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Exports of coal from the United States in May were 640,343 tons, whereof 158,350 tons were anthracite and 481,993 tons bituminous. The total shows an increase of 185,573 tons, or 40.8 per cent. over last year. Of this gain 120,292 was in exports to Canada, and 29,225 tons in those to Mexico. The shipments to European ports, though still small, showed a large relative gain; they were 25,882 tons this year, against 3,638 tons in 1899. It is evident that we have, as yet, made only a small beginning at coal trade with Europe.

For the eleven months of the current fiscal year, ending May 31st, the value of the exports of the United States was the greatest on record -\$1,264,269,007. The value of the exports of manufactures was also the greatest on record, reaching a total of \$393,089,579, or 31.1 per cent. of the total. Last year the exports of manufactures were valued at \$306,-854,428, or 27.7 per cent. of the total. The present fiscal year shows, therefore, a gain of \$86,235,151 in value, and of 3.4 per cent. in proportion. Of the exports of manufactures iron and steel furnished a value of \$110,-066,849, or 28 per cent. of the whole.

With the recurrence of a falling market in almost all the metals, and especially in the iron trade, we seem to be entering on the period of labor troubles which usually accompanies such conditions. . Already we begin to hear of reductions in wages, which will be generally resisted, while on the other hand there are demands for higher scales, which employers are not willing to grant under present circumstances. One trouble is that most of these demands for increases come too late; but it is also a fact that manufacturers are sometimes too ready to reduce wages, and thus create a suspicion as to the justice of their action, which is apt to have bad

The present condition of affairs in China shows how little value is to be attached to mining concessions in that country which are not backed up by actual force exerted by a foreign nation. If the trouble there is as widespread as the current news indicates, there will be very little left of the property in mines and railroads which has been created by foreign capital. It should be noted also that the Government officials are generally acting with the so-called rebels, whose destruction of foreign property meets their approval.

We may add also that there is unfortunately much uncertainty as to the present position and possible fate of several American engineers who have been engaged in mining work in the interior. Among them are two-Mr. H. C. Hoover and Mr. C. D. Jameson-who are known to readers of the "Engineering and Mining Journal" through their contributions to its columns.

The opening sessions of the International Congress of Mining and Metallurgy, held in connection with the Exposition at Paris, seem from our reports to have been successful, both in regard to attendance and to the character and importance of the papers presented. Such abstracts of a number of these papers will be presented in our columns, as their importance and interest may require. It is evident that a great deal will be said at the Congress about American practice in both mining and metallurgy; and it will be of interest to see the views taken of our methods by foreign experts. At present the tendency abroad is to regard these methods with much favor, in view of the results which have been secured through them in this country and elsewhere,

It is to be noted that British mining engineers and metallurgists are not taking an active part in the proceedings of the Congress, though the reports mention a number as present. This is in keeping with the general lack of interest in the Exposition which has been shown in England almost from the time when the first preparations for its work were begun.

The labor troubles in Alabama, which have temporarily stopped coal production and will, unless soon settled, seriously interfere with the iron production in the State, appear to be based on somewhat unreasonable demands. The Alabama coal mines are largely owned by the ironmaking companies, and a very large proportion of the coal produced is used in the iron manufacture. It is, therefore, quite natural that the wage scale should be based on the selling price of pig iron, and this has been the arrangement in force for several years. It has worked, on the whole, very satisfactorily, and there have been few complaints. For the past six months the miners have been earning the highest wages they have ever received, which have been paid by the operators without demur. The yearly agreement expired July 1st, and the presnt difficulty has arisen over the new contract, the men asking for an increase of pay at the time iron prices are falling everywhere. The operators are willing to renew the old scale, but claim that they cannot grant any

Just at present the German iron trade is suffering from an active attack of apprehension lest the markets should be flooded with "cheap American iron." The German ironmakers reason that demand in the United States is lessening and prices falling, while production continués very large; consequently this fall there will be a great surplus of iron and steel to be disposed of, and this is likely to be offered in European markets at lower prices than German makers can afford to meet. In Germany, as in this country, there has been a great expansion during the past two years of prosperous trade. Many new companies have been formed, old companies have increased their capital, and the speculation in industrial stocks has been very active. During the last two months the boom has been subsiding and the fall in prices of industrialsespecically iron and steel stocks-has been very heavy, almost reaching the proportions of a crisis. This has been helped by the cry of "American competition," which has been raised in certain quarters. These apprehensions have been carefully promoted by the advocates of high protection and by a powerful group of operators in Berlin who have speculated heavily for the fall. While there is no doubt that the German ironmakers, especially those who export largely, will have to meet American competition in the future, the present forecast seems unreasonable, and it is not at all likely that the markets will be flooded as some Germans seem to anticipate. While our export trade is expanding the surplus for sale abroad is not going to be excessive, nor will our makers be satisfied to sell at a loss, even for the purpose of clearing off their stocks and establishing trade. The British iron trade papers take a much more reasonable view of the situation, and while they anticipate some American competition they are not inclined to be alarmists as to the extent or possible effect on prices.

THE TASMANIAN COPPER COMPANY AND THE PHOENIX SYNDICATE.

A noteworthy example of ignorance of mining as a commercial undertaking (we have no ground for saying duplicity) is afforded by the history of the Tasmanian Copper Company, which was organized in London, in March, 1897, with a capital of £325,000 to acquire the Rosebery Mine, on Mount Black, in the North Dundas Mining District of Tasmania. The vendor was the Gold Estates of Australia, Limited. According to the prospectus it was to receive 225,000 shares in part payment of the purchase price; of the remainder of the capital stock the vendor was to receive the proceeds of 25,000 shares and 75,000 shares were to provide working capital. The property was offered as a copper mine and capital was invited to it on the strength of the success of the Mount Lyell Mire, from which the Rosebery is distant 18 miles.

