Miners sold at $51, now $48; Utah, $42; Centennial, $53½; Santa Fe, $18; Old Colony, $17; Pioneer, $7; Victor, $3½; Union, $8; Isle Royale, $62; Bingham, $12; Winona, $18; Fortuna, 75c.; Victoria, $9½; Arnold, $9¾; Napa, $8½; Parrot, $46⅛; Ysabel, $13⅛; Allouez, $11; Tecumseh, $9¾.

Cleveland, O. March 1.

(From an Occasional Correspondent.)

A number of gentlemen, residents of this city, have deemed it advisable to organize a mining and stock exchange. As a result a conference was recently held and the following gentlemen were delegated to incorporate, under the laws of Ohio: Messrs. E. L. Shaffner, mine owner in Montana; Warren C. Wilkins, a large owner of mining properties in the Klondike; A. E. Thompson, agent of the Union Transit Company, of Cleveland, who is interested with Mr. Wilkins in Klondike mines; W. E. Watson, of Cleveland, who is interested in Canadian mining properties, and Francis B. Morgan, also of Cleveland, a large operator in mines in Colorado, Canada and Mexico. The new organization will be known as the Cleveland Mining and Stock Exchange. The charter was granted by the Secretary of State of Ohio on December 23d, 1898, and since then rooms have been secured for the Exchange in the New England Building. The Exchange will shortly have telegraphic connections with other mining stock boards. Our exchange will also be a bureau, to furnish only reliable data about stocks, bonds, etc., of different mining companies, both in this country and Canada.

Salt Lake City. Feb. 25.

(From Our Special Correspondent.)

Conditions in Utah mining shares are about stationary. The sales for the week, on the regular calls, topped 500,000 shares, which sold for $150,000. Allowing for the holiday on the 22d, this is nearly up to the business of the prior week, but at the close to-day there were signs of softening which were not apparent yesterday.

Ajax is strong. Mammoth has sagged below $2. Lower Mammoth climbed to $1 and later weakened, closing 90½ bid, 93 asked. Grand Central is little changed. January ore sales realized $72,000, and the mine expenses were $10,000. Bullion Beck is firmer. Swansea is in demand, as is Centennial Eureka. South Swansea holds its own. Four Aces softened badly, but somewhat recovered yesterday and to-day. Homestake holds its advance. Emerald is unchanged. The annual meeting this week re-elected the old board. Star Consolidated is firmer. Mercur is stronger. The mill is said to be giving a good account of itself. Chloride Point is higher. Good accounts come from mines and mill. Daisy continues to sag. Northern Light is lower. The annual report shows receipts on ore sales $14,437, and mill product, $2,664. Ore shipments are temporarily prevented by snow blockade. Horn silver is stronger. Dalton & Lark has softened. Congor, a new Bingham copper property, is just listed on the exchange. Dexter is an offering at $2.50. Dalton is to be had at a fraction under 3. Utah and Galena are stationary, presenting a strong front. Alice is firmer.

Daly West is unchanged. Work will be resumed at the mines on March 1st. There is a quiet inquiry for Ontario. Silver King is as strong as ever. Anchor is weak.

San Francisco. Feb. 25.

(From Our Special Correspondent.)

Bad weather and a holiday have made a very quiet week. Business has not been heavy, and fluctuations only moderate. The market is still an inside one altogether, and outsiders still stay out. The announcement that actual pumping work on the Comstock have begun stirred up a little interest and a hope that we may see something at last.

Some prices noted are: Consolidated California & Virginia, $1.90; Sierra Nevada, $1.20; Ophir, $1.05; Confidence, 73c.; Best & Belcher, 56c.; Mexican, 65c.; Hale & Norcross, 40c. Standard Consolidated shows a sale at $3.20.

London. Feb. 22.

(From Our Special Correspondent.)

That there has recently been a renewed activity in the mining section of the stock market (a fact which I have chronicled in several of my letters lately) receives a fresh confirmation by another outbreak of the perennial conflict between the police and the members of the Stock Exchange. The streets around the Stock Exchange, as every American who has visited London knows, are extremely narrow. During business hours it is difficult to get along Throgmorton street, owing to the crowds of members and their clerks going in and out, and of half-commission men and other outsiders who line the street. But after 4 o'clock, when the House closes, the street on a busy day is just blocked up with struggling and shouting humanity. The police and corporation consider it their duty to keep the street open, so they send all the traffic through it that they can just at such times. The members of the Stock Exchange and their followers consider this action a real grievance, as the street leads to and from nowhere particular and is chiefly the abode of the brokers themselves. On the other hand, I do not quite see why, if the Stock Exchange has not done its business, it should close its doors and adjourn to the street.

In spite of this briskness, which is founded chiefly on the South African and copper markets, the interest in movements is very small. No new companies are coming out, for promoters find it hard to pick up a copper mine for flotation.

Copper mines receive a great deal of attention, owing to the high price of copper. Rio Tintos and Anacondas lead the way, the latter's £5 shares standing at £39¾, and the Anaconda $25 shares at £9. People calculate that if a copper mine pays so much per cent. dividend when copper is £45, it must pay so much more per cent. when copper is £73, and figure out the capital value of the shares accordingly. They apparently forget that £73 is a very unstable price for copper, and that it is likely that a very small proportion of the mines' output will be marketed at that price. On the whole, the seller has the best of the bargain at present.

Ever since Woolf Joel's death the Barnato house has shrunk into the background and has restricted its transactions. In some quarters it has been said that they were liquidating their estate, with a view of winding up their business. This rumor they have contradicted this week, and they say they have no intention whatever of going out of business. It is a fact, however, in spite of this denial, that the house is reducing its volume of business, selling out wherever possible and ceasing to undertake new things. It is not undergoing an immediate liquidation, but only a gradual one.

A Klondike company of considerable interest has made its appearance this week. This is McDonald's Bonanza (Klondike) Limited, which has been formed to acquire the claims of the celebrated Alec. McDonald and his partner, Hugh Ferguson. These claims are No. 2 above Discovery, on Bonanza Creek, and Nos. 1, 2, 3, 7 and 8 on Skookum Gulch, immediately adjoining No. 2 aforesaid. The reports on which the directors rely were made by Major D. Tyrie Laing, who is in the nature of promoter of the company, and by Mr. George T. Coffey of California. The capital of the company is £450,000. The purchase price is £55,000 in cash, £20,000 in preference shares and the whole of the ordinary shares, £335,000. The vendors also stipulate for £40,000 in cash out of the first wash-ups. The prospectus gives very detailed descriptions of the properties, which should carry great weight with those who have reason to depend on the word of the vendors, promoters and directors, but the directors are not publicly known people, so there is little to go on.

The Salt Union and the United Alkali Company both continue to keep in low water. The latter company announces that no dividend for 1898 will be paid on the ordinary shares, but the preference will get their usual 7%. This is just as it was a year ago. The Salt Union has made a net profit of only £32,792, which, with £12,531 brought forward from last account, makes a total of £45,323. This profit, however, is not sufficient to pay debenture interest for the year, which amounts to £54,000, so the balance has to come from reserve. The ordinary shareholder gets nothing.

Paris. Feb. 19.

(From Our Special Correspondent.)

The sudden and totally unexpected death of President Faure, on Thursday, for a moment almost paralyzed the stock market, and at once every one began to wonder what might be the outcome. There was a speedy recovery, however, and our financiers generally anticipate the election of a successor without serious disorders. There has been no heavy fall in securities, but the market has been very quiet, with only limited dealings.

Previous to this news the principal excitement was in the copper shares, in which a strong speculation accompanies that in the metal. We hear a great deal about conventions, restricted production and continued high prices; and all this has a serious effect.

The Comite des Houilleres de France reports the output of coal in the two chief producing districts last year as below, in metric tons:

	1897.	1898.
Nord	5,881,581	6,073,630
Pas-de-Calais	13,060,615	13,881,656
Totals	18,942,196	19,955,286

The total increase was 1,013,090 tons, or 5.3%. There are in the Nord 9 collieries, with 47 working shafts; in the Pas-de-Calais, 16 collieries, with 74 working shafts.

The imports of coal into France in 1898 were 9,070,560 metric tons, against 8,923,303 tons in 1897; an increase of 147,257 tons, or 1.7%. These imports were from Great Britain and Belgium chiefly. Imports of coke, chiefly from Belgium and Germany, were 1,374,590 tons, against 1,533,950 tons in 1897; a decrease of 159,360 tons, or 10.5%. Exports of coal were 1,321,230 tons, against 1,142,196 tons; of coke, 62,180 tons, against 70,780 tons in 1897.

It is somewhat disturbing that we have to rely on other nations—which may easily become hostile nations—for a considerable proportion of our fuel supply. But there seems no remedy, since there is little probability of the development of new coal-fields in our own territory, and our colonies are too distant. **Azote.**

STOCK QUOTATIONS.

NEW YORK.

Name of Company.	Location.	Par val.	Feb. 25. H.	L.	Feb 27. H.	L.	Feb. 28. H.	L.	Mar. 1 H.	L.	Mar. 2 H.	L.	Mar. 3. H.	L.	Sales
Adams Con	Colo..	$10	20		....		2)	. .		.	....	....	....	....	
Alamo	"	1	07	.06½	.10	.08	.08	...	.07½	.07	07½	06¾	....	....	12.8(0
Alice	Mont.	25	.96	90	.95	..	.97	95	....	. .	1.00	....	...	..	1,750
Alliance	Utah	1	.09		.18	..	....	...			..	..	...	..	
Anaconda Gold	Colo..	5	59	.57½	59	58	52	...	60	57	6)	.59	60	.58	7,0(0
Anchoria Lel.	"	1	1.01	1.00	1. 0	. .	95		.9.	....	.98	....	.9)	.98	2,500
Argentum-Jun.	"	2	3)	.....	3)	...	.33	.32	...	...	...	...	...	...	2,800
Belcher	Nev...	3	30	....	25	.20	.20	....	..	...	...	....	....	....	5(0
Best & Belcher	"	3	.53	.(0	.55	5.	70	....	....	..	.05	....	...	...	700
Breece	Colo..	25	1.6	1 40	1 75	1 4.	2.0.	....		....	..	...	...	...	3(0
Brunswick	Cal...	1	3	.28	3)		.3.		. ..	....	.35	.31	...	...	1,500
Burt Gold	Colo..	1	.06¾	.06½	.06¾	.06½	06¾	06⅝	.07	06¾	.07¼	.07	.07¾	.07½	101,50
Chollar	Nev..	3	.30	..	.35	....	35	...	....	....	...	....	...	...	
Chrysolite	Colo..	...	13	..	.13	..	.16	...	...	...	...	...	....	....	2(0
Comst'k T.,b'ds	Nev...	100	.05	..	.05	...	.06	. .	.07	....	...	...	....	....	3,000
do. stocks	"	100	06	....	.06	....	.08	....	...	....	...	....		...	
do. scrip	"	100	.06	....	.05	....	.06	....	...	...	...	...		...	
Con. Cal. & Va.	"	2	1 7	....	1 80	...	1.80	..	...	...	...	.	...	...	
Cr & Cr. Creek	Colo..	1	.05	....	07	....	.05	..	....	...	...	...	...	...	1,0(0
Crescent	"	10	2	....	18	...	.21	...	.	..	...	...	...	...	20.
Cripple Cr. Con.	"	1	.10½	...	.10¾	...	.10	....	.10½	....	10½	....	.11½	.10½	7,200
Crown Point	Nev..	3	.25	....	25	..	25	..	...	...	...	...	...	...	
Deadw'd Terra	S.Dak	25	60	50	60	....	6.		....	....	....	....	....	....	
Elkton	Colo..	1	1.075	1.05	1 075	1 05	1 05	...	1 05	1 00	1 025	1.0)	1.04	1.(0	3,000
El Paso	"	1	..	....	....	....	....	...	...	...	...	...	...	...	
Enterprise	"	1	.33	...	...	....	.30	....	. .	...	...	...	...	...	
Fanny R.	Colo..	1	.	...		...	...	...	...	..	...	...	...	...	
Findley	Colo..	1	..	...	....	..	...	.		...	....	....	...	...	
Garf. Con.	Colo..	1	.13	....	13⅛	.13	.13⅛	.13	13⅛		.13½	...	...	...	1),200
Gilp. & Lincoln	Colo	1	40⅝	40¼	40¾	.40	40¾	40⅝	41	40¾	41¾	.41⅛	.41¾	.41⅛	6,2(0
Gold Coin C Ck	Colo.	1	1 85	1.83	1 85	....	1.90	1 88	....	....	1 90	1.85	1 92	1.85	3,0(0
Gold Coin Gilp	Colo	5	.40	....	30		....		...	...	..	....	40		
Golden Fleece	Colo.	1	.39	...	.40	....	40	.38	.41	.38	40	...	.41	.38½	5,3.0
Gold King	"	1	..	...	..	....	...	..	....	....	...	...	...	...	
Gould & Curry	Nev...	3	.50	....	4.	....	40	...	.50	..	...	...	...	...	8 0
Gregory Gold	Colo.	1	.06½		06½	.06½	.06¾	.06½	.07	.06¾	.07¼	07	.07¾	07½	99,60)
Hale & Norcross	Nev	3	.40	39	49	.35	4	40	..						
High Five	Colo..	1	.11¾	.11½	1.¾	.10¾	11½	..	.12	.11¾	.12⅜	12¼	.12¾	.12½	63,400
Homestake	S.Dak	100	5) (0	...	50 00		50 (0			...	...	...	..	.	
Horn Silver	Utah..	25	1 60	1.5	1.50	....	1.50	1.40	1 75	1.63	...	...	...	..	20)
Iron Silver	Colo	20	8.	..5	.77	...	.75	....	.77	.70	.72	..	...		2,0..
Isabella	Colo..	1	1 22	...	1.25	....	1.16	1 15	1.15	..	1.20	1.10	1.12	1 08	2,000
Jefferson	Colo..	1	06⅛	....	.07	.06	.07	.06½	.06¾	.06⅛	07	....	07⅛	.06½	10,300
Jennie Blanch	"	1	3.	.36¾	36¾	.36½	.36¾	....	.37⅜	.37¼	.37½	.37⅛	.37⅜	37½	7,000
Justine	......	.....	.02¾	....	.03⅝	....	.03½	...	.03¾	...	...		04	03	1,000
King & Pemb.	Ont...	10	.16	.15	16	...	.16	....	....	....	..	...	..	.....	
Leadville Con	Colo..	10	13	.09	14	....	.18	.1	...	..	.....	...	...	...	5(0
Little Chief	"	50	.20	18	.20	....	.22	...	...	...	...	...	...	...	60.
Mexican	Nev...	3	.65	.60	.70	...	80	...	...	...	90	...	..	...	1,200
Mollie Gibson	Colo.	5	.29	...	.30	...	.30	28	29	.28	.30	.29	30	.27¾	4,200
Moon Anchor	Colo..	1	...		...		...		....	....	....	...	...	...	
Mt. Rosa	"	1	.29	..	3	.29½	30	.29	.30	.28	.28½	...	31	.28	4,000
Ontario	Utah	100	6 00	....	8.50		....	....	...	...	..	...	...	...	
Ophir	Nev..	3	1 00	....	1 00	....	1 0.	..	...	...	...	...	...	...	
Pharmacist	Colo	1	.05	..	.07	....	.05	...	...	...	...	...	...	...	500
Phoenix	Ariz...	1	.08	..	.09	.08	.12	.10	.13	.11	.12	11	...	....	12,000
Pinnacle	Colo..	1		....		...	...	...	...	...	...	...	...	...	
Plymouth Con	Cal..	10	10	....	.10	....	.10	....	...	...	...	...	...	...	
Portland	Colo..	1	1 89	....	1.89	. .	1 90	...	2.00	1.90	1.90		1.90	1 88	1,250
Potosi	Nev...	3	.28	.20	.27	....	.27	.26		....	34	.33	....	..	4(0
Quicksilver	Cal...	100	1.75	...	1 75	....	2 75	...	1.75	...	1.75	....	...	.	200
do. pref	"	100	3.00	....	...	. .	5 00	...	5 00	..	5.00	....	...	...	
Rocky Mtn	Colo..	1	04	.03¾	03½	...	.03½	....	...	...	.07	....	...	...	3,400
San Juan Star	Colo	1	.29¼	..	..	....	30	...	.30½	.30	.30¾	.30½	31	.30	3,700
Savage	Nev...	2½	.3.	.30	35	.25	.30	...	.40	...	.3.	....	....	....	5(0
Sierra Nevada	Nev...	3	1.30	.	1.20	1.00	1.65	...	1.50	1.45	...	...	....	....	950
Small Hopes	Colo..	20	1 30	....	1.40	...	1 40	....	...	....	1.40	...	...	....	1,500
Standard Con	Cal..	100	3 50	2.95	2 75	...	2.80	....	...	....	....	...	...	...	1,100
Syndicate	"	100	...	....	....	...	12	....	....	....	....	...	...	...	500
Union	Colo.	1	.22½	....	.23	....	.30	...	.22½	..	....	....	.22½	.21¾	1,400
Union Con	Nev..	2½	.5	.50	.50	...	.50	....	..	....	...	...	...	...	
Union Gold	Colo	1	..	...	...	....	.28½	.22	...	..	.22½	....	. .	...	2,900
Utah Con	"	3	.23	.20	27	....	.20	....	...	...	.....	..	...	...	200
Vindicator	Colo	1	.	...	...	. .	..	....	...	....	...	...	...	...	
Waldorf	Colo	1	...		02	...	03	....	...		..	...	...	...	
Work	Colo	1	23	22½	34	22	22	21¾	.22	...	21¾	.20	.22½	.21¾	5,5(0
Yellow Jacket	Nev..	3	39	.37	30	.25	30	....	...	...	...	...	...	...	400

COAL AND INDUSTRIAL STOCKS.