The Rosebery Mine was reported on by Mr. B. Pherson Ekberg, mining engineer to the Gold Estates of Australia, Limited, who estimated the quantity of ore in sight to be over 1,700,000 tons, and represented its character by the following analysis: Copper, 3.5 per cent.; iron, 33; lead, 0.3; zinc, 2.7; arsenic, 0.9; antimony, 0.3; sulphur, 40.5; silica, 14; lime, 3.1; alumina, 1.5; gold, 3 pennyweights 12 grains per ton; silver, 9 cunces per ton. If the ore had been of that character and the Tasmanian Copper Company had employed competent engineers to mine and smelt by existing metallurgical methods (unusually good in the case of zinc), it, there would probably have been little trouble. Unfortunately, after it had taken over the mine and opened it to some extent, it turned out to be not a copper mine but a deposit of mixed sulphide ore of low Wilson, general manager of the company, for the year ended December 31st, 1897, the quantity of ore actually blocked out at that time was 400,000 tons, the average grade of which he determined by 25 samples of 25 to 50 pounds each (except a few that were 200 pounds) to be 0.77 per cent. copper, 21.07 zinc, 4.73 lead, 8.625 ounces silver per ton and 0.155 ounce gold per ton. This result was obtained as the arithmetical average of the 25 assays, without taking into account the quantity of ore represented by each, or apparently without taking the samples in a systematic manner. We refer particularly to this point because, according to Mr. E. A. Ashcroft, one of the reasons for the failure of his process at Cockle Creek was that the ore turned out to be of lower grade than had been represented. In view of the relations that have lately been formed between that gentleman and the Tasmanian Copper Company it may be remarked that the data presented in the official publications of the company do not afford any reliable guide as to what the Rosebery ore, as it will be mined, actually contains. However, the data before us is amply sufficient to discredit Mr. Ekberg and show in zinc. For upward of two years the Tasmanian Copper Company has commissions, insurance, etc. Assuming, however, that the gross value of

The Alabama miners—who are chiefly negroes—have been organized by been trying to find a way of working it, to which end Mr. Harold Wilson delegates from the North and West during the past year, and the pres- has been in England investigating various processes that have been proent difficulty seems to be chiefly due to these delegates, who control the posed for the treatment of such ores. As a result of his study the Tasmanian Copper Company has lately become interested in the Phoenix Syndicate, which has been organized by Messrs. James Swinburne and E. A. Ashcroft to exploit a process invented by the former.

> According to the report of the directors of the Tasmanian Copper Company for the two years ended December 31st, 1899, presented at the stockholders' meeting April 5th, 1900, the Phoenix Syndicate is raising £10,000 for experimental purposes, of which the Tasmanian Copper Company has subscribed £1,000, obtaining in consideration therefor the "right to use this process on a moderate royalty." So far the Phoenix process "has been tested in the laboratory stage, and also in the stage beyond, in 20 to 30 pound charges, and in both has proved successful. . It is claimed that by this process a profit of from £3 to £4 per ton can be made on average Rosebery ore." It should be noted that it is now considered that the ore will average 25 per cent. zinc, the tenor in gold, silver, copper, and lead remaining as previously recorded.

> The Swinburne process is covered by British patent No. 10,829A, of 1897. The essential feature of the process is the direct decomposition of zinc sulphide in an electrolyte of fused zinc chloride, sulphur vapor coming off at the anode and metallic zinc at the cathode, lead sulphide being capable of decomposition in similar manner. In the treatment of leadzinc sulphide ores as described in the patent specification it is proposed to mix the pulverized ore with molten zinc chloride in a pot and electrolyze first for the deposition of lead and then in a separate pot for the deposition of zinc. Theoretically the process is feasible, but practically there must be many difficulties, partly in effecting a separation of the impurities which are generally present in a mixed sulphide ore and partly in handling an electrolyte of the peculiar properties of molten zinc chloride. Not having any details as to the manner in which it is proposed to overcome those difficulties, we shall defer to a subsequent issue a discussion of the Swinburne process from a metallurgical and economical point of view.

> In the meanwhile we advise the Tasmanian Copper Company to be circumspect in its dealings with the Phoenix Syndicate, Limited. We appreciate that it is a wonderfully seductive promise to make to the stockholders that a process has been discovered whereby all the metals, except iron, contained in their highly complex ore can be recovered, together with the sulphur, by one chain of apparently simple operations; but we fear that those operations may not be so simple as they look, or so profitable as is claimed. Assuming that the Rosebery ore will assay 0.155 connec gold per ton, 8.625 ounces silver, 0.77 per cent. copper, 4.73 per cent. lead, and 25 per cent. zinc, as supposed by the Tasmanian Copper Company, and 35.60 per cent. sulphur (as we have reckoned from the corresponding assays in the first annual report) the total value of the metals contained in one ton (2,240 pounds) of ore in their refined condition, at the present high level of the market, in London would be as follows, the figures being given in decimals of a pound sterling:

0.00	77 ton of copper @ £74.25£0.	57
0.04	73 ton of lead @ £16.75 0.	79
0.25	00 ton of zinc @ £21 5.	25
	0.155 oz. gold @ 84s 0.	64
	8.625 oz. silver @ 2s. 6d 1.	98
0.35	60 ton of brimstone @ £4 1.	42
-	_	-
0.66	10 ton of marketable products£9.	75

If 90 per cent, of the above products were recovered, which so far as copper, lead, zinc and silver are concerned would be very good practice the value of the refined products in the ore would be $0.90 \times £9.75 =$ £8.775. The cost of mining a ton of ore is estimated by Mr. Wilson at 12s. = £0.6. It would hardly be contemplated to smelt the ore at the grade and great complexity. According to the report of Mr. Harold mine, because coal (Australian) would cost there about £1 per ton, and wood 6s. per cord; and since it would undoubtedly require considerably upward of one ton of coal to smelt a ton of ore, it would be cheaper to carry the ore to the coal ...an the coal to the ore. Furthermore, since 0.9×0.661 ton = 0.594 ton of the ore would be (we assume) converted into products which would find their market chiefly in Great Britain, it would probably be the policy to carry the ore there and smelt it with better and cheaper coal. Even if the water power near the mines were utilized it would be doubtful whether it would not be cheaper to carry the ore to Swansea and smelt it with coal at 7s. 6d. per ton, since water power costs usually a large percentage of the cost of steam power with coal so cheap as 7s. 6d., and the freight on 0.591 ton of finished products would probably be more than that on 1 ton of crude ore.

If, then, the crude ore were carried to Great Britain we may fairly estimate (1) carting and loading on board cars, 2s. per ton; (2) freight to Burnie, 72 miles, not less than 4s.; (3) port charges, at least 2s.; (4) freight to Great Britain, about 20s., making a total of 28s. to be added to the 12s. cost of mining, or 40s. = £2 in all, besides which there would be that the ore will be found low in gold, silver, lead and copper and high the cost of unloading the ore in England, carriage to smelter's works,

the ore be £8.775 and the cost at the smelter's works be £2 (of which the former figure is doubtless too high and the latter too low) the difference is £6.775, out of which the Tasmanian Copper Company tells its stockholders it may get a profit of £4 per ton. In order to do this the Swinburne process must be performed at a cost of £2.775 = \$13.50 per ton, including taxes, insurance and general expense, sale of products, discount on products corresponding to cost of delivery to the market of which the quotations have been reckoned, repairs and renewals of works, and amortization of cost of works and "moderate royalty." Although we are aware that the decomposition electrolytically of molten zinc chloride does not require so much power as the decomposition of ZnCl2 in aqueous solution, or of ZnSO4, and have refrained from thermal calculations, because of the lack of data, we do not believe that Messrs. Swinburne and Ashcroft are going to treat the Rosebery ore at a profit of £4 per ton, and in making such a statement the Tasmanian Copper Company is undoubtedly misleading its stockholders. It is also misleading its stockholders by reckoning a value of £3 5s. 6d. for 21.07 per cent. zinc in the ore, as it did in the first annual report, where the gross value of the ore at prices at that time was set down at £5 14s. 9d. per ton. The Rosebery ore has no value at the present time beyond what can be realized by sorting out the pyrites and smelting it with such zinc as can be worked off economically in the slag; or what the Smelting Corporation, Limited, which has works near Manchester, England, will give for it. It may acquire a larger value by the application of a suitable metallurgical process of treating it, but in the discovery of such a process the Tasmanian Copper Company needs the best kind of disinterested metallurgical advice and runs a great risk in relying on the experiments of Messrs. Swinburne and Ashcroft, of whom the latter already holds the record for one of the most colossal failures in metallurgical history.

NEW PUBLICATIONS.

"Talc and Pyrophillite Deposits of North Carolina." Being Economic Paper No. 3 of the North Carolina Geological Survey. By Joseph Hyde Pratt. Raleigh, N. C., State Printer. Pages 28; with maps. This paper is a timely one, as the talc deposits of North Carolina are now attracting much attention, and a great deal of prospecting and development work has been done on them. This is partly due to the greater demand for talc, and partly to the opening up of the country by railroads, which has made great progress during recent years. The paper is a practical one, and after a brief general introduction on tale, goes carefully into all the known resources of the State in this mineral. It also describes what has been done in the way of developing the deposits and the present situation of the industry. It will be of much service to those who are interested in or who are users of talc.

"Transactions of the Association of Engineers of Cornell University," Volume VIII. Ithaca, N. Y.: Published by the Association. Pages 132, illustrated.

usual, the proceedings of this Association contain some papers As usual, the proceedings of this Association contain some papers of interest and value. The present volume covers the University year 1899-1900, and the articles are both by students and graduates. The list includes papers on the Snoqualmie Falls Power Transmission, by C. H. Baker; Tests of Brick Masonry Piers, by E. J. McCaustland; Windmill Power, by E. C. Murphy; Distribution of Pressure on the Base of Dams, by F. F. Hall; Intersection of the Cataract Construction Company's Tunnels at Niagara Falls, N. Y., by G. F. Simpson; Pneumatic Transmission in Underground Tubes, by H. Stidham; Street Paving, by S. Whinery; Holding Power of Screws in Wood, by W. J. Graves; Flow of Water over Weirs, by G. S. Williams. The range of subjects is considerable, and the papers show generally careful study.

"Geological Survey of Alabama. Report on the Warrior Coal Basin."
By Henry McCalley. University, Ala: Published for the Survey.
Pages 328; with maps and illustrations.

This is the first complete report on this important coal basin, and is the result of years of work spent in its survey. Mr. McCalley was the first to attempt a study of the coal seams and a correlation of the outcrops in various parts of the field, but soon found that these attempts could not be relied on, owing to the great variations and disturbances in the strata. This added very much to the difficulty of the

work.

The author has so well explained the nature of his valuable report in his letter of transmission that we cannot do better than to use his words: "The report and map are, strictly speaking, economic reports, as they are filled up with economic descriptions, particular stress being laid upon those things that were considered of most economic value. They treat of a region that is rich in coal, building and paving stones, clays, timber, water-power, etc. Coal, however, is the principal wealth of this region and as the report and map deal with it almost exclusively, they are strictly speaking coal reports.

they are, strictly speaking, coal reports.
"The report consists of first generalized and then detailed descriptions. The general descriptions (Chapter I.) speak of the Warrior Coal tions. The general descriptions (Chapter I.) speak of the Warrior Coal Basin as a whole. They have a general section (Plate 1) of the strata of the basin so far as they usually carry workable coals (above the Black Creek Coal Seam), which shows the name, thickness and relations to each other of all the coal seams and how they occur in groups. The detailed descriptions consist of six chapters and an appendix, a chapter of each of the groups of coals. The report contains 7 plates (separate) and 50 figures (printed in the text). It also has detailed sections of nearly all the test pits made in the examination and tracing out of the coal seams, some of the sections of the thinner coals not being given. The map shows the lines of outcrops of all the pricipal coal seams and

the country underlaid by them, and the location of all the test pits with the thickness of their coals. It also shows how the Coal Measand Tertiary strata and how they are bounded on the southeast by faults and the older formations. It has three general sections of the strata, one respectively along the southeast edge, central portion and western visible edge of the basin, and some partial vertical sections to show the increased thickness of some of the coal seams between the portions of the field represented by the three general sections." portions of the field represented by the three general sections.