Name of Company.	Location.	Par val.	Feb. 25. H.	L.	Feb 27. H.	L.	Feb. 28. H.	L.	Mar. 1 H.	L.	Mar. 2 H.	L.	Mar. 3. H.	L.	Sales
American Coal	Md....	$25		14)	....	140		140		149	149			....	
Am.S.&W Con	......	100	61	59¼	64¾	61⅛	63½	59⅛	62½	59⅝	61⅛	60	62	...	191,87
" " pf'r n	......	100	100	98½	101⅝	99	102¼	99⅞	101⅝	101⅛	101¼	100	101¾	.....	40,902
Central of N. J.	N. J..	100	110	109	110	108¾	110¾	109	109¾	107¾	108	105	107½	.....	12,776
Col. C.& I. Dev.	Colo..	100	1⅛		..	1⅛	1¼	...	1⅛	...	1⅛	....			
Col. Fuel & I.	"	100	34	33	....	....	33⅛		32⅞	....	33	....	33	....	1,783
Col. & H.C.&I.	Ohio..	100	7½	7⅛		...	7¼	6¾	7	....	7¼	6¾	....	...	115
Con. Coal	Md....	100	....	5)	...	52		52	....	52		52	...	...	
Del. & Hud	N. Y.	100	112⅝	112	113¼	112½	113	111¾	112½	112	111⅛	111¼	111	....	4,958
Ed'n E.I.of N.Y	"	100	197½		197	....	197½	195½	194½		196	195	195		1,049
Federal Steel	....	100	52¼	51	53⅜	51⅞	53⅝	51⅛	52¼	50⅞	51⅛	49⅜	52½	....	142.25
" " pf	....	100	88¾	87	89⅜	87⅞	90	88¼	88⅞	87½	88	86⅜	89	...	69,739
Maryland C.pf.	Md....	100	58	52	58	52	58	52	58	52	58	53	....	...	
National Lead.	N. Y.	100	36½	36	36⅜	....	36	35½	35½	33¾	35	34⅜	34½	....	3,(92
New Central C.	Md....	100	43	38	43	38	43	38	43	38	42½	38	.	...	
N. Y., Ont. & W.	N. Y..	100	26⅝	25	27½	26½	27¼	25⅝	26⅝	25⅞	26⅛	25⅜	26¾	....	242,87
Penns'lv'nia C.	Pa....	100	...	360			...	360	...	360	....	360	....	....	
Phila. & Read	"	100	22¾	22½	22⅝	22¼	23	22½	22¾	21⅝	23¼	21¼	22⅜	....	2,905
" " 1st pf.	"	100	64½	62¾	64	62¾	64½	62½	63	61½	62¼	6)⅜	62⅝	.....	92,010
Standard Oil	....	100	487	485	486	485	483	481	481	48)	478	477	.	....	
Tenn.C.,I.&R.R.	Ala...	100	46¼	44¾	46¼	44¾	46	44⅜	45	44	44¾	43¾	44¾		89 34)

PHILADELPHIA, PA.

Name of Company	L'cation.	Par Val.	Feb. 24. H.	L.	Feb. 25. H.	L.	Feb 27. H.	L.	Feb. 28. H.	L.	Mar 1. H.	L.	Mar. 2. H.	L.	Sales
Cambria Iron.	Pa.	$50	46 (0	45 63	46 (0	45 88	46 00		46.50	46 (0	46.25	46 00	46 (0	...	1,763
Cambria Steel	"	50	19 50	18.63	20 00	19 63	20 50	19 88	21 50	20.25	21.25	2).75	21 38	20.50	1 100
Choctaw. pref.	I. T.	50	46.25	....	46 25	46.00	46 75	46 00	46.00	....	46 00	...	46.13	46 00	111,690
Choc. Tr. ctf.	"	50	...	..	35.50	...	35 00	..		....		....	34 25	....	75)
Hunt & B.T.pf	Pa.	100	...	...	..		42 00	..	43.00	....	43.00			....	3)
Lehigh Val	"	50	26 00	25.75	25.75	25 50	26.13	25 5)	26.00	25.50	26.00	25.25	25 25	...	5,736
Penna. R. R.	"	50	67 00	66.63	66.88	66.50	67.00	66.38	67.00	65 88	66.88	65.88	66.0.	65.50	4,216
Penna. Steel.	"	100	37.00	35.00	40.00	37.00	40.50	39.00	40.00	39.00	40 0.	..	40.00	39.00	5,57)
" "pr'f	"	100	57 50	57.00	60.00	59 00			61 00	60.00	60.00	....	60.50	60 .0	570
United Gas I.	"	50	146	145½	146	145⅛	145⅛	144¾	145½	145	146	145¼	146	144⅞	7,210
Welsb. of Can	Can.	100	2 75	.....	....	....	..	...	2 50	..	2.75	2.50	2 75	...	1,526
Welsb. Coml	"	100	....		....	...	...	...	. .	. .	10 00	...	11 13	. .	215
" " pf *	"	100		....	60 00	...	...	....	..	...	59 00		39 00	..	301
Welsb Light.	"	100	38.75	37.00	37 00		37.13	37.00	37 00	.	39.00	37.50	39.00		245

Total shares sold, 140,981. * Ex-dividend.

BALTIMORE, MD.‡ Mar. 2.

Name of Company.	Location.	Par value	Bid.	Ask	Name of Company.	Location.	Par value.	Bid.	Ask
Atlantic Coal	Md....	$10	.....	.....	Howard C.&C	Md.....	$5	.....	.....
Big Vein Coal	"	10	.....	.....	Newburg Orrel C.	" ...	25	.....	....
Consolidation Coal	"	100	57⅛	58	Silver Valley	N. C...	5	....	.....
George's Creek Coal.	"	100	110	115					

ST. LOUIS, MO. March 1.

Name of Company.	Location.	Par value.	Latest Bid.	Latest Ask.	Sales.	Name of Company.	Location.	Par value.	Latest Bid.	Latest Ask	Sales.
Am. Gold.	Colo.	$10	....		....	Granite B.	Mont.	$10	$1.42½	$1 52½	700
Am. Nettie	Colo.	10	$1.00	$1 02½	1.15	Hope St. L.	Mont.	10	....	....	......
Central L.	Mo.	100	92 50	......	....	St. Joe. L.	Mo.	10	14 00	14 50	....
Doe Run L.	Mo.	100	127.00	....	....	Sm. Hopes.	Colo.	20	1.30	1.40	....

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares.	Feb. 24. H.	L.	Feb 25. H.	L.	Feb. 27. H.	L.	Feb. 28. H.	L.	Mar. 1. H.	L.	Mar. 2. H.	L.	Sales
Aetna, cons. g.	$5	100,000	4.00	....	4 25	4.00	4.25	.	4.25	4.00	4.00	....	4.00	....	1,45)
Adven'u'e,Cons	25	100,000	18.00	15 00	17 75	16.00	17 00	15 25	16 75	15 00	15.00	13.00	15 00	14.50	12,165
Allouez, c.	25	90,000	12 00	10.25	11 00	10.50	12.50	11 00	12 88	11.00	11.50	11.00	11 50	10.75	9 050
Arcadian, c.	25	100,000	76 00	74 00	77.00	75.00	84.00	77.00	88 50	83 00	88 (0	83.00	95 25	88 00	20 291
Arnold, c.	25	40,000	10.(0	9 25	10 13	9 50	10 00	9 25	10 00	9 (0	9 75	9.25	9 50	9 00	1,690
Ashbed, c.	25	40,000	2.25	1 75	2 00	1.75	1.75	....	1.75	1 63	1 75		2 00	1 75	1,155
Atlantic, c.	25	40,000	40.50	39 0.	38 50	38 00		....	37.00	33.00	32 50	31 75	38 00	35 0)	1,566
Baltic, c.	25	100,000	33 50	32 25	32 00	31 50	32 50	30 00	30 50	27.00	28 (0	....	31 50	30.00	2,864
Bonanza, g.	10	300,000	2 25	..	2.25	2 43	2 13	1 88	1.88	....	....	....	2.00	..	1,775
Bost. C. C., g.	2	200,000	.25		...	...	.25		...	..	....		...	...	250
Bost.&Mont,gsc	25	150,000	368	365	367	360	367½	358	370	353	380	367	375½	370	3,366
Breece,s g	25	200,000	2 25	2 13	2.38	2.2	2 25	..		....	2.00	1.88	....		2,690
Butte & Bost., c	10	200,000	91 00	88 00	90.00	87 00	94 50	91 00	96.00	91 00	94 00	91 00	95 50	92 00	5,005
Cal. & Hecla, c.	25	100,000	840	830	810	785	787½	76)	780	775	775	....	775	....	6 0
Catalpa, s	10	300,000	60	55	.55	.40	.55	45	..	....	35	.30	35		4,360
Centennial, c.	25	80,000	52 50	50.00	51 25	50.00	51 50	50 50	52.00	51 00	51 50	51.00	54 50	51 50	28,530
Cochiti, g	10	150,000	10.50	10 25	10 63	10.00	10 25	10.00	10 13	9.75	10.50	9 75	10 00	....	5 385
Crescent, s.	10	300,000	55	45	40	....	45	35	30	25	.30	25	30	25	4 950
Dominion Coal.	100	150,000	35 50	35.00	34 75	....	34.75	34.50	34 88	34.50	36.25	35.00	36.50	35 88	7,738
do. pref	100	30,000		....		...	117½	..	....	....	....	...	....	....	10
Dunkin, s	25	200,00	45		49										800
Federal Steel.	100	......	53 00	50 88	52 50	51.00	53 63	51.88	53.50	51.63	52 00	51 25	51 50	49 50	27,995
do. pref	100	......	89.25	88 00	88 75	87 50	89 25	87 50	89 5	88 25	89.00	87.88	88 50	87 00	10,1)8
Franklin, c	25	40,000	28 00	26 88	26.00	25.00	25 75	23.00	25.00	23.00	24 50	21.00	25.00	24 50	9,430
Gold Coin	5	200,000	.35		....	....	.50	...		. .	95	...	* 99	.50	90)
Humboldt, c.	25	40,000	3 00	2 25			2.88	..	3 25	2.88	2 75		2.75	....	89)
I. Royal Con. c.	25	100,000	63.50	62 0)	63 25	60 50	66 00	63 00	65 63	62.75	64.00	61 00	67.00	62 00	15,250
Merced g.	15	100,000	11 00		...	.	10.25	10.00	10 50	10 00					310
Mohawk, c	25	100,000	34.00	33.00	33 50	32.00	32 00	30 00	30.00	29.75	26 50	24 00	31 0	29.00	13,235
Napa, q.	7	100,000	...	....	..	....		....	...	.. .			8.50	...	10)
New Idria, q.	5	100,000	..	...	11.00	...	1 00		....		11.00				295
N.A.Gold Dre'g	10	100,000	38 50	37 00	39 00		41.00	34.50	40.50	39.00	39 50	38 25	38 50	38 00	4,022
Old Colony, c	25	100,000	21 00	20 00	19 75	18 38	19.50	18.25	8 75	16 88	17.00	16.00	17.00	16.88	10,714
Old Dominion,c	25	150,000	44 25	40 50	41.00	39 00	40.00	38.75	40 25	37.50	39.00	36.25	38 75	38 00	32,484
Osceola, c.	25	100,000	90	96 00	99.00	96.00	97 50	95.50	95.00	93.00	91.50	87 00	93.50	91 00	10,616
Parrot, s c	10	230,000	56 25	51.00	52 00	49.00	48 50	44 0	45 (0	41 50	45.00	43.33	47 50	42 00	22,650
Pioneer, g.	10	100,000	7 50	6 88	6 75	6 00	7 13	6 60	7 00	6 50	7 00	6 25	7.00	6 75	3 06
Quincy, c	25	100,000	184	180	180	..	79	175	175	155			175	170	831
Rhode Isla'd Mg	25	100,000	15 25	3 50	15 00	14 00	15.50	14.50	4 5)	3 25	13.75	11.50	14 50	13 00	22,041
Santa Fe, g. & c	10	250,000	22.00	20.50	20.75	18.75	19.00	17 95	19.00	17.00	18.75	17.00	19.00	18.0	26,063
San. Ysabel, g.	5	100,000	14 13	13 75	14 00	13 00	12 75	11 00	11 25	9 50	13 0	11 00	13 25	13 00	15, 05
Tamarack, c.	25	60,000	250	230	240	235	235	230	230		225	220	229	225	1,748
Tecumseh, c.	25	40,000	10.00	9.75		..	10.00	9 75	10 00	9 75	9.75	9.50	9 75	9 50	3 425
U C L.& Mg. Co	25	80,000	10 00	9 38	8.75	8 38	9.00	8 25	8 50	8.00	8.00	7.50	8.88	8 00	3,186
Utah Cons,g &c	5	300,000	45 0.	43 00	44.25	42.00	43 75	41 50	44 0.	40 00	42.50	41.50	44 00	41 00	13,669
Victor, g.	5	200,000	...	..	3.75		3.00	....	...				3.50	....	200
Washington Mg	25	40,000	3 75	3.13	3 75	3 00	3 25	2 88	3.00	2 50	2 75	2.63	3 (0	2.75	4,675
Winona, c.	25	100,000	20 00	18 25	19.00	18 00	18.50	18 0	18 00	15 00	17 50	17 00	18.50	17 75	13,114
Wolverine, c.	25	60,000	49 00	48 00	48.00	46.00	49 00	46.00	46 50	43 75	45 00	41.00	46 00	45 00	6,411

† Official quotations Boston Stock Exchange. Total shares sold, 433 617 * Ex-dividend.

CLEVELAND, O. March 1.

Name of Co.	Iron Range	Par Val.	Mar 1. Bid.	Ask.	Name of Co.	Iron Range.	Par Val.	Mar. 1. Bid.	Ask.
Aurora	Gogebic	$25	$15	$4	Jackson	Marquette...	$25	.	....
Champion	....	25	....	25	Lake Superior..	"	25	$40	$50
Chandler	Vermillion...	25	51	60	Minnesota	Verm. & Mes	100	91	92
Cleve'd-Clfs.	Marquette...	100	80	81	Pitts & L'keAng	Marquette...	25	115	125
Fed. Steel Co.	.. ..	100	29½	30	Republic..	" ..	25	15½	16

BUTTE, MONT.* Feb. 24.

Name.	Location.	Par Val	Quotati'ns. Bid.	Ask.	Sales.	Name.	Location.	Par Val	Quotati'ns. Bid.	Ask.	Sales
Alice g	Mont.	$25	$0.70	$0.8)	.....	Lone Pine C., g	Wash	$1	.....	$.38	.. ..
Am. Dev. & M.	"	5	.10	.20	....	Mont. Ore P.	Mont.	25	. .	150.0)	......
Anaconda, g	"	2	......	48.00	....	Mo'n. Glory, g	Wash	0.10	......	19	
Hope (Basin).	"		.50	1.00	....	Mountai L	"	).10		.84	.. ....
Black Tail, g.	Wash	)	......	.15	......	New South Cr's	Mont	..	$.05	25	....
Con. Gran.-Bim.	Mont.	...	1.5	1.60	....	Number Six, g.	Wash	0.10		10	.....
Con. Tiger-Poor.	Idaho	1	.30	.40	....	Rebate, g.	"	1	.. .	19	......
Gold Mn. (Ruby)	Mont.	..	.30	.50	....	Republic G	"	1	.....	3.25	......
Iron Mn, g.		....	.08	.15	.....	San Poil, g	"	1	.....	77	......
Jim Blaine, g	Wash	1	....	.46	.. ....	Tom Thumb, g	"	1	. ..	.25	......

* Specially reported by the Hewett-Sisley Company.