Topographic Surveying: Including Geographic, Exploratory and Military Mapping." By Herbert M. Wilson. New York: John Wiley & Sons. Pages 930; illustrated. Price, \$3.50.

This book, the author says, has been prepared with a view of bringing together in one volume the data essential to a comprehensive knowledge together in one volume the data essential to a comprehensive knowledge of topographic surveying. It has been his aim to cover the varied phases of all classes of surveys which are made with a view to representing on maps information relative to the features of the earth's surface. The methods elaborated are chiefly those which have been developed in recent years; but he has endeavored to go beyond these, and, guided by experience, to adapt them to the most detailed topographic as well as to the crudest exploratory surveys. The hope is entertained, therefore, that the engineer who may be called upon to conduct an exploratory survey in an unknown region, or to make a detailed topographic map as a preliminary to construction, will find herein descriptions and examples of the methods he should employ, the essential tables for the computation of his results, and hints which will tial tables for the computation of his results, and hints which will guide in the equipment of his party.

The volume is devoted practically to higher surveying, and presup-coses a knowledge of all the more elementary branches. At the same poses a knowledge of all the more elementary branches. At the same time, many of the subjects treated are essentially elementary, and these are briefly described, in order that all the facts which the topographer must know and all the formulas and tables which he must have at hand in the field may be brought together. An effort has been made to present the subject in the most practical form. To give more immediate aid to the working surveyor, examples of the various computations are presented, as are illustrations of the instruments, methods, and resulting mans from surveys extually executed.

maps from surveys actually executed.

Instead of describing the instruments or their uses independently, each Instead of describing the instruments or their uses independently, each is described in that position of the text in which its employment in field surveying is most prominently mentioned. The tables are not brought together at the end of the volume, but each is placed in that portion of the text which relates to its use. The object is to produce a handy reference-book for use in the field, as well as a text-book for guidance in college instruction. It is believed that, by this arrangement, if a topographer in the midst of his field-work desires information on a precise print is the befored with seven befored. a topographer in the midst of his held-work desires information on a special point, it can be found, with accompanying examples and tables, gathered together in one chapter or clearly indicated by cross-references. The method of treatment usually followed in works of this class consists in, first, a description of the astronomic methods on which genconsists in, first, a description of the astronomic methods on which general map surveys must be based, and then a description of primary triangulations as a basis for the detailed topographic surveys which are finally described. This order is here abandoned for the more natural method of commencing with the simplest operations and advancing gradually toward the most complex and refined. Each subject is treated in the same manner. The work has thus been made especially useful to the inexpect topographer and the student to the inexpert topographer and the student.

BOOKS RECEIVED.

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

'Preliminary Report on the Clays of Alabama." Bulletin No. 6, Geological Survey of Alabama. By Heinrich Ries. University, Ala.; published by the Survey. Pages, 220.

"Anuario de la Mineria, Metalurgia y Electricidad de Espana: Ano Septimo, 1900." Edited by Don Adriano Contreras. Madrid, Spain; published by the "Revista Minera." Pages 528. Price (in New York), \$3.50.

Use of Water in Irrigation in Wyoming, and Its Relation to the Ownership and Distribution of the Natural Supply." Bulletin No. 81, United States Department of Agriculture. Washington: Government Printing Office. Pages, 56; illustrated.

CORRESPONDENCE.

CORRESPONDENCE.

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

Letters should be addressed to the MANAGING EDITOR.

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

Steam Shovel Work on the Mesabi Range.

Steam Shovel Work on the Mesabi Range.

Sir: We note an item in your issue of June 23d relative to the amount of iron ore handled by 3 steam shovels at the Mahoning Ore and Steel Company's mine on the Mesabi Range, and would state that while the amount handled is very large, it is not the record for steam shovel work by any means. Your article states that 3 steam shovels handled from the bank, which was blasted, on cars 13,000 gross tons in one day. As a matter of fact in June, 1897, a "Vulcan" 90-ton steam shovel, working in the Oliver Mine, at Mountain Iron, Minn., handled 170,000 gross tons in 26 days. This ore was also taken direct from the bank and was not blasted, but was loaded on cars.

You will readily see that if the 3 steam shovels mentioned handled 13,000 gross tons in one day, they would handle 338,000 gross tons in .26

13,000 gross tons in one day, they would handle 338,000 gross tons in 26

days, or 112,666 gross tons for each steam shovel or 57,334 gross tons less than a "Vulcan" steam shovel handled in 26 days; in other words, one "Vulcan" steam shovel handled 6,540 gross tons (half the amount mentioned, 13,000 gross tons) in one day. As a matter of fact, we would say that there are now several 90-ton Vulcan steam shovels working in the Mesabi country and handling on an average such amounts as mentioned above every day.

The Vulcan Iron Works Co.. Per S. S. Patterson.

Toledo, Ohio, June 26, 1900.

The Proposed Lead Combination.

Sir: Your remarks in your issue of June 23d on the proposal of the Sir: Your remarks in your issue of June 23d on the proposal of the Utah smelters to form a trust or combine to artificially advance or keep up the price of lead, are timely and to the point. A greater mistake could not be made. The productive capacity of this country in the mining and smelting of lead, together with the improved methods and intelligent manipulation practiced by our skilled operatives, have at last enabled us to compete for the markets of the world, not only in this, but enabled us to compete for the markets of the world, not only in this, but in other metals also. The protective duties originally enacted by our Congress to foster this industry have now ceased to be a necessary factor in assuring a reasonable profit to our producers. Copper once amply "protected" by a heavy duty, is now turned out of our mines and reduction works more cheaply than by any other country in the world; so also are spelter and lead, to say nothing of pig iron. But owing to the tariff on the latter metals, we see them shipped to foreign buyers very often at lower prices than the home consumer can purchase for. This is a manifest injustice to our domestic manufacturers. The time has come for the repeal of the tariff on all of these metals, as is the case with copper. The writer has always been a protectionist, and is one now, but the moment we attain the condition that enables us to produce an article, especially the raw material, as cheaply as the foreign article, that moment the duty upon it should be abolished. The fluctuations in prices in dent to the existence of a tariff on an article that can be turned out of our mines, furnaces, or factories at cheaper rates than the foreign product, is a constant menace to the stability of business affairs.

Manufacturers and dealers cannot afford to take undue risks in the purchase of supplies, either under the stress of an unnecessary tariff or a "combine," to artificially maintain big profits; hence the hand-to-mouth policy is the inevitable result as soon as business begins to decline, and this policy itself contributes to the curtailment of the volume of trade. In this connection it would be well to bear in mind the disastrous outcome of the French syndicate attempt to corner the world's

production of copper ten years ago.

Another important fact to be considered is that we are beginning to Another important fact to be considered is that we are beginning to produce, in certain lines, more than we can consume. We must, therefore, seek an outlet in the foreign markets of the world, but to do this we must be assured of a reasonable stability in the cost of the raw material, since the foreign buyer of our manufactured products does not take kindly to an unstable price list.

take kindly to an unstable price list.

The time was when many of our industries needed a fostering tariff, but the child has learned to walk, the youth to leap, into active business life, and now our country may be likened to a young giant who has reached maturity, and now stands forth ready and eager to do battle with the world's greatest industrial antagonists. "Protection" that does not protect but only serves as a pretext for extortionate profits, must be abolished, and in other case tariffs must be modified to meet the requirements of new conditions. Already, owing to abnormally high prices, we see ominous signs that the boom has passed flood tide. Foreign orders for our manufactures are beginning to drop off, to be canprices, we see ominous signs that the boom has passed flood tide. Foreign orders for our manufactures are beginning to drop off, to be cancelled or reduced. Domestic trade is slowly but surely settling donw to a lower level of prices. Now a most important factor in the maintenance of a market for our manufactures in the foreign field, is that the raw material shall be supplied to our home trade at the lowest price consistent with a fair profit to the producer; and for the domestic trade the manufacturer must be assured of reasonable stability in the cost of his raw material and freedom from inflation before he is justified in accumulating goods in stock. The dealer in supplies cannot be expected to be a very liberal buyer when prices are abnormally high. Until prices reach a fairly steady and uninflated basis business is sure to drag. P. Cincinnati, Ohio, June 27, 1900.

Soda Salts in Boiler Compounds.

Sir: There is much to be said relative to the action of soda ash or caustic soda in a steam boiler. Caustic soda, which is commonly known as concentrated lye (sodium hydrate); soda ash, which is carbonate of soda, and, when in crystal form, is known as sal soda or washing soda; bicarbonate of soda; sulphate of soda, commonly known as Glauber's salts; chloride of sodium, which is table salt; nitrate of soda; fluoride of soda; phosphate of soda, and so on, a soda base being combined with these acid radicals, forming the different salts of soda. All salts of soda are soluble in water; more so in hot solutions, and do not precipitate out of solution until the solution becomes saturated, when the salt of soda will then cake at the bottom or hottest parts of the vessel. Sodium salts are not volatile, so that soda found in the condensation, the engine cylinder and through the steam system is carried over mechanically and not chemically.

If steam is perfectly free from moisture when delivered from the boiler, it will not contain nor carry any soda, as it is the moisture which holds or contains the soda salt in solution.

In the soda salts mentioned the affinity between the soda and the

acids is so great that it will not break up to go to another acid radical, consequently we cannot saponify the water and cause consequent foaming by the use of these salts nor by use of phosphate or sulphate. But a sulphate will give off to some extent, softening the water by breaking up into a hydrate when in a boiling solution. When you use caustic or soda ash, introducing same into the feed water, you saponify the water in your boilers, causing it to foam. The great velocity with which the steam is leaving the boiler carries this foam and moisture over

mechanically and takes over just so much soda. Any grease or dirt that may be in the boiler or water will form just so much more of this saponifiable condition, causing more violence or perceptible foaming. Soda ash or caustic soda carried into the cylinder of the engine cuts

the cylinder oil, forming soap with the animal or vegetable part of the cylinder oil and mechanically coagulating into a sticky, non-lubricating mass the mineral part of the cylinder oil, consequently your lubrication is destroyed. The same action takes place in a boiler where you have oil coming back in the returns. Soda carbonate and soda hydrate saponify the animal oil, forming soap, which gives you violent foaming. It cuts and coagulates the mineral oil into a mass.

A word on oils. Where you are constantly buckling the tubes in a

A word on ons. Where you are constantly buckling the tubes in a water tube boiler, or bagging the sheets in a tubular boiler or the back ends of the tubes of a tubular boiler are constantly leaking, it is due to oil coming into the boilers with the returns. The animal or vegetable oil, combining with the lime and magnesia as oleate of lime and magnesia as of the constant of the c nesia, most of the lime and magnesia being in the form of a carbonate, the carbonic acid is readily displaced by the oleic acid. These oleates of lime and magnesia are insoluble, because the oleic acid has combined with an insoluble base. This oleate of lime is formed on top of the water in little globular masses. These little particles are very the water in little globular masses. These little particles are very adhesive; they gather together, forming into a mass and then become of a gravity equal to the gravity of the water and are carried buoyantly with the circulation. They always adhere around the ends of the tubes or in the lower water tubes, because this substance adheres on a hot surface more rapidly. Being a non-conductor of heat, it concentrates and checks the heat in these parts, preventing the water from absorbing the heat units consequently the mostal is brought up to such a degree the heat units, consequently the metal is brought up to such a degree of heat that it melts; the pressure within forcing the metal out, buckling the tube or forming a bag. The mineral oil combines with the lime and magnesia as a mechanical mixture in a coagulated, sticky mass, incorporating with and forming a part of the general mass, all of which

incorporating with and forming a part of the general mass, all of which is insoluble and very adhesive.