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Feb. 20. B.	A.	Feb. 21. B.	A.	Feb. 22 * B.	A.	Feb. 23. B.	A.	Feb 24 B.	A.	Feb. 25. B.	A.	Sales.
Alamo	$1	06½	......	.06¼	0 6¾	......	.	06¾	06¾	.06⅞	.....	.06⅞	07¼	52,500
Anaconda	1	.....	....	57	58			...	......	55	.55½	...	...	3,900
Arg'ntumJ	1	....	....	.36						.33	.35			1,50)
C. C. Con	1	.10½	....	.10½	11			.10½	....	.10½	..	.10	10½	16,0.0
Croesus	1	.006	.006½	.006	0.6½			.007½	....	007	007½	007	.....	59,(0)
Currency	1								...	.05	....	.05	...	3,000
Dante	1	.13	13⅛	13	.13¼			13¼	13⅜	.13¼	.13½	.13¼		31,000
Des Moines	1	....												
ElktonCon	1	1.04½	1 06½	1 05¼	1 09			1 05	1.06½	1.04	1 05	1 .4	1 05½	11,200
El Paso G.	1	18½	.20¼	.19¾	.20			.19¾	2.⅜	.19	20¼	20½	.22	86 430
Fanny R.	1													
Favorite	1	05⅛	.05⅜	.05⅜						.05⅛	.05½	05⅛	..	35,(00
Findley	1	19½	20	.20½	.21			19¾	20	.20	...	.19½	....	36,5(0
Golden Fl.	1	.....	......					.37						400
Hayden G	1	01⅛	...	.01¾	.01⅞			.01¾	.01⅞	.01¾		02	.....	41,000
Ing. Con	1	.08¾	.09					09½		09½		09¾		6,970
Isabella	1	1 07	1 17	1.25	1 32			1 15	1 30	1 08	1 15	12	1 16¼	295 250
Jack Pot	1	.43	.46	.45	45¼			.44½	45⅞	45¼	.45¼	.43	44¾	52,9 0
Lexington	1											06½		300
Ma'net R.	1	03½	03⅜	03⅜	.04			.03½	.04	03⅜	...		.	29,5 0
Marion	1	005	.006									.004		15,500
Matoa	1	.40	.....	40	.40½			41¼	41½	42	.43	42½	43	21 400
Mobile	1	05	.05⅛	04⅜	.05			04½	.04⅝	.04⅜	04½	.04½	......	39,000
Mollie Gib.	1	.25½		.26				27	28					1,7.0
Moon-A'c'r	1	1 19½	1 19⅝	1 19	1 20			1 20	....	1 22				9,100
Mt. Rosa	1													
New Haven	1	.02½	02¾	02⅝	.02⅞			.02¾	.02¾			.02⅜	.02⅞	23,250
Oriole	1	.02	.02⅜	02½	.02⅝			.02⅝	.02⅝	02⅝		02⅝	.....	17,(00
Pilgrim C.	1							.06½		.06	.06¼	.05⅝	06	20,030
Pinnacle	1	07½	08¼	08⅛	.08¾			.08½	08¾	08⅛	.08½			48,030
Portland	1	1 88	1.90	1.90				1.88	1 92	1.91½	1 92½	1 91	1 91⅛	31 900
Prince Alb.	1	05	.05⅛	.05⅛	05⅛			.05¼	.05⅛	05⅛	.05⅛	05¼	.....	88,500
Princess	1	.03½	.03¾					03⅞	.04	.04		03⅞		20,500
Specimen	1	10	.11	10¾	.10⅞			11	.11½	.11¾	. .	.11⅞	.12¼	17,(00
Trachyte	1	.05⅛	.05¼	05⅜	.05½			.05½				.05¼	...	34,500
Union	1	22½	.24	.23½				.22¾	22⅞	.20	22½	22	.....	17,968
Vindicator	1	97½		.98										1,100
Work	1	......		......				.21	21¾	.21	21⅝	.21¼	21¾	134,1 0

‡ Official quotations Colo. Springs Mining Stock Exchange. Sales: Listed stocks, 1,312 218; unlisted, 2,687,824; total, 4,000,042 shares. *Holiday.

By Telegraph.

Name of Company.	Par Val	No. of Shares.	Feb. 27. B	A	Feb. 28. B.	A	Mar. 1. B.	A.	Mar. 2 B.	A
Alamo	$1	125,000	.06⅞	.07⅛	07	07¼	...	.....	.. .	... ..
Anchoria-Leland	1	60,0 0	94	1.00	96	1 00	.. ...	.....	..	... ..
Elkton Con	1	1,250,000	1 00	1 02	1 02⅛	1 03	....	.....		......
Gold Coin, Vict	1	1,000,000	1 90	1 95	1.87	1 95	....	.....		. ....
Golden Fleece	1	600,000	.38	40	.38	40	....	.....		......
Isabella	1	2,250,000	1.12¼	1.12½	1.11	1.11¼	....	.....		......
Moon-Anchor	1	600,000	1 18	1.20½	1 17	1 20	....	.....		......
Mt. Rosa	1	1,000,000	.27½	.29½	.27½	28	....	.....		. ....
Portland	1	3,000,000	1.88	1.89	1.87½	1.88¾	..	......	. ..	......

STOCK QUOTATIONS.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Feb. 20. B.	Feb. 20. A.	Feb. 21. B.	Feb. 21. A.	Feb. 22.* B.	Feb. 22.* A.	Feb. 23 B.	Feb. 23 A.	Feb. 24. B.	Feb. 24. A.	Feb. 25. B.	Feb. 25. A.	Sales.
Mines:														
Anac'da G..	$5	.54	.56	.56⅝	.58			56	.58	55	.57	.56	.58	4,000
Arg. J.	1	34		.34½				.34	.36					1 200
Bankers	1	.11¼	11½	11				10½	.11¼	.10½	.11¾	.10⅝	.11½	7,0.0
Big Six	1			12½	.14			.10			.20			
C. C. Con.	1	.10	.11⅝	10	10⅝				.12	10¼	10½	.10½	.10⅝	
Elkton Con.	1			1 05	1.09					1 03⅝	1 07			
Findley	1			.20½				20	.21	.19⅝	20¾	19	.20	
Garf. Con.	1	.12¾	14					13¼		13⅛	13⅜	.13¼	.13¾	3,000
Gold Eagle	1	.45		42	50			.45	.55		.49⅞	4	51	
Gold Fleece	1		.40	.36	40				.41	31	38	32	38	
Indepnd'nc	1	.57½	59	59½	61			.62½	.64	61½	.62½	6.	62½	4,700
Iron Clad	1	.03	.03¼	03⅛				03	.03¼	03	03⅛	03⅛	03½	21,000
Isabella	1	1 24	1.25	1 27½	1.29½			1 17	1.18	1 12½	1.15	1 12½	1 14	200
Jack Pot	1	.45		45	.46¼			.44	.46	.45	46	.42½	46½	
Jefferson	1	.06¼	.07	08	.09½			05¾	.07¼	.06		05¾		
Keystone	1									10	.11⅛			
LosAngeles	1	.11	.1¾	.12¼	.12½			.11		.11	.12½	.11½	12	18,000
Matoa	1			.40	.41½			.41	42	.40	.43	.42¾		
Mollie Gib..	5			25				.26½	.30	.26		.27½	.30	
Moon-A.	1	1 21	1 30											
NewZealnd	1	.21½	26	.22¼	.23½			.22	.25	.21½	25	.20	25	
Ophir	1	.30		30						26	.32			
Pharmacist	1	.05¼	.05½	05⅝						05¼	05½	05¼	.05¾	1,000
Portland	1	1.90	1.95	1.88	1 90					1 90	1.92			1,300
Pr. Albert..	1	04¾	05⅛	.05	05¼			.05	05¾	.05⅛	.05¼	.05¼		23,500
Sacram'nto	1	05⅝	06	.05½	06			.05½	.06½	05½	06			1,000
Specimen..	1									.11				
Union Gold	1	.23½	24	.23½				.23⅛	.23½	.22¾		22		5,000
Va. M.	1	.03¾	.04¼	.04¼				.04	04¼	.03¾	03¾	.03¾	.04	
Work	1	.19⅛	20	.20⅜				.21½		.21½	.23	20½	.22	2,500
Prosp'cts:														
Ben Hur	1			05½	.06					.05½	06			50
C C Imp..	1	.003⅝	.005	.003½	.004¼			.004	.004½	003	.004½	003½	.005	17,000
Gene Field	1			.002½	.004			.002½		.002¼	.003	.002½	.003	3,000
Gregory Lsg	1	.008	.008¼											8,'00
Illinois	1	.005		005½	.006½			005	.006	.004½	006	005½	.006	21,000
New Haven	1	.02⅜	.02¾					02¼	.03	.02¾				
Old Gold	1	.01½	01½	01⅜	.01⅜			.02	02⅛	0 ⅞	.02	.01⅝	.02	160,000
Pilgrim	1	.005	.005¼					.005¼	005¾	005	005½	005	005½	22,000
Pine Creek	1			.005	006					.004½	.005½	005	006	5,000
Puritan	1	.005	.005½	.005	005½			005	005½	005	.005¾	005	005½	8,000
Reno	1	.02¼	.02⅝	.02½	03			.02¼		.02½		.02⅝	03	
Tamarack	1	.008¼	009¼	.008¾	.009½			008¼	008¾	008	.008¼			16,000

‡Official Quotations Denver Stock Exchange. Sales: Mines, 93,400 shares; Prospects, 255,050 shares; grand total, 348,450 shares. * Holiday.

SALT LAKE CITY, UTAH.*

Feb. 25

STOCKS.†	No. of shares	Par val.	Bid.	Asked.	STOCKS.†	No. of shares.	Par val.	Bid.	Asked
Ajax	300,000	$10	$1.43	$1.45	Homestake	400,000	$1	$0.10½	$0.11
Alice	400,000	25	.81	1.00	Horn Silver	400,000	25	1 50	2.00
Anchor	150,000	10	.25		Little Pittsburg	400,000	5	13⅛	13¾
Buckeye	500,000	1	.04¾	.05¼	Lower Mammoth	150,000	1	.90½	.93
Bullion-Beck & Ch.	100,000	10	4.50	6 00	Mammoth	400,000	5	1.90	1.96
Centennial Eureka	30,000	50	38 00	42 50	Mercur	200,000	25	6 30	6 50
Chloride Point	500,000	1	1 37½	1 50	Northern Light	400,000	5	70½	71¾
Daisy	500,000	3	49	.50	Omaha	300,000	2	.36	.39½
Dalton	500,000	5	.02⅜	02¾	Ontario	150,000	100	7.25	8 00
Dalton & Lark	2,500,000	1	.08½	.09¾	Richmond-An.	500,000	1	.08½	.09
Daly	150,000	20	1.17½	1.35	Sacramento	1,000,000	5	46	46¾
Daly West	150,000	20	9.62½	9 80	Silver King	150,000	20	32 00	40.00
§Dexter	200,000	5	2.38	2 50	Star Consolidat'd	500,000	1	1.20	1.25
Eagle	150,000	1	.09	11	Sunbeam	250,000	1	.35	.37
Eagle & Blue Bell	250,000	1	1 88	1.95	Sunshine	250,000	10	46	
Emerald	300,000	1	.13	.1⅞	Swansea	100,000	5	3 50	3 80
Four Aces	250,000	1	.53	.54	South Swansea	150,000	1	1.21	1 24
Galena	100,000	10	.51	.54	Tetro	300,000	1	06	
Geyser-Marion	300,000	5	.87½	92	Utah	100,000	1	80	1 00
Grand Central	250,000	1	6 70	7.10	Valeo	200,000	10	1.32½	1 35

*From Our Special Correspondent. † Utah companies. § Mines in Vanderbilt, Cal. Mines in Tuscarora, Nev.

SPOKANE WASH.§

Mar. 2.

Name.	No. of shares.	Par value.	Quotations.	Name.	No. of shares.	Par value.	Quotations.
Ben Hur	600 000	$1	$0.30½	*Number Six	1,000,000	$0 10	$0.12
Black Tail	1,000,000	1	.22	Palo Alto	1,000,000	1	.14½
Bryan & Sewall	1,000,000	1	05	*Pearl	1,000,000	1	.12½
Butte & Boston	1,000,000	1	.17½	Pocahontas	1,000,000	1	.04
Eardman	1,000,000	1	.03	Princess Maud	1,000,000	1	.16
Eureka First Thoug't	1,000,000	1	.05	Quilp	1,000,000	1	.18
Eureka Queen	1 000,000	1	.08½	*Rebate	1,000,000	1	.19
Gold Harvest Con	1,000,000	1	05½	Republic Gold	1,000,000	1	3.65
Gold Leaf	1,000,000	1	.05	Republic Big Six	1,250,000	1	.08½
Iron Monitor	1,000,000	1	.09½	Republic No 2	1,000 000	1	.06½
*Jim Blaine	1,000,000	1	57	San Poil	500,000	1	.81
Liberty	1,000,000	1	.04	*Surprise	1,000,000	1	12
*Lone Pine Con	1,000,000	1	42½	Thoughtful	1,000,000	0 10	.08
Merrimac	1,000,000	0.10	09¾	Tom Thumb	1,000,000	1	3½
Monroe	1,000,000	1	03	Trade Dollar	1,000,000	0.10	12½
Morning Glory	1,000,000	0 10	.25	Treasury	1,000,000	0 10	05
Mountain Lyon	1,500,000	1	87½				

§ Telegraphic quotations of the British-Canadian Investment and Mining Syndicate.
* Under Republic management.

SAN FRANCISCO, CAL.‖

NAME OF COMPANY.	Location.	Par. value.	Feb. 24.	Feb. 25.	Feb. 27.	Feb 28	Mar 1.	Mar. 2.
Alpha Con.	Nev.	1.00	.08	08		.07	07	.07
Alta	"	2.00	.10		.11	10	.10	.01
Andes	"	3 00	.19	.19	.19	.20	.23	.22
Belcher	"	3 00	.24	.23	23	.25	.24	.24
Best & Belcher	"	3 00	.57	.53	.57	.60	.58	56
Bullion	"	1 00	07	.06	.06	.07	.07	.06
Caledonia	"	3.00	43	.39	39	.40		
Challenge Con	"	3.00	28	.26	.34	33	.31	.30
Chollar	"	3.00	.40	40	.38	.45	43	.44
Confidence	"	3 00	.75	.80	75	.86	85	.80
Con. California & Virginia	"	2 50	1.85	1.75	1 95	2 25	2 10	1.90
Cons. Imperial	"	1 00			.01	.01	.01	.01
Cons. New York	"	1.00						
Crown Point	"	3 00	.27	.25	.22	.26	24	.24
Exchequer	"	1.00				.03		
Gould & Curry	"	3 00	.44	39	43	.46	43	42
Hale & Norcross	"	3 00	.43	.40	.44	.44	.40	41
Julia Con	"	1 00						03
Justice	"	2.00	.26		.22	.24	.22	20
Kentuck Con	"	1 00	.13	.12	.11		10	.10
Mexican	"	3.00	.70	65	74	83	.85	82
Occidental Con	"	3 00	.30	29	28	31	31	30
Ophir	"	3 00	1 10	1 05	1 15	1 20	1.15	1 10
Overman	"	2.00	.11	11	.12	15	.13	.12
Potosi	"	3.00	31	29	.28	.35	30	31
Savage	"	2 50	.35	30	32	.35	.32	34
Scorpion	"	1.00						
Sierra Nevada	"	3.00	1 25	1 25	1 50	1.35	1 45	1 40
Silver Hill	"	1.00	.04					
Standard	Cal.	100	3 25	3.00	3.00	3.15	3 05	3.00
Union Con	Nev.	2.50	.58	53	64	67	.62	.61
Utah Con	"	1 00	.23	24	26	.26	.26	.27
Yellow Jacket	"	3.00	34	.30	33	35	32	.30

Official telegraphic quotations, San Francisco Stock Exchange

TORONTO, CAN.*

NAME OF COMPANY.	Par val.	Feb 24. B.	Feb 24. A.	Feb. 25 B.	Feb. 25 A.	Feb. 27. B.	Feb. 27. A.	Feb 28. B.	Feb 28. A.	Mar. 1. B.	Mar. 1. A.	Mar. 2. B.	Mar. 2. A.	Sales
Ontario:														
Golden Star	$1	69½	.73	.68	.70	.72½	.74	.77½	.78	.76½	.77½			15,400
Ham Reef	1	.40	.43½	.40	.41½	45½	47	.45	.46	.44½	47			8,872
Hiawatha	1	.24	.25	.24	25					.24	.25			500
J. O. 41	1	13½	.16	.13½	.14½	.12½	.14	.13	.16	.13	.13½			1,500
Sentinel	1	.15	.16	.15	17	.15	17	.15	.17	.15	17			21,500
British Col.:														
Athabaska	1	.51	.54	51	.55	51	.55	.50½	.55	.51	.55			350
Big Three	1	32½	35	.32	.36	.35½	38	.37½	.40	.40	.42			2,250
C'riboo	1	1 72	1 75	1 71	1 75	1 68	1.74	1 68	1 73	1 63	1 70			500
CrowsN.P.C	1	49 00	50.00	47 00	52 00	56.00		49 00	54.00	48.00	55.00			
Dardanell's	1	.17½	.18	17¼	.17¾	.16½	.17½	.16½	.17½	16½	.17½			2,600
Deer Park	1	.11	.12½	11	12	11¼	.12	.10	11½	.08½	.10			3,650
GrandPrize	1					04½								
Iron Colt	1	.18	21	17	.21	20¾	.21	20	.24	20½	.23½			950
Minnehaha	1	.25	.35	25	35	24½	32	.23	.38	.23	25			1,500
Monte Crist	1	.12½	.14	12½	13½	.11	13¾	.11	.13	10½	.12½			
Noble Five	1	29½	.32	.28	.32	27	.32	.26	31		.32			30
N'rt'n Belle	1	02½	.03½	02½	03½	.02¾	.03½	03½		03	.03½			
Payne	2½	4.00	4 20	4.20	4.25	4.30		4.30						100
Rambler	1	40	44	39	.45	42½	.43	.41¾	.45	.41¾	45			1,500
Silver Bell	1	.06		.06		.04	.06	.03¾	05	.03¾	05			3,000
Smuggler,g.	1	.07	08	06¾	07½	06¾	07½	.06	07½	07	07½			7,800
Van Anda	1	03¾	05	03½	05	.03¾	.05	03¾	05	.03¾	.05			
Victory Tri	1	07	.09	.07½	09	07½	.9	.08	.10	.10½	.12			
Virginia	1	51	.55	51	.55	50	.55	.50	.55	51½	55			
Waterloo	1	.13½	14	.13½	.14½	13½	.14	.12½	15	.12	.13			2,000
White Bear	1	04	.05	04½	.05	04¾	.05½	.04¾	.05¼	.04¾	.05¼			1,000
Develop Co.														
B.C. Gold F.	1	.06¼	.07	.05½	07	06	07	.05¾	07	05¾	06½			
Can. G. F. S.	0.10	04	.06	.06	.07	.04	06½	.04¾	06	05¾	.07			2,000
Gold Hills	1	.07½	10					.05		.04	.08			

* Official quotations of the Toronto Mining and Industrial Exchange. Total shares sold, 72,472.

ROSSLAND, BRITISH COLUMBIA.*

Feb. 23.