Further, I will say that this mechanical mixture is also formed with common salt or the fluoride or the nitrate of soda. Any one of these three will form a more sticky, tenacious, adhesive, coagulated substance mechanically with the oil, both mineral and animal, and in a hot solution far worse than the combination with lime or magnesia. This is formed because the affinity between the fluorine, nitrogen and chlorine with addition great that it does not break up hat extension and solutions. with soda is so great that it does not break up but enters into a mass with the oil; so, wherever you may be getting a little oil back in your returns, a fluoride or chloride of soda will cause your boiler to leak and bag more quickly and the action is more vicious than the action with

Soda is so cheap that makers of boiler compounds can afford to sell

any preparation of soda and make heavy profit.

If a boiler owner is going to use soda, he should buy his own. Phosphate of soda, whether it be tri-sodium phosphate or the other soda phosphates, is used with the same purpose in view; that is, of converting the lime carbonate and the lime sulphate into phosphate of lime, known or claimed to be tri-calcium phosphate. But the phosphate going to the lime, the soda must go to the carbonate, sulphate or hydrate and you get the same action; the results are always the same, the soda ash being left in solution.

the soda ash being left in solution.

The compound men will all explain to you the action on the lime, but they do not tell you what becomes of the soda. The man who is selling it does not know; the chemist who got it up does know, but he takes good care that the buyer does not know through any fault of his.

The only salt of soda that can be successfully used is the tannate of soda, and then only when used with four times its weight of tannin. Also with a large excess in weight of sugars, mixing the sugars to handle the sulphates and the tannins to handle the carbonates. These mixtures can be used without any foaming or deleterious action to the iron. It is a subject in organic chemistry by itself. You can buy these substances at the wholesale drug trade. The reason soda salts have been used so extensively throughout the country in the face of the fact been used so extensively throughout the country in the face of the fact that the joints are all leaking and you have the steam connections clamped up with these protectors, is the persuasive power of some salesman and the fact that engineers do not read chemistry or figure William H. Edgar. out the reactions

Chicago, June 20, 1900.

IRON ORE IN SOUTH RUSSIA.—At a recent meeting of the Mining Conference for South Russia it was stated that the iron ore deposits of Krivoi-Rog, the Donetz Basin and the Kertch Peninsula would be sufficient to supply the iron works of South Russia for many years, sufficient to supply the iron works of South Russia for many years, provided the Government would consent to the building of railroads to reach the mines, and would concede low rates for transportation.

GOLD IN THE DUTCH EAST INDIES.—According to a recent British consular report, in 1899 several new companies were started for the exploration of gold concessions in Celebes, Borneo, and Sumatra. Considerable difficulty is experienced in getting the mines already started into proper working order, but in more than one instance the quantity of gold and silver extracted from the quartz has proved highly satisfactory. There seems little doubt, says the report, that, provided sufficient capital is obtained and proper management secured, the future of several of the companies is assured.

MACHINERY AND TOOLS IN THE CAUCASUS.—United States Consul Schumann sends the following from Mainz, May 16th, 1990: "French and Belgian capital is largely interested in industrial undertakings in the Caucasus. In 1898, the export of manganese iron ore from the Caucasus amounted to 20,000,000 poods (361,120 tons), and recently a number of new mining concessions have been granted. The most important of the new French companies, whose chief industry is the mining of manganese and copper ore, is the Societe Industrielle du Caucase, whose main offices are at Tiflis. The demand for mining machinery, tools and instruments of all kinds is very great. tools, and instruments of all kinds is very great.

GEOLOGY AT THE MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Specially Reported for the Engineering and Mining Journal.

The forty-ninth meeting of the American Association for the Advancement of Science was held at Columbia University during the week beginning June 25th, and was fairly well attended in spite of the early date, which interefered with many college commencements, and the notable absence of excursions and receptions. About 450 persons were in actual attendance on the sessions, and 315 new names were added to the roll of members. Section E, that of Geology and Geography, was attended, however, by a much smaller number of members than usual, and the papers were likewise much fewer, both in the regular Section and at that of the Geological Society of America, to which one of the days of the meeting was given up, as usual. Some of the 29 papers which were presented to the two societies contained features which will be of interest to the readers of the "Engineering and Mining Journal," and only these will be touched upon in this report. The vice-presidential address of Prof. J. F. Kemp was upon the pre-Cambrian sediments of the Adiron-dack region and a full abstract of it appeared in the "Journal" of June 30th.

The twelfth summer meeting of the Geological Society of America was held on Juesday, June 26th, and was presided over by the president, Dr. G. M. Dawson, director of the Geological Survey of Canada. The secretary announced the election of three new fellows of the society since its last meeting, L. C. Glenn, of South Carolina; T. L. Watson, of Georgia, and Stuart Weller, of Chicago University. The first paper on the society's programme was by H. W. Turner on "The Geology of the Silver Peak Mining District." The author said in substance: The Silver Peak District lies in Esmeralda County, Nevada, in the western edge of the Great Basin. The region is characterized by isolated ridges and wide valleys, the lowest portions of which are playas, or dry lake beds. These playas are often covered with incrustations of salts; thus, the Clayton Valley playa, just east of Silver Peak village, is coated with a dazzling white sodium chloride of sufficient purity to be used as it is for domestic purposes, while the Columbus playa and one in Fish Lake Valley are rich in borax and related salts. The oldest rocks, except some gneisses of doubtful age, are Lower Cambrian, the Middle Cambrian and Silurian being also represented. Volcanic activity began in Paleozoic times and, after a long interval, was renewed in the Tertiary, when a lake covered a large part of the district and deposited several thousand feet of sediments. The Silver Peak range was elevated after the lake period, as is evidenced by the lake deposits arching up over the range. The chief economic interest of the region lies in the gold and silver veins in Mineral Ridge, one of the eastern spurs of the Silver Peak range. These veins usually occur at the contact between the granites and quartz veins containing pyrite and free gold with a little silver, and quartz veins containing lead sulphides and silver with a comparatively small amount of gold. Along the latter veins, so far as observation goes, there are basic dioritic dikes, which do not usually, if at all, occur a

Native copper from Garfield County, Oklahoma, was the topic discussed by Erasmus Haworth, of the University of Kansas. Native copper has been found in the "Red Beds" of Cretaceous age in the northern part of Oklahoma Territory. It was found all through a 6-in. stratum of red, clayey shale, 32 ft. below the surface. The copper is in circular discs 1 in. or more in diameter and as thin as paper. These leaves lie at all angles with the stratification of the bed, though they approach parallelism with the bedding near the middle. The disks or leaves occur in the cracks which were produced in the beds by drying and are, therefore, later than the deposition of the sediments. The question of their origin is a very puzzling one. The Red Beds are entirely free from organic remains and there seems, therefore, to have been no organic matter decaying here to reduce the copper to a metallic state. The strata are perfectly unaltered by metamorphism and they are at least 100 miles from the nearest igneous rocks, considerations which seem to eliminate the action of heat from the problem. The author suggests that the presence of the metal is due to a complicated reaction between copper sulphate on the one hand and ferric oxide, calcium carbonate and traces of free sulphate are the sulphate on the orther.

sulphate on the one hand and ferric oxide, calcium carbonate and traces of free sulphuric acid on the other.

Charles H. Hitchcock, of Dartmouth College, described the volcanic phenomena on the Island of Hawaii, as seen by him during the eruption of 1899. The lava rose into the summit crater and then, the hydrostatic pressure being too great for the strength of the cone, burst forth at a point about 3,000 ft. down the eastern side of the cone, near where several other eruptions have occurred, thus indicating the existence of a line of weakness along this part of the cone. The fountain of molten lava thus produced was said to be 500 ft. high at first, but the height gradually decreased to the end of the eruption, three weeks later. Later a second vent discharged a similar flood of lava, ½ mile from the first and 1,000 ft. lower down. The vents being above the upper limit of the trade winds, the steam from them ascended in a vertical column and then spread out laterally like the trunk and foliage of a large tree. So much dust was thrown out that the mingled steam and dust cloud obscured the sky for nearly 1,000 miles in every direction to such an extent that it was impossible for mariners to take the usual observations for latitude. At Honolulu, 150 miles distant from the eruption, the dust fell like rain and people could feel the impact of the particles upon their faces. Over a large part of southern Hawaii there are immense tracts covered by ancient discharges of volcanic ashes, easily separable into two beds, each of which is twelve feet or more in thickness. All the good soil of this section consists of this material after it has been decomposed.

The Hawaiian volcanoes have been active from Tertiary time to the present.

One of the most interesting papers, from an economic standpoint, given before Section E was that by F. H. Newell, upon the progress being made in the measurement of streams and determination of the water supply of the country. He showed that the water resources are being studied in a manner comparable with that in which the metals and ores are being examined, and official data collected concerning the occurrence and value of this important natural product. On important streams in various parts of the United States systematic measurements are being made showing the variations in discharge from day to day throughout several seasons and years; in this manner the quantity and time of occurrence of floods is made known and the duration of seasons of drought. By having this information engineers and others concerned in the development of water power can determine the degree of reliability of various streams, and ascertain the available power. Not only are the surface streams being measured, but examinations are being carried on of the occurrence of water underground, especially that reached by deep artesian wells. The importance to the public health of a water supply from these sources is well known. Applications are received from all parts of the United States for definite facts concerning the quantity and quality of water occurring in previous strata far underground. Throughout much of the United States the only mineral of economic value is water. This is particularly the case on the High Plains west of the Missouri River, where settlement is dependent wholly upon the ability to obtain water by the means of wells. The subject of waterstorage is also being considered by the United States Geological Survey, and reservoir sites are being selected and surveyed in various parts of the West, particularly in the Rocky Mountain region, and in the High Sierras of California. Detailed surveys are made and estimates prepared of the cost of construction. In the State of New York about 20 rivers are being measured—these being m

dacks are being carefully studied, while the character of the timber on the watershed is being examined by foresters.

"The Genesis of the Pegmatite in North Carolina" was the subject of a paper by A. A. Julien of Columbia University. This is the rock which carries so many minerals of scientific interest as well as the ores of the rare earths which are now in so much demand for the manufacture of mantles for incandescent gas lamps. In the paper it was held that the origin of this rock yet calls for satisfactory explanation and that the difficulty may be in part due to variation of conditions in the genesis of the igneo-aqueous magma. Three hypotheses are current: Intrusion as dikes, infiltration as veins and segregation. When examined in view of the known characteristics of rock-masses produced in each of these ways, most of the pegmatites of North Carolina do not appear to conform to any one. In the author's opinion they should be considered as aggregates of the very schist material which incloses them, softened to a plastic condition by thermal or superheated waters and afterward consolidated with the concretionary structures which they now present. The author then discussed the phases of concentration of the more basic minerals, which are mica and feldspar, containing the rarer elements and the significance of their close association with smoky quartz. The pegmatites of this region seem to mark the initial metastatic changes which accompany the birth of granite, rather than, as in other regions, the phenomena which marked the exhaustion of the process.

THE SUMMER MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

The following notice has been issued from the Secretary's office in New York:

I. As already announced in Circular No. 2, the Council has accepted an invitation to hold the seventy-ninth meeting of the Institute in Canada, beginning in the latter part of August next, under the auspices of the Canadian Mining Institute. The sessions will be held at Sydney, Cape Breton, and Halifax, Nova Scotia; but for the convenience of members and guests from other quarters, the city of Quebec has been selected as a gathering point. Parties arriving and reporting themselves at the Hotel Frontenac, in Quebec, a day or two before the departure of the special train for Sydney, as stated below, will enjoy, through the courtesy of the Canadian Mining Institute, special facilities for inspecting the characteristic features of that quaint and fascinating town. Mr. James F. Lewis, an old and well-known member of the Institute and President of the Canadian Rand Drill Company, at Sherbrooke, about 150 miles from Quebec, on the road to New York and Boston, will cordially welcome any members who may stop at that point on Saturday, August 18th, on their way to Quebec. He promises them "the freedom of the city," and a pleasant experience. If the majority of those wishing to make this stop en route should prefer Friday, August 17th, so that they may spend Saturday in Quebec, this change of date could doubtless be made. Those who desire to visit Sherbrooke should give notice at once to Mr. Dwight, as stated below, indicating at the same time their preference for Friday or Saturday; and the final arrangements on this point will be specially communicated to them hereafter.

made. Those who desire to visit Sherbrooke should give notice at once to Mr. Dwight, as stated below, indicating at the same time their preference for Friday or Saturday; and the final arrangements on this point will be specially communicated to them hereafter.