NAME OF COMPANY.	No. of shares.	Par value	Selling price.	NAME OF COMPANY.	No. of shares.	Par value	Selling price.
Brandon & Gold. Cr.	1,500,000	$1	$0 60	Lerwick	500,000	$1	
Brit. Amer. Corp'at'n	7,500,000	5	4 60	Lily May	1,000,000	1	
Brit.Col. Corporation	1,500,000	2½	2 50	Lon.&Van.Fin.Dev.Co	500,000	5	
Canadian Gold Fields	10,000,000	0 10	.10	London B. C. Gold F.	250,000	5	$8 00
Cariboo	1,500,000	1	1.60	Monte Cristo	1,000,000	1	
Commander	500,000	1		New Gold Fields, B.C.	250,000	1	5 00
Deer Park	1,000,000	1	.10	Novelty	1,000,000	1	.05
Dundee	1,000,000	1	45	Queen Bess Prop.	120,000	5	3.75
Evening Star	1,000,000	1	.10	Rambler Con	1,000,000	1	30
Fern	200,000	¼	.75	Reco	1,200,000	1	1 75
Gold Fields of B.C.	3,000,000	3⅞	4 50	Red Mt.View	1,000,000	1	
Hall Mines	250,000	5	3 00	St. Elmo.	1,000,000	1	
Hattie Brown	1,000,000	1		St. Paul	1,000 000	1	
Homestake	1,000,000	1	.06	Sarah Lee	1,000,000	1	.25
Iron Colt	1,000,000	1		Silver Queen	1,500,000	1	.15
Iron Horse	1,000,000	1		Slocan Star	500.000	1	2.45
Iron Mask	500,000	1	.90	Vic Tr. MinesDev. Co.	25,000	5	.06
Josie	700,000	1		Virginia	500,000	1	
Jumbo	500,000	1		War Eagle Con	2,000,000	1	3.50
Kenneth	1,000,000	1	.25	Waverly Mines	100,000	5	3.00
Keystone	1,500,000	1	.18	White Bear	2,000,000	1	.10
KootenayGold Fields	20,000	5		Wild Horse	400 000	1	

* From Our Special Correspondent.

MEXICO.

Feb. 23.

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
Chihuahua:					Hidalgo:				
Gloria	1,500		$60	$50	Real del Monte	2,554	10 00	770	760
Durango:					San Francisco	6,000	2.00	270	260
Barradon y Cab	2,400		150	100	San Rafael y An.	1,200	6.10	1,000	1,020
Candelaria de Pan.	1,200		20	20	do. aviado	1,200	6.00	500	460
Capuzaya	2,400		10	50	do. del Oro	3,000		10	20
Penoles	2,500	30.00	2,300	2,000	Soledad	960	5 00	870	350
Restauradora	10,000		20	30	Sorpresa	960	4.00	220	200
Rosario y Anexas.	4,800		20	10	Union	2,000	4.00	370	400
Guanajuato:					Mexico:				
Angustias	2,400	5.00	290	260	Coronas	500		75	75
Cinco Senores y An	2,000	15.00	285	265	Esperanza y An.	3,000	10 00	1,450	1,800
El Oro	500		30	30	Michoacan				
do. pref.	2,000		30	30	Luz de Borda ava	3,000		28	40
Guadalupe	10,000	4.00	230	220	do aviado	1,000		15	29
Trinidad, aviador	2,000		100	90	Pueblo:				
do. aviado	400		80	90	Tlauzingo	2,400		40	27
Zona Minera de Paz	2,400		100	85	S. Luis Potosi:				
Hidalgo:					Concep. y An.	2,400		110	100
Amistad y Concord.	9,600	1.39	29	28	Sta.MariadelaPaz	2,400	10 00	709	715
Arevalo	720		200	200	Zacatecas:				
Bartolome de Med.	2,000	3.00	95	80	Asturiana y An	2,500	10.00	110	75
Carmen	1,100	7.75	50	520	Cabezon	2,400		20	15
Luz de Maravillas	1,100		180	200	C'delar. de Pinos.	2,500		100	130
Pabellon	1,000	27.89	40	20	Palma de Somb.	2,400		110	100

NOTE.– In most of the older Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

VALPARAISO, CHILE.*

Jan. 28.

NAME OF COMPANY.	Location.	Capital paid.	Sh.Val. paid up.	Last Div'nd. Amt.	Last Div'nd. Date.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat, silver	Chile..	$3,300,000	$100	4 p. c.	1897	16½	17	17
Caracoles, silver	"	315,000	100	10 "	1894			
Huantajaya (mine) silver	"	1,000,000	100	13 "	1894			
Huanchaca, silver	Bolivia,	8,000,000	25	4 "	1895	30	32	28
Oruro, silver	Chile...	800,000	200			290	300	300
Todos Santos, silver	"	2,000,000	100	1 "	1895	6	8	6
Agua Santa nitrate	"	3,000,000	50	5 "	1898	179	182	179
Antofagasta, nitrate	"	2,000,000	200	2 "	1898	160	161	162
Soc. Internacional, nitrate	"	950,000	60					
Union, nitrate	"	3,000,000	200			40	45	40

* Special report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA.*

Jan. 23.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad.	China	45,000	$5	$5	Oct., 1894.	$0.25	Taels 3 65
Punjom Mg., Ltd.	"	60,000	8	5			" 4.38
do. pref	"	30,000	1	1			" 1.17
Raub A'lian G. Mg.	"	200,000	£1	14s. 10d.	July, 1898.	.51	" 83.76
Sheridan Con. M.& M.	Colorado, U.S	20,000	Taels 100	Taels 100			" 2.50

*Special report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

STOCK QUOTATIONS.

LONDON.

Feb. 17.

NAME OF COMPANY.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska-Mexican, g	Alaska	£200,000	1 0 0	0 4 6	Jan., 1899	17 6 1 2	6 0
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 10 0	4 15 0
Anaconda, C., s	Montana	6,000,000	5 0 0	5 1½	Nov., 1898	8 17 6	9 0 0
Cariboo, g f, pref	BritishCol'mbia	160,000	1 5 0			10 0	15 0
Chiapas, g., s., c	Mexico	252,500	1 0 0			5 0	7 0
Con. Gold Fields	"	300,000	1 0 0			12 6	12 6
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1898	3 0	4 0
Elkhorn Priority (New), s	Colorado	87,500	1 0 0	1 0	June, 1898	1 3	3 9
Golden Gate, g	California	80,000	1 0 0			2 6	5 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Dec., 1898	1 7 6	1 10 0
Hall Mines, c., s	British Col	250,000	1 0 0	1 0	May, 1898	7 6	10 0
Le Roi, g	" "	1,000,000	5 0 0			5 12 6	5 15 0
Lillooet, F. R. & Car., g	" "	300,000	1 0 0			5 0	10 0
Montana, g., s	Montana	660,000	1 0 0	0 3	May, 1898	7 6	8 0
Mountain Copper	California	1,250,000	5 0 0	2 6	Sept., 1898	7 5 0	7 15 0
Palmarejo & Mexican, g., s	Mexico	80,000	1 0 0			3 0	4 0
Plumas-Eureka, g	California	281,250	2 0 0	0 6	Oct., 1896	2 6	3 6
Richmond, g., s., l	Nevada	270,000	5 0 0	1 0	Dec., "	5 0	7 6
Sierra Buttes, g	California	245,000	2 0 0	0 6	Apr., "	1 6	2 6
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	0 6	Jan., 1899	10 0	12 6
Copiapo, c	Chile	200,000	2 0 0	2 0	Dec., 1898	3 5 0	3 12 6
*Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Dec., 1898	2 6 3	2 8 9
St. John del Rey, g	Brazil	60,000	1 0 0	1 0	Jan., 1899	1 7 6	1 10 0
Tolima A., s., g	Colombia	70,000	5 0 0	5 0	July, 1897	1 5 0	1 15 0
Tolima B., s., g	"	30,000	5 0 0	5 0	"	15 0	1 5 0
UtahCon. g (High'nd Boy)	Utah	300,000	1 0 0	1	Jan., 1899	8 15 0	9 5 0
British Am. Corp.	BritishCol'mbia	1,560,000	1 0 0	rts.	Dec., 1898	16 6	17 0
Linares, l	Spain	45,000	3 0 0	12 6	Sept., 1898	8 10 0	9 10 0
Mason & Barry, c., sul	Portugal	630,000	3 0 0	X	Oct., 1898	3 17 6	4 2 6
Rio Tinto, c	Spain	1,625,000	5 0 0	£1	Nov., 1898	39 12 6	39 17 6
" pref	"	1,625,000	5 0 0	2 6	May, 1898	6 3 9	6 6 3
Tharsis, c	"	1,350,000	2 0 0	10 0	" 1898	8 15 0	9 0 0
Assoc. Gold Mines	W. Australia	500,000	1 0 0	2 0	Feb., 1899	6 1 3	6 3 9
Broken Hill Prop., s	N.S.Wales	394,000	8 0 0	1 6	Jan., 1899	2 6 3	2 8 9
Great Boulder, Prop	W. Australia	1,750,000	2 0 0	6	Feb., 1899	1 2 9	1 3 0
Hannan's Brownhill, g	"	110,000	1 0 0	7 6	Feb., 1899	7 17 6	8 0 0
Harquahala	"	300,000	1 0 0	6 0	Nov., 1894	3	3 9
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Feb., 1899	7 11 3	7 13 9
Kalgurlie, g	"	120,000	1 0 0	rts.	Feb., 1899	6 16 3	6 18 9
Lake View Consols, g	"	250,000	1 0 0	5 0	Feb., 1899	9 13 9	9 16 3
Mt. Lyell M. & R., l, c	Tasmania	900,000	3 0 0	2 6	Jan., 1899	8 5 0	8 10 0
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Feb., 1899	5 7 6	5 12 6
Waihi g	New Zealand	320,000	1 0 0	2 0	Mar., 1899	5 12 6	5 15 0
West Aust. Jt. Stk. Lin. & F	W. Australia	1,000,000	1 0 0	1 0	Dec., 1898	8 0	9 0
Champion Reef, g	Colar Fields	220,000	1 10 0	5 0	Jan., 1899	4 10 0	4 12 6
Mysore Gold, g	"	250,000	1 10 0	5 0	Nov., 1898	3 3 9	3 6 3
Nundydroog, g	"	242,000	0 0 3	4	" 1898	3 3 8	3 3 3
*Ooregam, g	"	145,000	1 0 0	1 0	Dec., 1898	4 0 0	4 5 0
" pref. g	"	120,000	1 0 0	1 0	" 1898	4 8 9	4 11 3
Angelo, g	Transvaal	275,000	1 0 0	5 0	Jan., 1899	6 0 0	6 2 6
Bonanza, g	"	200,000	1 0 0	10 0	Dec., 1898	4 3 9	4 6 3
British S. Af., chartered	So. Africa	3,750,000	1 0 0	rts.	Jan., 1899	3 7 6	3 8 9
Cape Copper, c	"	600,000	1 0 0	7 0	Jan., 1899	4 2 6	4 7 6
" pref	"	150,000	2 0 0	7 0	" 1899	4 0 0	4 10 0
City & Suburban (New), g	Transvaal	1,360,000	2 0 0	6 0	Feb., 1899	6 8 9	6 11 3
Con. Deep Level, g	"	200,000	4 0 0	xb.	Apr., 1898	3 5 0	3 7 6
Crown Reef, g	"	120,000	1 0 0	10 0	Feb., 1899	14 14 6	14 18 9
De Beers Con., d	Cape Colony	3,950,000	1 0 0	£1	Jan., 1899	29 5 0	29 7 6
Durban Roodepoort, g	Transvaal	135,000	5 0 0	4	Dec., 1898	6 2 6	6 7 6
Ferreira, g	"	90,000	1 0 0	30 0	Feb., 1899	23 0 0	23 10 0
Geldenhuis Deep, g	"	350,000	1 0 0	9 0	Feb., 1899	10 10 0	11 0 0
Geldenhuis Est., g	"	200,000	1 0 0	7 6	" 1899	7 7 6	7 12 6
Ginsberg, g	"	160,000	1 0 0	4 0	Feb., 1899	3 17 6	3 19 0
Henry Nourse, g	"	125,000	1 0 0	10 0	Feb., 1899	8 12 6	8 17 6
Heriot (New), g	"	115,000	1 0 0	5 0	" 1899	7 0 0	7 5 0
*Jagersfontein, d	Orange Fr. St.	1,000,000	1 0 0	6 0	Dec., 1898	11 17 6	12 2 6
Johannesburg Con. Invst	So. Africa	2,750,000	1 0 0	2 0	Aug., 1897	1 18 9	2 1 3
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Feb., 1899	6 5 0	6 10 0
Jumpers, g	"	100,000	1 0 0	10 0	" 1899	5 10 0	5 15 0
*Kleinfontein, g	"	275,000	1 0 0	rts.	Apr., 1898	2 17 6	3 2 6
Langlaagte Estate, g	"	500,000	1 0 0	3 0	Jan., 1899	3 15 0	4 0 0
May Con. (New), g	"	275,000	1 0 0	1 6	Jan., 1899	4 1 3	4 13 9
Meyer & Charlton, g	"	85,000	1 0 0	7 0	Jan., 1899	6 5 0	6 10 0
Namaqua, c	Cape Colony	200,000	1 0 0	2 6	Dec., 1898	3 12 6	3 15 0
Primrose (New), g	Transvaal	300,000	2 0 0	6 0	Jan., 1899	4 18 9	5 1 3
Rand Mines, g	So. Africa	400,000	1 0 0	£1	Feb., 1899	42 12 6	42 17 6
Robinson, g	Transvaal	2,750,000	1 0 0	9 0	" 1899	10 0 0	10 5 0
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 11 3	1 13 9
Sim. & Jack Prop., g	"	5,000,000	5 0 0	6	Jan., 1899	6 3 9	6 6 3
Sim. & Jack West, g	"	400,000	1 0 0			4 2 6	4 7 6
Sim. & Jack East, g	"	70,000	1 0 0			3 17 6	4 2 6
Wemmer, g	"	80,000	1 0 0	15 0	Nov., 1898	11 10 0	12 0 0
Wolhuter, g	"	860,000	4 0 0	2 0	Feb., 1899	5 15 0	6 0 0
Worcester, g	"	100,000	1 0 0	3 0	Feb., 1899	3 0 0	3 5 0

*Dividend pending.

PARIS.

Feb. 9.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning	Prices. Closing
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	75.00	2,075.00	2, 90.00
" " Firminy	"	"	3,000,000	500	85.00	3,570.00	3,700.00
" " Fives-Lille	"	"	12,000,000	500	35.00	550.00	565.00
" " Huta-Bank	Russia	Iron & steel		500		4,275.00	4,450.00
" " la Marine	France	Steel mfrs	20,000,000	500	40.00	1,565.00	1,610.00
" " Longwy	"	"		500	35.00	1,160.00	1,160.00
Anzin	"	Coal			190.00	5,450.00	5,450.00
Blache-St. Vaast	"	Steel		1,000	160.00	3,800.00	3,800.00
Boleo	Lower Cal	Copper		500	93.50	2,394.00	2,340.00
Briansk	Russia	Coal & Iron		500		1,380.00	1,380.00
Bruay	France	Coal	3,000,000	400	900.00	39,200.00	39,000.00
Cape Copper	S. Africa	Copper	15,000,000	50	1.50	108.50	111.50
Champ d'Or	"	Gold	3,375,500	25		60.00	57.25
Courrieres	France	Coal	600,000	800	60.00	2,180.00	2,180.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	763.00	756.00
Denain-Anzin	France	Steel		500	20.00	820.00	833.00
Dombrowa	Russia	Coal		500	12.50	1,057.00	1,065.00
Donetz	"	Steel				1,225.00	1,250.00
Dourges	"	Coal		1,000	800.00	21,000.00	20,940.00
Dynamite Centrale	France	Explosives		500	12.50	542.00	530.00
Eplnac	"	Coal		2,500	30.00	600.00	600.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,165.00	1,160.00
Fraser River	Brit. Col'mb	Gold	250,000	25		10.00	10.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	50.25	58.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	109.00	107.50
Lagunas	Chile	Nitrates	16,250,000	125	12.50	33.00	33.00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	637.00	645.00
Lautaro	Chile	Nitrates	13,750,000	125		96.00	96.00
Malfidano	Italy	Zinc	12,500,000	500	40.00	1,300.00	1,240.00
Metaux, Cie. Fran. de	France	Metal d'iers	25,000,000	500	30.00	640.00	685.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,000.00	1,081.00
Napthe Baku	Russia	Petroleum				868.00	895.00
Napthe, Le	"	"				2,675.00	2,670.00
Napthe Nobel	"	"				625.00	647.00
" " parts	"	"				12,650.00	12,930.00
Nickel	N. Caled'nia	Nickel	10,000,000	240	30.00	399.00	4 3.00
Paccha-Jaxpampa	Chile	Nitrates	9,000,000	125		12.50	12.50
Penarroya	Spain	Coal, etc		500	65.00	2,595.00	2,650.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		5.00	4.75
Rio Tinto	Spain	Copper	40,625,000	125	47.70	1,000.00	1,000.00
" preferred	"	"	40,625,000			170.00	154.00
Rive-de-Gier	France	Coal				24.75	23.80
Robinson	S. Africa	Gold	68,750,000	125	12.50	285.00	275.00
St. Etienne	France	Coal			18.00	459.00	440.00
Salines de l'Est	France	Salt		500	11.50	275.00	275.00
Salines du Midi	France	etc		500	20.00	875.00	866.00
Seis Gem. de la Rus. Mer	Russia	etc		500	25.00	665.00	630.00
Tharsis	Spain	Copper	33,750,000	50	8.75	236.50	227.00
Vicoigne-Neux	France	Coal		1,000	700.00	22,495.00	22,500.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	30.00	798.75	811.25

MEETINGS.

NAME OF COMPANY.	Location	Meeting.	Date.	Place.
Alliance	Utah	Special	Mar. 4	Progress Block, Salt Lake City, Utah.
Allouez	Michigan	Annual.	Mar. 14.	18 William st., New York City.
Anaconda	Montana	"	May 19	Anaconda, Mont.
Anchoria-Leland	Colorado	"	May 14	Color do Springs, Colo.
Baltic	Michigan	"	Mar. 6	11 William St., New York City.
Galena	Utah	"	May 17	Salt Lake City, Utah.
Gladstone	"	"	Mar. 13.	Deseret Nat. Bk. Bldg., Salt Lake City, Utah.
Bale & Norcross	Nevada	"	Mar. 16.	331 Pine St., San Francisco, Cal.
May Day	Utah	"	Apr. 7.	Salt Lake City, Utah.
Meloncs, Con	California	"	Mar 22.	331 Pine st, San Francisco, Cal.
Mohawk Con.	Utah	"	Mar. 8.	214 Atlas Block, Salt Lake City, Utah.
Morning Glory	"	Special.	Mar. 14	76 W 2d South st., Salt Lake City, Utah.
North Star	California	Annual.	May 11	401 California st., San Francisco, Cal.
Oscoda	Michigan	"	Mar 9	Boston Mass.
Scorpion	Nevada	"	May 9	San Francisco, Cal.
South Eureka	California	"	Mar. 16.	530 California st., San Francisco, Cal.
Star	Utah	"	Mar 21	Salt Lake City, Utah.
Yellow Jacket	Nevada	"	Mar. 6	Gold Hill, Nev.

DIVIDENDS.

NAME OF COMPANY.	Current dividends. Date.	Current dividends. Am't.	Paid since Jan. 1, 1899.	Total to date.
Alaska-Mexican			$18,000	$335,031
Alaska-Treadwell			75,000	3,995,000
Ætna Con			10,000	160,000
Anchoria-Leland			18,000	192,000
Apollo Con., Alas			40,000	140,000
Argonaut, Col			20,000	200,000
Boston & Colo. Sm			75,000	300,000
*Boston & Mont			750,000	9,875,000
Breece	Mar. 1	10,000	10,000	40,000
*Bul. Bec. & Champ			10,000	2,328,400
Calumet & Hecla	Mar 23	4,000,000	4,000,000	60,850,000
*Bunker Hill & S	Mar. 4	21,000	63,000	663,000
*Centenn'l Eureka			30,000	2,055,000
*Central Lead	Mar 15	5,000	15,000	97,000
Colorado Sm			100,000	1,945,000
Deer Trail No. 2, Wash			2,500	17,500
*Doe Run	Mar 15	2,500	7,500	67,500
*Empire State, Ida	Mar 15	14,777	44,331	106,233
Ferris-Haggerty, Wyo	Mar. 1	5,000	5,000	5,000
Germania Lead			3,750	
*Gold Coin, Vict	Mar 25	10,000	40,000	19,000
*Golden Cycle	Mar 15	5,000	15,000	168,500
*Gold King, Col			10,000	10,000
*Golden M. & Ex			10,000	10,000
*Grand Central, Ut			62,500	281,250
Grass Valley Ex			7 500	
*Highland	Mar 16	26,000	60,000	3,844,718
*Homestake			125,000	7,306,250
Idaho, B. C			28,000	292,000
*Isabella			135,000	405,000
*Lillie	Mar. 1	12,500	37,500	202,860
Mercur			$25,000	$1,266,000
*Montana, Ltd			20,000	374,845
Mont. Ore Pur			80,000	880,000
*Morning Star, Cal	Mar 15	9,600	28,800	717,000
*Moulton, Mont			20,000	480 000
Napa Con			20,000	970,000
New Idria			20,000	100,000
*N. Y. & Hond-Rosario			15,000	990,000
*Parrot			138,000	2,276,898
*Pennsylvania	Mar. 9	2,575	7,725	59,375
Plumbago, Cal			45,000	45,000
*Portland	Mar 15	60,000	180,000	2,017,080
*Quincy			350,000	10,470,000
Republic, Wash			30,000	120,000
*Sacramento	Mar. 1	5,000	15,000	72,000
*Silver King	Mar 10	37,500	125,000	1,875,000
*Small Hopes			25,000	3,325,000
Smuggler			10,000	1,105,000
Strong	Mar 15	25,000	75,000	600,000
*Swansea	Mar 10	5,000	15,000	151,500
Utah, Utah			2,000	179,000
Vindicator			50 750	177.625
*War Eagle, B. C.	Mar 15	26,250	78.750	256,500
Yellow Aster			10,000	168,789
Grand Total			$4,276,702	$7,213,606	124,758,854

*February dividend paid.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No.	Delinq.	Sale.	Amt.
Alta	Nev	61	March 10	April 4	.05
Belcher	Nev	60	" 21	" 11	.10
Challenge Con	Nev	26	" 15	" 5	.05
Central Eureka	Nev	10	" 5	March 27	.02
Eureka Con	Cal	16	Feb. 24	" 11	.00½
Florence	Utah	1	March 13	" 31	.00½
Gold & Sil. Carb	Utah		" 13	April 3	.00½
*Golden Star	Cal		" 1		.02
Great Wester'n	Cal	5	" 20	" 10	.15
Julia, Con	Nev	29	Feb. 17	March 8	.03
Justice	Nev	64	" 23	" 16	.03
Larkin	Utah	4	" 15	" 4	.02
Marguerite	Cal	12	" 6	" 6	.10
Marina Morsicano	Cal	17	" 21	" 13	.04
*Overman	Nev		March 27		.05
R. G. W	Utah	1	" 18	April 3	.01
Shower Con	Utah	1	" 1	April 3	.02
Sierra Nevada	Nev	115	Feb. 21	March 13	.20
Silver King	Ariz	20	" 21	" 21	.25
Snow Flake	Utah	11	" 13	" 4	.01
Star	Utah		" 25	" 13	.03
Success	Utah	2	" 18	" 11	.00¾

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Ætna Cons., q.	Cal.	$500,000	$100,000	$5	*				$160,000	Jan.	1899	.10
2	Alaska-Mexican, g.	Alask	1,000,000	200,000	5					335,031	Jan.	1899	.10
3	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*				3,935,000	Jan.	1899	.37½
4	Alice, g. s.	Mont.	10,000,000	400,000	25	*				1,075,000	April.	1898	.05
5	American Gold, g. s. c. l	Colo.	3,000,000	300,000	10	*				362,000	Oct.	1898	.09
6	Anaconda Copper	Mont.	30,000,000	1,200,000	25					8,250,000	Nov.	1898	1.25
7	Anchoria-Leland, g.	Colo.	600,000	600,000	1	*				192,000	Jan	1899	.03
8	Appie Ellen, g.	Colo.	600,000	600,000	1					25,000	Aug.	1898	.01
9	Associated, g.	Colo.	1,250,000	1,250,000	1	*				72,000	Dec.	1898	.01
10	Atlantic, c.	Mich.	1,000,000	40,000	25					780,000	Feb.	1898	1.00
11	Aurora, i.	Mich.	2,500,000	100,000	25	*				750,000	May.	1898	.50
12	Bald Butte	Mont.	250,000	250,000	1	*				649,648	Dec.	1898	.06
13	Big Six, g. s.	Colo.	500,000	500,000	1					15,000	May.	1898	.00½
14	Boston & Colorado Sm.	Colo.	750,000	15,000	50					300,000	Jan.	1899	5.00
15	Boston & M. Cons., g. s. c.	Mont.	3,750,000	150,000	25	*				9,875,000	Feb.	1899	5.00
16	Breece, i.	Colo.	5,000,000	200,000	25					40,000	Mar.	1899	.05
17	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	*				2,328,400	Feb.	1899	.10
18	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10					642,000	Feb	1899	.07
19	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25					60,850,000	Mar.	1899	10.00
20	Cariboo, g.	B. C.	800,000	800,000	1					236,965	Aug.	1898	.02
21	Centen'l-Eureka, g. s. l. c	Utah.	1,500,000	30,000	50	30,000	Mar.	1889	1.00	2,055,000	Feb.	1899	.50
22	Central Lead, l.	Mo.	1,000,000	10,000	100	*				92,000	Feb.	1899	.50
23	Champion, g. s.	Cal.	340,000	34,000	10					296,200	April.	1898	.25
24	Charleston, p. r.	S. C.	1,000,000	10,000	100	*				180,000	Dec.	1898	1.50
25	Colorado, Sm., g. s. c.	Mont.	1,000,000	100,000	10	*				1,945,000	Jan.	1899	1.00
26	Con. Tiger & Poorman	Idaho	1,000,000	1,000,000	1	*				20,000	Dec.	1898	.02
27	Creston Leasing	Colo.	1,000,000	1,000,000	1					54,000	Dec.	1898	.01
28	Crowned King, g. s. l.	Ariz.	6,000,000	600,000	10	*				232,000	Dec.	1898	.02
29	Daly, s. l.	Utah.	3,000,000	150,000	20					2,925,000	Mar.	1897	.25
30	†Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	*				1,350,000	May.	1898	.15
31	De Lamar, g. s.	Idaho	2,000,000	400,000	5					2,298,000	May	1898	.29
32	Della S.	Colo.	1,000,000	1,000,000	1					60,000	Jan.	1897	.10
33	Doe Run, l.	Mo.	500,000	5,000	100					65,000	Feb.	1899	.50
34	Dutch, g.	Cal.	1,500,000	150,000	10					39,000	Feb.	1898	.04½
35	Elkton Cons., g.	Colo.	1,250,000	1,250,000	1					656,961	Nov.	1898	.01½
36	El Paso, g. s.	Colo.	650,000	650,000	1					12,393	Jan.	1898	.01
37	Enterprise, s. l.	Colo.	500,000	500,000	1					900,000	Sept.	1898	.05
38	Empire State-Idaho	Idaho	1,000,000	100,000	10					106,333	Feb.	1899	.10
39	Fern.	B. C.	200,000	200,000	1					10,000	Jan.	1898	.05
40	Florence, s.	Mont.	2,500,000	500,000	5	*				137,530	Aug.	1897	.01
41	Geyser-Marion, g.	Utah.	1,500,000	300,000	5					96,000	Sept.	1898	.02
42	Gold Coin, g. s.	Colo.	1,000,000	200,000	5	*				160,000	Nov.	1897	.05
43	Gold Coin of Victor, g.	Colo.	1,000,000	1,000,000	1					180,000	Mar.	1899	.01
44	Golden Cycle, g.	Colo.	1,000,000	200,000	5					168,500	Mar.	1899	.02½
45	Golden Fleece, g. s.	Colo.	600,000	600,000	1	*				569,179	Feb.	1897	.01
46	Gold & Globe, g.	Colo.	750,000	750,000	1					51,625	July.	1897	.00⅝
47	Gold King, g.	Colo.	1,000,000	1,000,000	1					10,000	Feb.	1899	.01
48	Golden Reward, g.	S. D.	1,000,000	100,000	10					155,000	Feb.	1898	.15
49	Grand Central, g.	Utah.	250,000	250,000	1					281,250	Feb.	1899	.12½
50	Gwin, g.	Cal.	1,000,000	20,000	50	286,000	Jan.	1898		51,500	Jan.	1897	.06
51	Hall Mines, Ltd.	B. C.	1,250,000	250,000	5					160,000	May	1898	.25
52	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,175,000	Feb.	1897	.50
53	Highland, g.	S. D.	10,000,000	100,000	100	304,000				3,844,718	Mar.	1899	.20
54	Holy Terror, g.	S. D.	500,000	500 600	1					117,000	Sept.	1898	.03
55	Homestake, g.	S. D.	12,500,000	125,000	100	200,000	July.	1878	1.00	7,306,250	Feb.	1899	.50
56	Hope of St. Louis, s.	Mont.	1,000,000	100,000	10	*				762,252	Mar.	1898	.10
57	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,210,000	Oct.	1898	.05
58	Idaho.	B. C.	500,000	500,000	1					292,000	Jan.	1899	.05
59	Iowa, g.	Colo.	1,000,000	1,000,000	1					95,000	June.	1898	.00½
60	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	*				507,500	April.	1898	.02
61	Isabella, g.	Colo.	2,250,000	2,250,000	1					405,000	Feb.	1899	.06
62	Jersey Leasing	Colo.	200,000	158,167	1					137,875	Oct.	1898	.03½
63	Last Chance, s. l.	B. C.	500,000	350,000	1	*				40,000	Jan.	1897	.04
64	Le Roi.	B. C.	5,000,000	2 0,000	25					825,000	April.	1898	.10
65	Lillie, g.	Colo.	1,250,000	250000	5					190,360	Feb.	1899	.05
66	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,350,000	Dec.	1898	.05
67	Matoa, g.	Colo.	1,000,000	1,000,009	1					25,000	Dec.	1898	.02½
68	Mead, g.	Cal.	200,000	200,000	1					80,000	Dec.	1898	.40
69	Mercur, g.	Utah.	5,000,000	200,000	25	*				1,266,000	Jan.	1899	12½
70	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*				4,735,000	Oct.	1898	1.50
71	Modoc, g.	Colo.	500,000	500,000	1					100,000	Dec.	1898	.01
72	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	*				374,845	Feb.	1899	.05
73	Montana Ore Purchas'g	Mont.	2,500,000	80,000	25	*				880,000	Jan.	1899	1.00
74	Montreal.	Colo.	1,000,000	1,000,000	1					7,500	Nov.	1898	.01
75	Moon-Anchor Con., g.	Colo.	1,750,000	600,000	1					261,000	Nov.	1898	.07½
76	Morning Star, g.	Cal.	240,000	2,400	100	70,800	Feb.	1887	.75	707,400	Feb.	1899	4.00
77	Monument.	Colo.	300,000	300,000	1					12,624	Dec.	1898	.01
78	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1					60,000	Jan.	1898	.02
79	Moulton.	Mont.	2,000,000	400,000	5					480,00	Feb.	1899	.05
80	Mountain Copper	Cal.	6,250,000	250,000	25					93,750	Sept.	1898	.62½
81	Napa Cons., q.	Cal.	700,000	100,000	7	*				970,000	Jan.	1899	.20
82	New Idria Quicksilver	Cal.	500,000	100,000	5					100,000	Jan.	1899	.20
83	N. Y. & Hon Rosario, s. g.	C. A.	1,500,000	150,000	10	*				990,000	Feb.	1899	.10
84	North Star, g.	Cal	2,000,000	200,000	10	20,000	June.	1885	.02	500,000	Nov.	1898	.25
85	Nugget.	Colo.	1,000,000	1,000,000	1					20,000	Aug.	1898	.00½
86	Ontario, s. l.	Utah.	15,000,000	150,000	100					13,557,500	Nov.	1897	.75
87	Orphan Bell, g.	Colo.	1,000,000	1000,000	1					115,125	Mar.	1898	.01
88	Ophir Hill.	Utah.	25,000	1,000	25					20,000	Dec.	1898	20.00
89	Osceola, c.	Mich.	2,500,000	91,000	25	*				2,522,500	Dec.	1898	2.00
90	Parrot, c.	Mont.	2,300,000	230,000	10	*				2,276,898	Feb.	1899	.30
91	Pennsylvania Cons.	Cal.	5,150,000	51,500	100	50,051	Feb.	1892	.05	56,800	Feb.	1899	.05
92	Pioneer g.	Cal.	1,000,000	100,000	10					50,000	Dec	1898	.12½
93	Plumbago, g.	Cal.	300,000	300,000	1					45,000	Jan.	1899	.15
94	Portland, g.	Colo.	3,000,000	3,000,000	1	*				1,957,080	Feb.	1899	.02
95	Princess, g.	Colo.	1,000,000	1,000,000	1					45,000	Feb.	1897	.00½
96	Quincy, c.	Mich.	2,500,000	100,000	25	*				10,470,000	Feb.	1899	3.50
97	Rambler-Cariboo	B. C.	1,000,000	1,000,000	1					40,000	April.	1897	.02
98	Raven, g.	Colo.	1,500,000	1,500,000	1					19,500	Mar.	1898	.01
99	Reco, s. l.	B. C.	1,000,000	1,000,000	1					297,500	Jan.	1898	.10
100	Republic.	Wash	1,000,000	1,000,000	1					120,000	Jan.	1899	.03
101	Sacramento, g.	Utah.	5,000,000	1,000,000	5					67,000	Feb.	1899	.00½
102	St. Joseph, l.	Mo.	3,000,000	300,000	10	*				2,784,500	Dec.	1898	1.50
103	Santa Rosalia, g. s.	Cal.	100,000	100,000	1					125,000	Feb.	1898	.10
104	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	3,000	Jan.	1897	.02	1,837,500	Feb.	1898	.25
105	Slocan Star.	B. C.	1,000,000	2,000,000	0.50					400,000	Mar.	1897	.05
106	Small Hopes, s.	Colo.	5,000,000	250,000	20	*				3,325,000	Feb.	1898	.10
107	Smuggler, s. l. z.	Colo.	1,000,000	1,000,000	1					1,105,000	Jan.	1899	.01
108	South Swansea, s. l.	Utah.	150,000	150,000	1					104,960	Aug.	1898	.05
109	§Standard Cons., g. s.	Cal.	2,000,000	200,000	10	99,888	June.	1890	.50	3,839,226	Aug.	1898	.10
110	Swansea, s. l.	Utah.	500,000	100,000	5					146,500	Feb.	1899	.05
111	Tamarack, c.	Mich.	1,500,000	60,000	25					5,570,000	Dec.	1898	4.00
112	Tomboy, g.	Colo.	2,000,000	200,000	10					650,000	Dec.	1898	.25
113	Utah.	Utah.	1,000,000	100,000	10	*				179,000	Jan.	1899	.02
114	Victor, g.	Colo.	1,000,000	200,000	5	*				1,155,000	Dec.	1898	.50
115	Vindicator, Cons. g.	Colo.	1,500,000	1,015,000	1					177,625	Jan.	1899	.05
116	§§ War Eagle, Cons.	B. C.	2,000,000	1,750,000	1					230,250	Feb.	1899	.01½
117	Western Mine Enterp.	Mont.	500,000	500,000	1	*				48,680	Jan.	1898	.20
118	Whitewater.	B. C.	625,000	125,000	5					194,000	April.	1898	.32
119	Wolverine, c.	Mich.	1,500,000	60,000	25	180,000	Mar.	1895	1.00	60,000	Oct.	1898	1.00
120	Yellow Aster, g.	Cal.	1,000,000	100,000	10	*				168,789	Jan.	1899	.10
121													

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov.	1895	.01½
2	Alamo, g. c. l.	Utah.	125,000	125,000	1	937	Mar.	1898	.00¼
3	Alliance, g. s. l.	Utah.	150,000	150,000	1	200,000	Dec.	1895	.10
4	Allouez, c.	Mich.	2,000,000	80,000	25	1,520,937	June.	1894	1.00
5	** Alpha Cons., g. s.	Nev.	105,000	105,000	1	316,050	Nov.	1898	.03
6	** Alta, s.	Nev.	216,000	108,000	2	3,670,310	Mar.	1899	.05
7	American Quartz, g.	Cal.	1,000,000	100,000	10	1,000	Feb.	1897	.01
8	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug.	1893	.20
9	** Andes, g.	Nev.	300,000	100,000	3	1,200,000	Jan.	1899	.05
10	Arnold, c.	Mich.	1,500,000	60,000	25	180,000	Jan.	1899	3.00
11	Baliol, g.	Cal.	1,000,000	100,000	10	55,000	Mar.	1898	.30
12	** Belcher, s. g.	Nev.	312,000	104,000	3	3,525,200	Mar.	1899	.10
13	Belle Isle,	Nev.	10,000,000	100,000	100	240,271	July.	1896	.10
14	Benton Con. s.	Nev.	10,800,000	108,000	100	587,023	June	1897	.25
15	**Best & Belcher, g. s	Nev.	302,400	100,800	3	2,589,643	Nov.	1898	.10
16	Bogan.	Utah.	1,250,000	125,000	10	26,875	Dec.	1897	.01½
17	Boston & Cp. Ck., g.	Colo.	400,000	200,000	2	20,000	Aug.	1898	.10
18	Brunswick Cons., g.	Cal.	500,000	500,000	1	160,000	July.	1897	.03
19	** Bullion, s. g.	Nev.	100,000	100,000	1	3,120,000	Nov.	1898	.05
20	Caledonia.	Nev.	300,000	200,000	3	3,210,000	ov.	1897	.10
21	Centennial, c.	Mich.	2,500,000	100,000	25	460,000	Mar.	1898	3.00
22	Central Eureka, g.	Cal.	4,000,000	400,000	10	92,000	Mar.	1899	.02
23	**Challenge Cons, s. g.	Nev.	150,000	50,000	3	430,000	Mar.	1899	.05
24	**Chollar, g. s.	Nev.	336,000	112,000	3	2,959 800	Jan.	1899	.10
25	**Confidence, g. s.	Nev.	74,880	24,960	3	540,126	Nov.	1898	.10
26	**Con., Cal. & Va.	Nev.	540,000	216,000	2½	678,000	July.	1898	.25
27	**Cons. Imperial, g. s	Nev.	500,000	500,000	1	2,246,000	Nov.	1898	.01
28	**Con. New York	Nev.	100,000	100,000	1	160,500	Nov.	1898	.03
29	**Crown Point, g. s.	Nev.	300,000	100,000	3	2,970,000	Nov.	1898	.10
30	Dalton, s. l.	Utah.	2,500,000	500,000	5	53,750	Sept.	1898	.00½
31	Dexter.	Nev.	1,000,000	200,000	5	38,000	Apr.	1898	.15
32	Diamond Con.	Utah.	1,000,000	200,000	5	8,000	Mar.	1899	.04
33	Eagle, g. s.	Cal.	500,000	100,000	5	5,000	Dec.	1896	.05
34	Eagle, g. s.	Ore.	1,000,000	100,000	10	6,000	Oct.	1898	.01½
35	Emerald.	Utah	300,000	300,000	1	3,000	Oct.	1898	.00½
36	Eureka Cons., g. s. l.	Nev.	1,000,000	50,000	20	585,000	Sept.	1898	.20
37	Eureka Con. Drift, g.	Cal.	500,000	500,000	1	175,000	Feb.	1899	.00½
38	** Exchequer, g. s.	Nev.	1,000,000	100,000	1	1,020,000	Dec.	1897	.05
39	Florence.	Utah.	1,000,000	200,000	5	500	Mar.	1899	.00¼
40	Four Aces.	Utah.	250,000	250,000	1	5,000	Mar.	1898	.01
41	Galena.	Utah.	1,000,000	100,000	10	10,000	Oct.	1898	.10
42	Geyser, s. l.	Colo.	5,000,000	500,000	10	1,125,000	Jan.	1899	.10
43	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July.	1896	.00½
44	Golden Fleece Grav. g	Cal.	130,000	130	1000	56,250	Mar.	1897	2.00
45	Gold & Silver Carb.	Utah.	500,000	500,000	1	2,500	Mar.	1899	.00½
46	** Gould & Curry	Nev.	324,000	108,000	3	4,614,350	Dec.	1898	10
47	Great Eastern, g.	Utah.	1,500,000	300,000	5	5,000	Oct	1898	.00½
48	Great Western, q.	Cal.	5,000,000	50,000	100	70,526	Mar.	1899	.15
49	Hale & Norcross, g. s.	Nev.	11,200,000	112,000	100	5,705,080	Feb.	1899	.15
50	Horse Shoe Bar Cons.	Cal.	6,000,000	60,000	100	85,800	Jan.	1899	.05
51	** Julia Con.	Nev.	110,000	110,000	1	1,498,800	Jan.	1899	.03
52	Jupiter, g.	Cal.	2,000,000	20,000	100	80,000	Feb.	1898	.20
53	** Justice, g. s. c.	Nev.	210,000	105,000	2	3,652,000	Feb.	1899	.05
54	Kentuck.	Utah.	600,000	300,000	2	30,000	Aug.	1898	.10
55	** Kentuck Cons., s.	Nev.	105,000	105,000	1	125,300	June.	1898	.05
56	Lacrosse, g.	Colo.	1,000,000	100,000	10	*			
57	Little Pittsburg.	Utah.	2,000,000	400,000	5	18,000	Dec.	1898	.01
58	Lower Mammoth.	Utah.	150,000	150,000	1	15,000	Oct.	1898	.05
59	Lucky Bill.	Utah.	300,000	120,000	2.50	56,400	June.	1898	.01½
60	Marguerite, g.	Cal.	500,000	50,000	10	75,000	Feb.	1899	.10
61	May Day.	Utah.	100,000	400,000	¼	4,000	Jan.	1899	.00¼
62	Mayday, g. s.	Cal.	50,000	50,000	1	5,000	May.	1898	.10
63	Mayflower, g.	Cal.	1,200,000	60,000	20	6,000	Sept.	1898	.05
64	Merced, g.	Cal.	1,500,000	100,000	15	200,000	July.	1896	2.00
65	Meteor, s. l.	Utah.	600,000	300,000	2	6,734	Feb.	1899	.01
66	** Mexican, g. s.	Nev.	302,400	100,800	3	2,258,720	Nov.	1898	.10
67	Montreal.	Utah.	2,500,000	250,000	10	18,125	Jan.	1899	.05
68	Mt. Diablo s.	Nev.	5,000,000	50,000	100	150,000	Dec.	1898	.10
69	Morning Star, s.	Nev.	1,500,000	150,000	10	32,500	Dec.	1898	.00½
70	Nashville, g.	Cal.	115,000	11,500	10	2,000	Sept.	1898	.17
71	North Bannock, g. s.	Cal.	1,000,000	100,000	10	21,794	Oct.	1896	.02
72	North Belle Isle, s.	Nev.	10,000,000	100,000	100	523,074	July.	1896	.10
73	***No. Gould & Curry	Nev.	100,000	100,000	1	375,000	Dec.	1898	.10
74	Northern Light, g.	Utah.	2,000,000	400,000	5	80,000	July.	1898	.10
75	**Occidental Cons g s	Nev.	300,000	100,000	3	499,179	Dec.	1898	.10
76	** Ophir, g. s.	Nev.	324,000	108,000	3	4,602,568	Sept.	1898	.15
77	Opohonga.	Utah.	200,000	100,000	2	1,500	June.	1898	.01
78	Oro Cache, g. s.	S. D.	1,250,000	250,000	5	6,250	July.	1893	.00½
79	Osceola, g.	Cal.	10,000,000	100,000	100	10,924	Sept.	1898	.01
80	*** Overman, g. s.	Nev.	230,400	115,200	2	4,129,690	Dec.	1898	.05
81	Peer, s.	Ariz.	10,000,000	100,000	100	215,000	July.	1894	.05
82	Peerless, s.	Nev.	10,000,000	100,000	100	410,000	July.	1894	.05
83	Pine Hill, g.	Cal.	1,000,000	100,000	10	30,000	July.	1897	.05
84	** Potosi, g. s.	Nev.	336,000	112,000	3	2,157,200	Dec.	1898	.10
85	Quicksilver, pref., q.	Cal.	4,300,000	43,000	100	*			
86	Quicksilver, com. q.	Cal.	5,700,000	57,000	100	*			
87	Red Mountain, s.	Colo.	300,000	60,000	5	22,500	Mar.	1891	.12½
88	Rescue, g.	Nev.	100,000	10,000	10	5,000	June.	1898	.10
89	Reward, g.	Cal.	64,000	64,000	1	63,680	Nov.	1898	.02
90	Ridge, c.	Mich.	500,000	20,000	25	239,939	Feb.	1897	1.00
91	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July.	1895	.05
92	** Savage, g. s.	Nev.	280,000	112,000	2½	7,300,800	Feb.	1899	.10
93	Scorpion, s.	Nev.	100,000	100,000	1	445,000	Dec.	1897	.05
94	**Seg. Belcher & Mg s	Nev.	200,000	100,000	2	368,000	Nov.	1898	.03
95	Sevier, g. s.	Utah.	1,250,000	250,000	5	50,000	April.	1897	.04
96	Shower Con.	Utah.	2,000,000	400,000	5	8,000	Mar.	1899	.02
97	** Sierra-Nevada, g. s	Nev.	300,000	100,000	3	6,706,910	Feb.	1898	.20
98	Silver Age, g. s. l.	Colo.	2,000,000	200,000	10	*			
99	** Silver Hill, s.	Nev.	108,000	108,000	1	2,220,200	May	1898	.05
100	Silver King, s.	Ariz.	10,000,000	100,000	100	465,000	Feb.	1899	.25
101	Silver Queen, c.	Ariz.	5,000,000	200,000	25	*			
102	Silver State, g.	Colo.	700,000	700,000	1	*			
103	Silver State, s. g. l.	Utah.	100,000	100,000	1	1,000	Sept.	1897	.00½
104	Siskiyou Con., s.	Cal	2,000,000	200,000	10	46,000	Apr.	1898	.01
105	South Fork Con.	Utah.	50,000	50,000	1	5,000	Mar.	1898	.01
106	Star, g. s.	Utah.	1,000,000	200,000	5	7,000	Feb.	1899	.03
107	Success.	Utah.	30,000	300,000	0.10	1,500	Feb.	1899	.00¼
108	Sunbeam Cons.	Utah	250,000	250,000	1	23,125	Nov.	1898	.01
109	Tecumseh, c.	Mich.	1,000,000	40,000	25	40,000	July.	1897	1.00
110	Temonj, g.	Colo.	1,000,000	1,000,000	1				
111	Tetro	Utah.	300,000	300,000	1	21,000	Jan.	1899	.01
112	Tombstone, g. s. l.	Ariz	12,500,000	500,000	25	*			
113	Tornado Con., g. s.	Nev.	100,000	100,000	1	*			
114	** Union Cons., g. s.	Nev.	250,000	100,000	2½	2,633,000	Jan.	1899	.08
115	** Utah Cons., s.	Nev.	100,000	100,000	1	475,000	Jan.	1899	.05
116	Victory, g. s.	S. D.	1,250,000	250,000	5	2,625	Nov.	1896	.00½
117	West Granite Mt., s.	Mont.	500,000	100,000	5				
118	Work, g.	Colo.	1,250,000	1,250,000	1				
119	World, g.	Colo.	1,500,000	1,500,000	1	*			
120	***Yellow Jacket, g. s	Nev.	360,000	120,000	3	5,788,000	May	1898	.20
121	Yellow Jacket.	Utah.	300,000	300,000	1	1,500	Dec.	1897	.00⅞

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. †The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000.
§Bodie, Bulwer and Mono transferred to Standard Cons., January, 1897. Previous to consolidation Bodie paid $1,677,572, Bulwer $190,000, Mono $12,500, and Standard $900,000.
§§ Capitalization reduced September, 1898. *** Reincorporated in September, 1898. §§ The old War Eagle Company paid $240,000 in dividends to July, 1897, and levied $32,500 in assessments.
** Capitalization reduced September, 1898.
NOTE.—This table is corrected up to February 28. Correspondents are requested to forward changes or additions so as to reach us before the end of each month.

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

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 Jan. 30th. 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 Review of Chemicals and Minerals.

	Cust.	Meas.	Price.
Abrasives—			
Carborundum, f.o.b. Niagara Falls grains	lb.		$0.15
Powdered	"		.10
Corundum, N. C.	"		.07@.10
Chester	"		.04½@.05
Emery, Turkish flour	"		.03
Grains	"		.05
Naxos flour	"		.03
Grains	"		.05
Chester flour	"		.03
Grains	"		.05
Peekskill flour	"		.01¾
Grains	"		.02½
Crude, Kuluk, best	lg. ton		18.50
Levant, "	"		22.00
Naxos (Greek) best	"		32.00
Pumice Stone, Am. powd.	lb.		.01@.02
Italian, powdered	"		.01½
Lump, per quality	"		.04@.40
Rottenstone, ground	"		.02½@.03
Lump, according to quality	"		.06@.18
Rouge	"		.17@.30
Tripoli, prepared	sh. ton.		20.00
Acids—Acetic, 30% pure	lb.		.02¾
30% ch. pure	"		.06½
80% pure	"		.09
Glacial, pure	"		.11¾
Chem. pure	"		.21
Benzoic, English	"		1.10
German	"		.48
Boracic, pure cryst.	"		.10½@.11
Powdered	"		.11@.11½
Carbolic, cryst. in drums	"		.16
Carbonic, liquid	"		.10
Chromic, crude	"		.25
Chem. pure	"		.40
Absol. ch. pure	"		1.75
Hydrochloric, ch. pure	"		.08
Hydrofluoric, 30%	"		.03@.04½
48%	"		.05@.06
Best			.25
Nitric, chem. pure	"		.10
Sulphuric, 98%	"		.02
Chem. pure	"		.07
Sulphurous	"		.03½@.05
Tartaric, cryst.	"		.31½@.32
Powder	"		.32@.32½
Alcohol—Grain	gal.		2.44@2.48
Refined wood, 95@97%	"		.75@.80
Purified	"		1.20@1.50
Alum—Lump	100 lbs.		1.65
Powdered	"		2.50
Ground	"		1.75
Chrome, com'l	"		3.50
Aluminum—Nitrate	lb.		1.50
Oxide, com'l	"		.20
Pure	"		.80
Chem. pure	"		1.00
Hydrated	"		.05
Sulphate, pure	"		.02
Ammonia—Aqua, 16°	"		.02½@.03
18°	"		.03@.03½
20°	"		.03½@.04
26°	"		.05½@.06
Ammonium—			
Bromide, pure	"		.52@.53
Carbonate	"		.07¼@.07½
Muriate, gran., white	"		.05¼
Lump	"		.08¼
Gray	"		.05
Nitrate, white, pure (99%)	"		.09
Antimony—Glass	"		.30@.40
Needle, lump	"		.05@.06
Powdered	"		.07@.08½
Oxide, com'l white, 95%	"		.25
Com'l white, 99%	"		.35
Sulphuret, com'l	"		.16
Arsenic—White	"		.04@.04¼
Red	"		.07¾@.08
Asphaltum—California Ventura	sh. ton		32.00
Cuban, best	"		40.00
Common	"		20.00
Egyptian	"		130.00
Trinidad, refined	"		40.00
Gilsonite, Utah, ordinary	"		65.00
Select	"		75.00
Barium—Carbonate, lump, 80@90%	"		25.00@27.50
92@98%	"		25.25@29.00
Powdered, 80@90%	lb.		.01¾@.02
Chloride, com'l	"		.02¼
Chem. pure cryst	"		.05
Nitrate, com'l, pow'd.	"		.07
Pure, pow'd	"		.07@.08
Oxide, com'l, hyd. cryst	"		.18@.22
Hydrated, pure cryst.	"		.25
Pure, powd	"		.27
Sulphide	"		.40
Sulphate	"		.02¼@.02¾
Barytes—Crude, No. 1	sh. ton		9.00@10.00
No. 2	"		8.00@8.25
No. 3	"		7.75@8.00
Prime White	"		12.00@15.00
American, floated	"		12.50@18.00
Foreign, floated	"		19.50@21.00
Bauxite—Georgia, f.o.b. cars, first grade	lg. ton		3.25@4.50
Second grade	"		3.00
Alabama, f. o. b. cars Rock Run	"		3.85
Benzole—90%	gal.		1.00@1.10
Bismuth—Oxide, hydr.	lb		2.25@2.56
Nitrate cryst.	oz.		.09
Bitumen	lb.		.03½@.05
Bone Ash	"		.02¾@.03½
Borax—			
Cryst. and pow'd	"		.07@.07¼
Calcined	"		.19
Bromine—Bulk	"		.45
Cadmium—			
Metallic	"		1.90@2.00
Sulphide	"		1.90@2.25
Sulphate	"		2.25@2.50
Calcium—			
Carbide, in ton lots, f. o. b. Niagara Falls, N.Y.	lb.		.03@.04
Acetate, pure white	"		.10
Carbonate, ppt.	"		.05
Chem. pure	"		.75
Chloride	100 lbs.		.90
Sulphite	lb.		.05
Cement—			
Portland, Am., 400 lbs.	bbl.		1.95@2.00
Foreign	"		1.75@2.50
"Rosendale," 300 lbs.	"		.95
Sand cement, 400 lbs.	"		1.85@1.95
Slag cement, imported	"		1.65
Ceresine—			
Orange and Yellow	"		.10@.10½
White	"		.11½@.13½
Chalk—Com'l, lump	sh. ton		2.00@2.10
Ppt.	lb.		.04½
French	100 lbs.		.30@.35
Chlorine—Liquid	lb.		.30
Water	"		.15
Chrome Ore—			
(50% chrome) ex ship	lg. ton		24.50
Clay, China—Am. com.	"		8.00
Am. best	"		9.00
English, common	"		11.00@12.50
Best grade	"		15.00
Fire, ground, f.o.b. Jersey City, N. J.	"		4.00@5.00
Slip Clay, f.o.b. Albany	"		3.00
Cobalt—Carbonate	lb.		1.50
Nitrate	"		1.30
Oxide—Black	"		1.76
Gray	"		2.25
Smalt	"		.25@.30
Chem. pure	"		5.00
Copperas	100 lbs.		.60@62½
Copper—			
Carbonate	lb.		.14@.16
Chloride	"		.25
Nitrate, crystals	"		.35
Oxide, black	"		.16@.20
Ppt., pure	"		.50
Red	"		.16
Ppt., pure	"		.35@.40
Cream of Tarter—crys.	"		.23¼@.23½
Granulated	"		.23¼@.23½
Powdered	"		.23½@.24
Cryolite	"		.08½
Explosives—			
Blasting powder, A	"		.08½
Blasting powder, B	"		-05@.05½
"Rackarock," A	"		.25
"Rackarock," B	"		.18
Judson R.R. powder, by carload	"		.10
Dynamite, (40% nitro-glycerine)	"		.15
(50% nitro-glycerine)	"		.17
(60% nitro-glycerine)	"		.19
(75% nitro-glycerine)	"		.23
Glycerine, for nitro (32 2-10° Be.)	"		.10½@.12
Nitro-Benzole	"		.14@.15
Feldspar—Ground	sh. ton		6.75@7.75
Flint—(See Silica).			
Fluorspar—Am. lump	"		5.50
Gravel	"		5.50@7.00
Crushed	"		5.50@7.50
Ground	"		11.00
Extra fine ground	"		12.50
Foreign, lump	"		8.00@12.00
Ground	"		11.50@14.00
Fuller's Earth—Lump	100 lbs.		.75
Powdered, in bags	"		.82½
Graphite—(See Plumbago).			
Gypsum—			
Am. gr'd (terra alba)	sh. ton		7.00
Fertilizer	"		4.50
Rock	lg. ton		4.00
English and French	"		14.00@16.00
Infusorial Earth—			
Ground, best qualities	"		20.00@.40.00
Iodine—Crude	100 lbs.		2.55
Resublimed	"		2.90@2.95
Iron—Chromate	lb.		.03@.10
Muriate	"		.05
Nitrate, com'l	"		.02
Pure	"		.04
Oxide	"		.02@.12
Scale	"		.01@.03
Kaolin—(See Clay, China).			
Kanit	lg. ton		8.80@9.05
Kryolith—(See Cryolite.)			
Lead—Acetate			
White, broken	lb.		.07
Com'l, broken	"		.06¼
White, gran.	"		.08¼
Nitrate, com'l	"		.06½@.06¾
Chem. pure	"		.35
Lime—Bldg., ab. 250 lbs	bbl.		.65@.75
Finishing	lb.		.75@.80
Magnesite—			
Crude, lump	lg. ton		7.00@12.00
Calcined, foreign	"		20.00@35.00
Domestic	"		12.00@15.00
Bricks	"		45.00@65.00
Magnesium—			
Metallic, ingots (Ger.)	kg.		5.95@6.90
Powdered (Ger.)	"		6.19
Ribbon or wire (Ger.)	"		10.00
Carbonate	lb.		.10
Chloride, com'l	"		.01¾
Fused	"		.20
Nitrate	"		.60
Manganese—			
Crude, powdered, 70@75% binoxide	"		.01¼@.01½
75@85% binoxide	"		.01½@.02½
85@90% binoxide	"		.02½@.03¼
90@95% binoxide	"		.03¼@.05½
Carbonate	"		.16@.20
Chloride	"		.04
Ore, 50%	unit		.21@.22½
Marble—			
Flour	sh. ton		8.08
Mercury—Bichloride	lb.		.59@.60
Bisulphate	"		.41
Mica—Ground	"		.04@.06
Sheets, according to size and quality.			
Mineral Wool—F. o. b. Stanhope, N. J.:			
Slag, ordinary	100 lbs.		1.00
Selected	"		1.67
Extra	"		4.00
Rock, ordinary	sh. ton		37.00
Selected	100 lbs.		4.00
Extra	"		7.00
Monazite—92%	sh. ton		140.00
Nickel—			
Oxide, black No. 1	lb.		1.00
Black No. 2	"		.60
Green, No. 1	"		1.00
No. 2	"		.60
Oils—Black, reduced 29 gr., 25@30°	gal.		.07@.07½
Black reduced 29 gr. 15 cold test	"		.08@.08½
Black reduced 29 gr. zero	"		.11@.12
Black reduced summer	"		.06½@.07
Smith's Ferry, 33@34 gr.	"		.07½@.08½
West Virginia, 29 gr.	"		.22@.24
Cylinder, dark steam ref	"		.08@.13
Dark filtered	"		.11@.16
Light filtered	"		.13@.15
Extra cold test	"		.21@.25
Gasolene, 86°	"		.14@.15
88°	"		.16@.17
90°	"		.19@.20
Neutral filtered, lemon, 33@34 gr.	"		.13@.18½
White, 33@34 gr.	"		.21@.23
Wool grade, 32 gr.	"		.11@.14
Naphtha, crude, 68@72°	"		.10@.10½
Paraffine, high viscosity	"		.20@.25
23½@24 gr.	"		.09¼@.09¾
25 gr.	"		.08¼@.08½
28@32 gr.	"		.07¼@.07¾
Red No. 1	"		.08¾@.09¼
No. 2	"		.08¼@.08¾
Linseed, domestic raw	"		.41@.42
Boiled	"		.43@.44
Calcutta, raw	"		.54
Graphite, lubricating, Am. dry	lb.		.10
In oil	"		.12
Axle grease	"		.08½@.10
Wood grease	"		.05@.06
Ozokerite—Foreign	"		.06@.08
Paints and Colors—			
Benzine, Samatra	"		.35@.40
Marbled	"		.27@.28
Chrome green, common	"		.05@.06
Extra	"		.14½@.15
Yellow, common	"		.10
Best	"		.25
Silica Graphite, thick	"		.12
Thinned	gal.		1.15
Lampblack—Com'l	lb.		.03@.05
Refined	"		.08@.10
Calcined	"		.12@.20
Fine spirit	"		.20@.35
Litharge, Am. powd.	"		.04¾@.05¼
English flake	"		.07¾@.08
Metallic, brown	"		.05½
Red	"		18.00@20.00
Ocher, Am. best	sh. ton		15.00
Dutch, washed	lb.		.04¾@.05
French, washed	"		.01@.01¾
Orange mineral, Am.	"		.07½@.08
Foreign, as to make	"		.08½@.10¾
Paris green, pure	"		.12@.14
Red lead, American	"		.05½@.06
Foreign	"		.07½@.08
Shellac, D. C.	"		.28@.30
Native	"		.16@.17
Turpentine, spirits	gal.		.30@.30½
Ultramarine, best	lb.		.25
Vermilion, Amer. lead	"		.14@.16
Quicksilver, bulk	"		.59
Chinese	"		.65@.80
English, imported	"		.60@.95
Artificial	"		.12@.20
White lead, Am., dry	"		.04½@.04¾
In oil	"		.05¼@.06
English, in oil	"		.07¼@.08¼
Whiting, common	100 lbs.		.35@.40
Gilders	"		.45@.50
Zinc white, Am. ex. dry	lb.		.03¾@.04½
American, red seal	"		.04¾@.05¼
Green seal	"		.05¾@.06¼
Foreign, red seal, dry	"		.07¾@.08½
Green seal, dry	"		.08½@.09¾
Pitch—Coal tar	gal.		.08
Plumbago—American, pulverized, f. o. b., Providence, R. I.	sh. ton		30.00
Lump	"		8.00
German, lump	100 lbs.		.95
Pulverized	lg. ton		16.50
Ceylon, crude	lb.		.01¼@.04½
Pulverized	"		.02@.05
Italian, pulv.	"		.01½
Potash—			
Caustic	"		.04@.05
Potassium—			
Metallic, in balls (Ger.)	kg.		17.85
Bicarbonate cryst.	lb.		.08¼
Powdered or gran.	"		.12
Bichromate	"		.09½@.09¾
Bromide, bulk	"		.44@.45
Carbonate	"		.03@.04
Chromate	"		.35
Cyanide (98@99%)	"		.28
Double manure salts, 48@53% (basis 48%)	100 lbs.		1.03
Muriate, 80@85% (basis 80%)	"		1.78
Permanganate, pure cr.	lb.		.15½@.16
Chem. pure	"		.34
Potassium—Silicate	lb.		.06
Prussiate, yellow	"		.16@.17
Red	"		.37@.40
Sulphate, 90@95% (basis 90%)	100 lbs		1.99¼
Sulphide, com'l	"		.10
Quartz—(See Silica).			
Rosin—Common	gal.		.10
Best	"		.16
Saltpeter—Crude	lb.		.04¼@.04¾
Double refined	"		.04½@.05
Silica—			
Ground quartz	sh. ton		6.75@8.00
Best	"		12.00
Lump quartz	"		2.50@4.00
Silver—Chloride	oz.		.65
Nitrate	"		.39@.41½
Oxide	"		.85@1.10
Slate—Flour	sh. ton		7.50
Sodium—Metallic	lb.		.75
Acetate, com'l	"		.03½
Chem. pure	"		.05½
Bichromate	"		.07¾@.08
Bisulphite, com'l	"		.01½@.02¼
Bromide	"		.49@.50
Chlorate, com'l	"		.09¾@.10
Hyposulphite, com'l	100 lbs.		1.60
Nitrite	lb.		.07½@.07¾
Peroxide	"		.45
Silicate, com'l, 40°	"		.01@.01¼
Sulphate, gran., puri'd.	"		.03
Tungstate, com'l	"		.35
Pure	"		.50
Strontium—Carb., ppt.	"		.13@.14
Nitrate	"		.07½@.07¾
Sulphur—Roll	100 lbs.		2.00
Flour	"		2.20@2.25
Talc—N. C No. 1	sh. ton		15.00@15.50
No. 2	"		10.00@12.00
N. Y., Fibrous	"		8.00@9.00
French, best	"		20.00
Italian, best	"		20.00
Tin—Chloride	lb.		.11@.13
Crystals	"		.18@.18½
Muriate	"		.10
Oxide, white, ch. pure	"		.28½@.35
Uranium—Oxide	"		1.80@2.00
Zinc—Metallic, ch. pure	"		.06¾
Carbonate	"		.15
Chloride	"		.06
Dust	"		.06¾.08
Sulphate	"		.02@.02¼

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.		2.50
Boron—Amorphous, pure	grm		.19
Crystals, pure	"		1.43
Nitrate (N. Y.)	lb.		1.50
Calcium—Electrol	"		4.28
Cerium—Fused	grm.		2.02
Nitrate (N. Y.)	lb.		28.00
Chromium—Fused	kg.		5.95
Pure powder	"		1.79
Chem. pure cryst.	grm.		.19
Cobalt—(98@99%)	kg.		5.35@5.71
Pure	"		30.94
Didymium—Powder	grm.		3.81
Nitrate (N. Y.)	oz.		4.00
Erbium	grm.		3.09
Nitrate (N. Y.)	oz.		3.00
Gallium	grain		9.52
Germanium—Powder	grm.		33.32
Fused	"		35.70
Glucinum—Powder	"		5.95
Crystals	"		9.04
Nitrate (N. Y.)	lb.		2.50
Indium	grm.		4.05
Iridium	"		1.19
Lanthanum—Powder	"		4.28
Electrol, in balls	"		9.04
Nitrate (N. Y.)	oz.		3.50
Lithium	grm.		2.38
Nitrate (N. Y.)	oz.		.60
Molybdenum—Powder	kg.		2.62
Fused, electrol	100 grms.		15.47
Niobium	grm.		3.81
Osmium	"		.95
Palladium	"		.95
Rhodium	"		2.87
Rubidium—Pure	"		4.76
Ruthenium—Pure	"		1.55
Selenium—Com'l powder	kg		26.18
Sublimed powder	"		35.70
Sticks	"		28.56
Silicium—Amorphous	100 grms.		2.87
Crystals, pure	"		7.14
Strontium—Electrol	grm.		6.19
Tantalium—Pure	"		3.57
Tellurium—Ch. p. sticks	100 grms.		11.90
Powder	"		9.52
Thallium	kg.		23.80
Thorium—Metallic	grm.		7.85
Nitrate 49@50% (N. Y.)	lb.		7.50@8.00
Titanium	grm.		.71
Uranium	"		.48
Nitrate (N. Y.)	oz.		.25
Vanadium—Fused	grm.		1.19
Wolfram—Fused	100 grms.		22.80
Powder, 95@98%	kg.		2.38
Chem. pure	"		7.14
Yttrium	grm.		3.33
Nitrate (N. Y.)	oz.		4.00
Zirconium—Com'l	kg.		119.00
Pure	grm.		.71
Nitrate (N. Y.)	oz.		1.00

ALPHABETICAL INDEX TO ADVERTISERS.

(—) Indicates every other week or monthly advertisements.

POSITIONS VACANT

Free Advertising.

Inquiries from employers in want of Superintendents Engineers, Metallurgists, Chemists, Mine or Furnace Foremen, or other assistance of this character, will be inserted in this column WITHOUT CHARGE, whether subscribers or not.

The labor and expense involved in ascertaining what positions are open, in gratuitously advertising them and in attending to the correspondence of applicants, are incurred in the interest and for the *exclusive* benefit of *subscribers* to the ENGINEERING AND MINING JOURNAL.

☞ Applicants should inclose the necessary postage to insure the forwarding of their letters.

1679 WANTED—A MINING ENGINEER of some experience and of sufficient knowledge to conduct prospecting operations over a large area of alluvial concessions in the Siberian Urals, near Trans-Siberian Railway; very agreeable location; eight months' engagement; $250 salary and expenses; to start March 15; good references required. Address V. M. C., ENGINEERING AND MINING JOURNAL.

1680 WANTED—COMPETENT MAN WHO thoroughly understands lixiviation and amalgamation of ores, to put up and run small plant in Mexico; state terms expected and give full particulars. Address MEXICO, ENGINEERING AND MINING JOURNAL.

1681 WANTED — CHEMICAL WORKS Superintendent. A man of education, energy, executive ability and considerable experience in heavy chemicals, preferably soda and allied products, for early engagement. A first-class man with excellent references required. Reply in detail, including age, salary, etc., CHEMICAL, ENGINEERING AND MINING JOURNAL.

1682 WANTED—A COMPETENT MAN who thoroughly understands the erection and operation of a works for pyritic smelting. Address SMELTER, ENGINEERING AND MINING JOURNAL.

1683 WANTED—A YOUNG GRADUATED metallurgical chemist to act as assistant in laboratory work and help in management of furnaces of New England concern. State experience, references, etc. Address LABORATORY, ENGINEERING AND MINING JOURNAL.

1684 WANTED—A YOUNG MECHANical engineer, graduate preferred, who can act as assistant Superintendent in charge of men and power of a metallurgical plant. Give full particulars as to experience, etc. Address EASTERN, ENGINEERING AND MINING JOURNAL.

1685 WANTED—FOR A CHEMICAL works a general superintendent fully qualified for the position. When replying state record in sufficient detail. A good position for a first class man. Address SUPERINTENDENT, ENGINEERING AND MINING JOURNAL.

SITUATIONS WANTED.

Advertisements for SITUATIONS WANTED will be charged **only 10 cents a line**

ACID, ALKALI AND FERTILIZER MANUfacturers—A competent chemist, experienced in the manufacture of sulphuric, nitric, muriatic acids in fertilizer production, and in the utilization of waste products, desires to make engagement with a live, progressive works, where his remuneration could be based largely upon the savings he would effect. Address WASTE UTILIZER, ENGINEERING AND MINING JOURNAL.

EXPERIENCED METALLURGIST AND chemist desires position. Nine years' experience in smelters and steel works. Best of references. Address "P. G.," ENGINEERING AND MINING JOURNAL. No. 18397. March 25.

ENGINEER AND METALLURGIST, 15 years' experience as superintendent and manager of mines and mills, wishes a position; speaks Spanish. Thoroughly understands his business. Can make a mine pay if it is possible for it to do so. Best of references furnished. Address C., ENGINEERING AND MINING JOURNAL. No. 18,413, March 11.

ASSAYER AND CHEMIST, EXPERIENCED, desires position. Mexico or South America preferred. First-class references. Address X., ENGINEERING AND MINING JOURNAL, No. 18,415, March 25.

A PRACTICAL MINING ENGINEER AND superintendent of coal mines (46) is open for engagement. Have been connected with mining since 1862; engaged during the last 20 years in the engineering and superintendence of large fiery coal mines, also experienced in coke making. Splendid success in the economical management of coal works now under my charge. Satisfactory reasons for desiring to leave. Unquestionable first class references. Address EDINBURG, ENGINEERING AND MINING JOURNAL. No. 18418, March 25.

FURNACE FOREMAN, EXPERIENCED, DEsires a position with smelting works, copper or lead, speaks Spanish, good references. Address FURNACE, ENGINEERING AND MINING JOURNAL. No. 18420, April 1.

METALLURGIST AND MINING ENGINEER. 20 years experienced in planning, constructing and operating smelting and refining works for lead, silver and copper in United States and Mexico, thorough knowledge of concentration of ores and methods used in United States and Europe, wishes position as manager or superintendent. Address A. R. ENGINEERING AND MINING JOURNAL. No. 18417, April 1.

WANTED POSITION AS ASSISTANT SUPerintendent of copper or lead mining and smelting works, competent in mining, assaying, analyzing, handling men; speaks Spanish; best references. Address COPPER, ENGINEERING AND MINING JOURNAL. No. 1-419. March 25.

CHEMIST—YOUNG CHEMIST OF THOrough training, graduate of leading European university, desires position in technical work. Address, L., 57 E. Columbia St. Springfield, Ohio. No. 18422, March 11.

MINING ENGINEER AND GEOLOGIST (Freiburg, etc.) is open for engagement with gold mining or oil company, or as a traveling representative. Gold and diamond mining a specialty. Excellent linguist (English, Spanish, Malay, Dutch, Portugese German, French,) references. Address MALAY, ENGINEERING AND MINING JOURNAL. No. 18426, May 6.

METALLURGIST AND EXPERIENCED chemist and assayer, with practical experience in copper smelting, etc., is open for engagement. No objection to foreign countries. Address, A. B. L., ENGINEERING AND MINING JOURNAL. No. 18421, May 27.

CONTRACTS OPEN.

TELEPHONE SYSTEM.—The following resolution in reference to the Telephone System in Shanghai was passed at the last annual meeting of the Ratepayers of the Foreign Settlements at Shanghai, north of the Yang-king-pang: "RESOLUTION VIII.—That the Council be and is hereby authorized to enter into negotiations with the China and Japan Telephone Company, or any other Company, and in its discretion grant a franchise with a view to the Community being supplied with an adequate and efficient telephone service at a fixed maximum charge." In accordance with the above resolution, the Council hereby invites tenders for a concession for a period of thirty years for the exclusive right of establishing and working a Telephone System in Shanghai. Plans may be seen and particulars obtained upon application to Messrs. Blackall & Baldwin, 39 Cortlandt Street, New York, with whom a certified check for five hundred ($500.00) dollars must be deposited to secure the return of such documents as may be issued to prospective bidders. It is required as a condition precedent to the consideration of any proposals that a certified check for five hundred ($500.00) dollars upon one of the State or National banks or trust companies of the City of New York, drawn to the order of Blackall & Baldwin, Agents of the Shanghai Municipal Council, be lodged with Messrs. Blackall & Baldwin in New York upon the same day, or, preferably, prior to the time that proposals are forwarded. Such deposits will be retained in the possession of Messrs. Blackall & Baldwin pending consideration by the Council of the proposals submitted. After a decision shall have been reached Messrs. Blackall & Baldwin, upon receipt of advices from the Council to do so, will return all of the deposits made to the person or persons making the same, except such deposit as shall have been made by the person or persons whose proposal is accepted by the Council. If the person or persons whose proposal has been so accepted shall refuse or neglect, promptly, after due notice has been given that the contract is ready for execution, to execute the same, the amount of the deposit made by him or them shall be forfeited to and retained by the Shanghai Municipal Council, not as a penalty, but as liquidated damages for such neglect or refusal; but if the said person or persons whose bid shall have been accepted shall promptly execute the contract, the amount of his or their deposit shall be returned to him or them. Further information may be obtained on application to Mr. Charles Mayne, Municipal Engineer, Shanghai, China. (Telegraphic address "Dynamo Shanghai," "A. B. C.," 4th edition, and "Engineering" codes used.) Sealed tenders, indorsed "Tender for Telephone Concession," must be sent in to the undersigned and received not later than 12 noon on Friday, March 31, 1899. The Council reserves to itself the right to decline all or any of the tenders sent in. By order.

BRIDGES.—Sealed proposals addressed to the "Sanitary District of Chicago for One Railroad Bridge and Two Highway Bridges Crossing the Desplaines River in the City of Joliet," will be received by the Clerk of the said Sanitary District at Room 1110 Security Building, Chicago, Ill., until 12 m. (standard time), of Wednesday, the 15th day of March, A. D., 1899, and will then be publicly opened by the said Board of Trustees at its regular meeting held on that day. There must be a separate bid for each structure, the indorsement to be as follows: (a) Proposals for erecting the Sub and Superstructure of a Railroad Bridge crossing the enlarged channel of the Desplaines River on the line of the Rock Island Railroad in Joliet. (b) Proposals for erecting the Sub and Superstructure of a Bridge crossing the Desplaines River on the line of Jefferson street, in the City of Joliet. (c) Proposals for erecting the Sub and Superstructure of a Bridge crossing the Desplaines River on the line of Cass street, in the City of Joliet. The railroad bridge for which said tenders are invited is a double-track structure, having a span of 110 feet. The bridge on the line of Jefferson street consists of two spans of 113 feet each. The bridge on the line of Cass street consists of one span of 200 feet and one span of 80 feet. The work for which said tenders are invited includes the supplying of materials of sub and superstructures of said bridges and erecting them completely in accordance with plans and specifications furnished by the said Sanitary District of Chicago. Each bid for the railroad bridge must be accompanied by a certified check or cash to the amount of twelve hundred ($1,200) dollars. Each bid for the Jefferson Street Bridge must be accompanied by a certified check or cash to the amount of two thousand ($2,000) dollars. Each bid for the Cass Street Bridge must be accompanied by a certified check or cash to the amount of one thousand ($1,000) dollars. Said certified checks must be drawn on some responsible bank doing business in the City of Chicago, and be made payable to the order of the Clerk of the Sanitary District of Chicago. Said amount of twelve hundred dollars for the railroad bridge will be held by the Sanitary District until all of the bids for said structure have been canvassed and the contract awarded and signed. The return of said check or cash being conditioned upon the appearance within ten (10) days after receiving notice of award to him, of the bidder to whom the award of said work shall have been made, with bondsmen, and executing a contract with the Sanitary District for the work so awarded, and giving a bond satisfactory to the said Board of Trustees for the fulfilment of said contract, the amount of said bond to be six thousand ($6,000) dollars. Said amount of two thousand dollars for the Jefferson Street Bridge will be held by the Sanitary District until all of the bids for said structure have been canvassed and the contract awarded and signed. The return of said check or cash being conditioned upon the appearance within ten (10) days after receiving notice of award to him, of the bidder to whom the award of said work shall have been made, with bondsmen, and executing a contract with the Sanitary District for the work so awarded, and giving a bond satisfactory to the Board of Trustees for the fulfilment of said contract. The amount of said bond to be eight thousand ($8,000) dollars. Said amount of one thousand dollars for the Cass Street Bridge will be held by the Sanitary District until all of the bids for said structure have been canvassed, and the contract awarded and signed. The return of said check or cash being conditioned upon the appearance within ten (10) days after receiving notice of award to him, of the bidder to whom the award of said work shall have been made, with bondsmen, and executing a contract with the Sanitary District for the work so awarded, and giving a bond satisfactory to the said Board of Trustees for the fulfilment of said contract. The amount of said bond to be five thousand ($5,000) dollars. All bids received to be upon blank forms furnished by the Sanitary District. No bid will be considered unless the party making it will furnish evidence satisfactory to the Board of Trustees of his ability and experience in this class of work, and that he has sufficient capital to enable him successfully to prosecute the same in case the contract therefor shall be awarded him. Bidders are required to state in their bids their individual names and places of residence in full. Designs of bridges may be seen and plans and specifications may be obtained at the office of the Chief Engineer of the Sanitary District, Room 1010 Security Building, Chicago, Illinois. The Board of Trustees reserves the right to reject any and all bids.

TRAMWAYS.—The following resolution in reference to the proposed tramways in Shanghai was passed at the last annual meeting of the Ratepayers of the Foreign Settlements at Shanghai, north of the Yang-king-pang: "RESOLUTION X.—That the Council be and is hereby authorized to consider the expediency of the establishment of a system of tramways in the streets of the Settlement, and in its discretion to formulate a scheme for ratification by the Ratepayers by which the system be carried into effect." In accordance with the above resolution, the Council hereby invites tenders for a concession for constructing and working about 23 miles of Electric Tramways on the "Trolley System" in the streets of Shanghai. Particulars can be obtained upon application to Messrs. Blackall & Baldwin, 39 Cortlandt Street, New York, with whom a certified check for five hundred ($500.00) dollars must be deposited to secure prospective bidders. It is required as a condition the return of such documents as may be issued to precedent to the consideration of any proposals that a certified check for five hundred ($500.00) dollars upon one of the State or National banks or trust companies of the City of New York, drawn to the order of Blackall & Baldwin, Agents of the Shanghai Municipal Council, be lodged with Messrs. Blackall & Baldwin in New York. Messrs. Blackall & Baldwin, upon receipt of advices from the Council to do so, will return all of the deposits made to the person or persons making the same, except such deposit as shall have been made by the person or persons whose proposal is accepted by the Council and ratified by the Ratepayers. If the person or persons whose proposal has been so accepted shall refuse or neglect, promptly, after due notice has been given that the contract is ready for execution, to execute the same, the amount of the deposit made by him or them shall be forfeited to and retained by the Shanghai Municipal Council, not as a penalty, but as liquidated damages for such neglect or refusal; but if the said person or persons whose bid shall have been accepted shall promptly execute the contract, the amount of his or their deposit shall be returned to him or them. Further information may be obtained on application to Mr. Charles Mayne, Municipal Engineer, Shanghai, China. (Telegraphic address "Dynamo, Shanghai," "A. B. C.," 4th edition, and "Engineering" codes used.) Sealed tenders indorsed "Tender for Tramway Concession" must be sent in to the undersigned and received not later than 12 noon on Wednesday, the 15th March, 1899. The Council reserves to itself the right to decline all or any of the tenders so sent in.

MACHINERY FOR SALE.

FOR SALE.

NEW STEEL RAILS,

Spikes and Splice Bars. Also

RELAYING RAILS.

We buy Old Rails—both those only suitable for Scrap and those fit to relay.

ROBINSON & ORR, 419 Wood St., Pittsburgh, Pa.

For $20,000

(See Pages 754, 769 and 19 of Engineering and Mining Journal, Dec. 24, 1898.)

I will supply and erect a new complete **Mining** or **Smelting Plant** for a capacity of **100 tons daily,** comprising Compressor, Drills, Boilers, Engines, Hoist, 1000 feet Wire Cable, Crusher, Water Jacket Furnace, Well or Fore Hearth, Slag and Metal Pots; Blower, Iron Pillars and Cast Floors, Dump Cars, T Rails, Pump, Piping, Belting, to include erection of necessary Rock and Shaft Houses, Smelter and Boiler Houses. 1000 feet trestle for Roast Yard, Electric Light plant for 50 lamps. You supply timber, lumber and shingles. I supply the rest complete in every detail, and will put through the first 100 tons in 24 hours before handing plant over to you.

For each additional 100 tons capacity add another $15,000.

These prices apply to any part of the world. Duty and freights paid by me.

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ONTARIO, CANADA.

FOR SALE.

10,000 IRON PULLEYS, new and good second hand, all sizes, standard goods, **75 to 85%** discount. LEATHER BELTING, all sizes, single and double, straight and fine, good as new. **75%** discount. DYNAMOS, MOTORS, BARGAINS IN MACHINERY, ETC.

R. B. CORBETT, 107 LIBERTY ST., NEW YORK

New—FOR SALE.—First Class

ore crusher 7 x 10, 8,000 lbs.; two sets crushing rolls, 14 x 20, with heavy countershaft and fly wheel, 13,000 lbs.; engine, 30 H. P. and boiler, 40 H. P., with fixtures complete, 14,000 lbs.; all new, on cars, at four cents lb. cash, STICKNEY, Assignee, Antelope, Idaho.

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ZINC LEAD MINE

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20 years in the field.

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Buy, sell, lease and bond mining properties, bonds and stocks of all kinds; good mines and prospects desired. Mining Plants, Mills, etc., furnished and erected. Members of Cleveland Mining and Stock Exchange; Mr Morgan, Member Cleveland Chamber of Commerce.

FOR SALE in Algoma, Ontario, Under Working Option.

1. Gold Location in Michipicoten District.
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A PAYING MINE

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FOR SALE—Cyanide Plant; 100 tons daily capacity; in first-class condition to handle Cripple Creek Ores. Plant in full running order with all latest improvements. Address JOHN S MACBETH Equitable B dg., Denver, Colo

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GOLD MINES OF NOVA SCOTIA.

Surveys, Reports, Maps and general information. Long experience in mining and geological survey work.

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Second hand Engines, Boilers, Pumps and Electrical Machinery and Appliances. Send full description, and state price and weight. Address MACHINERY, ENGINEERING AND MINING JOURNAL.

Received Too Late for Classification.

EXPERT ASSAYER, EXPERIENCED IN roasting, chlorination and lixiviation of silver ores; knowledge of surveying; experienced in management of Mexican labor in haciendas; speaks and writes Spanish; own transit; of good habits, reliable and attentive to business; good organizer; age 25; desires position in Spanish-American country. Address G. V. B. LEVINGS, Mocorito, Sinaloa, Mex.

No. 18,424. April 15.

Sulphuric Acid Plants; Five tons daily and up.

Pyrites Plants for Sulphite Pulp Manufacturers

PURE COOL } GAS CHEAP UNIFORM } GAS

F. J. FALDING, Chemical Engineer,
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DIVIDENDS.

NEW YORK AND HONDURAS ROSARIO MINING COMPANY.

No. 18 BROADWAY, NEW YORK, March 7, 1899.

DIVIDEND NO. 52.

The Trustees of the Company have this day declared a dividend of TEN CENTS per share on its capital stock, payable March 20th, 1899. Transfer books will be closed from March 10th to 20th.

S. JACOBY, Treasurer.

LOUIS MESIER, Auctioneer.

EXECUTOR'S SALE TO CLOSE AN ESTATE

OF

Valuable Coal, Timber

AND

Farming Lands

IN SOMERSET COUNTY, PA.,

6,000 Acres More or Less.

ADRIAN H MULLER & SON

WILL SELL AT AUCTION ON

Tuesday, April 4th, 1899,

At 12 o'clock noon, at the New York Real Estate Salesroom, No. 111 Broadway, New York City.

This property is about 2½ miles west of **West Salisbury Station** on the **Salisbury Branch, Baltimore & Ohio R. R.,** which is a good shipping point; the Railroad having surveyed for an extension of their road to within ½ mile of these lands, makes it easy of access. The Mutual Telegraph Co. run over the lands around the public roads.

These Lands are underlaid with **Bituminous Coal, Fireclay, Iron Ore,** and **Limestone,** and have a fair average of the several kinds of Timber grown in this section, viz.: **White Oak, Red Oak, Hemlock, Rock Oak. Ash, Poplar, Cherry, Black Birch, Chestnut, etc.**

After the timber is cleared off will make good farming and grazing lands, being well supplied with running streams.

The attention of Coal Companies, Iron and Coal Miners and Railroad Companies, also Capitalists, is called to the sale of this property.

50 PER CENT. may remain on **BOND AND MORTGAGE** at 5% interest for One Year, or all cash if desired. **Reports of E. V. D'Anvilliers, Geologist and Mining Engineer, of Philadelphia,** and other particulars can be had at the **AUCTIONEER'S OFFICE, 24 Pine Street, New York City.**

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The cheapest and most rapid method ever applied for sinking shafts of any size to any depth through quicksands, or in any difficult ground, and for driving tunnels through clays or wet ground. SUCCESS GUARANTEED. Experienced workmen furnished or contracts taken.

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OPEN TO ENGAGEMENT

A Chemist, thoroughly familiar with the manufacture of pigments and dry colors **by the newest methods.** Chromium colors, paris green, ultramarine, etc.; Barium sulphate, chloride, carbonate, blanc fix, lytophon and zinc-baryte. Would join capitalist in establishing a new industry, which would require but a small amount of capital and would yield large profits. Highest references furnished. Address "CHEMICALS MANUFACTURER," ENGINEERING AND MINING JOURNAL.

GEORGE SCHLEY, *Consulting, Civil and Mining Engineer.*

Topographical Maps and all classes of Surveying, Estimates, Pavements of all kinds, Irrigation, Water-Works, Sewerage, Harbor, River and Water Front Improvements, Construction of Docks, Piers and Bulkheads, Dredging, Hydraulic Blasting, Etc.

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