II. A special train, composed of Pullman sleepers, dining car, baggage car, etc., will leave Quebec on the evening of August 19th and proceed direct to Sydney, Cape Breton, Nova Scotia, arriving there Monday evening. The provisional programme, subject to minor changes, is as follows:

Tuesday, August 21st.—Visit to steel works, now under construction, of the Dominion Iron and Steel Company at Sydney, and the coal-handling plant at the International and other piers of the Dominion Coal

Wednesday, August 22d.—Excursion over the Sydney & Louisburg Railway, visiting the Caledonia, Dominion No. 1, Hub, Reserve, International and other collieries of the Dominion Coal Company, and, time permitting, visiting the historic port of Louisburg. An alternate trip permitting, visiting the historic port of Louisburg. An alternate trip will be made to the old Sydney mines of the General Mining Association, worked as far back as 1785.

worked as far back as 1785.

Thursday, August 23d.—Sail through the beautiful Bras d'Or Lakes to Port Mulgrave, where the special train will be rejoined.

Friday, August 24th.—Excursion to steel works and collieries at New Glasgow, Stellarton, Westville and other important districts.

Saturday, August 25th, to Tuesday, August 28th, will be spent at Halifax, where the members will be entertained officially and many side trips of a pleasant and interesting character will be provided by the Mining Society of Nova Scotia to the gold mines, the citadel, forts, other etc.

Wednesday, August 29th.—Arrival at Quebec of special train, returning

from Halifax III. Arrang from Halifax.

III. Arrangements can be made for a limited party to visit Newfoundland. They will take the steamer "Bruce" Thursday evening, August 23d, to Port-Aux-Basques, connecting there on the following morning with the Newfoundland Railway, the transportation being furnished by Mr. R. B. Reid, proprietor of the railway, and proceeding to the Wabana iron mines of the Dominion Iron Company; thence to St. Johns, Newfoundland, where several days will be spent, and the return trip will be made by steamer "Buena Vista" (kindly placed at our disposal by the Dominion Coal Company) direct to North Sydney. The Wabana property is one of the most interesting iron deposits on this continent. The additional expense of this trip cannot be stated at this time, but as the Canadian Mining Institute will provide transportation back to Quebec, the expense will be largely for berths and meals.

IV. The special train will be sidetracked at Sydney and other points and members will live on the cars. Commodious cars will be selected, and a special baggage car provided, to which members of the party will have access at all hours of the day and evening. Mr. Theodore Dwight, Assistant Treasurer of the Institute, who conducted the recent enjoyable trip to California, will again have charge of the arrangements, and the members will have every possible comfort. During the stay at Sydney and Halifax, Nova Scotia, and St. Johns, Newfoundland, members who so desire will be able to secure accommodations at the hotels, but at

their own expense. The total cost for the round trip, from Quebec, comprising about 2,500 miles of travel, including all expenses for sleeping-car accommodations and meals, will amount to \$110. No rebate can be promised to those who do not make the whole trip or continuously occupy the train. Berths in this special train can be secured up to July 15th by members and associates and their families. A deposit of \$50 for each person will be required before July 15th, the balance to be paid previous to starting. Applications may also be made at the same time for other persons, and after July 15th such applications will be considered in order of priority, and places will be assigned to the extent of the available accommodation. It is possible, however, that room will be found for all even to the their own expense ion. It is possible, however, that room will be found for all, even to the extent of additional guests. The purpose of the above statement is to secure the accommodations of all members and associates who apply before July 15th. Although the time for such application is extended to July 15th, it should be borne in mind that within that period priority of application will govern in general the distribution of berths in accordance with individual preferences.

These applications and all correspondence on the subject of the special excursion train should be addressed to Mr. Theodore Dwight, Assistant Treasurer of the Institute, 99 John Street, New York, N. Y.

THE INTERNATIONAL CONGRESS OF MINING AND METALLURGY AT PARIS.

The International Congress of Mining and Metallurgy began its sessions in Paris, June 18th. The programme for the Congress and a list of the papers to be read was given in the "Engineering and Mining Journal," May 12th, 1900, page 555. The general opening meeting of the Congress was held in the Grand Hall of the Palais des Congres at the Exposition. After the opening addresses the Congress divided into two sections, that on Mining, whose meetings were held in the rooms of the Societe d'Encouragement pour l'Industrie Nationale; and that on Metallurgy, which met in the hall of the Societe Geographique.

The proceedings also included collective group visits to the Exhibition, under suitable guides; and festivities and functions of a social character, including a banquet at the Hotel Continental, on Wednesday, to which all foreign members of the congress had complimentary in-

A number of American and English engineers and metallurgists attended the Congress. Some of the papers read were of much value and interest, and we hope to give full abstracts of a number of them at an

On Tuesday, June 19th, the Metallurgical section was occupied by an elaborate report on the "Utilization of Blast Furnace Gases," by Mr. Hubert, of Liege, Belgium. His paper described very carefully the tests made of the engines at the John Cockerill Works at Seraing, Belgium,

to which we have heretofore referred.

In the Mining Section the subject was "Ventilation and the Use of Explosives in Coal Mines." Among the papers read were those named below, of which brief summaries are given:

Safety Explosives in France.

By M. Delafond

As far back as the year 1888 this subject occupied the attention of the French Government, and a commission, which included the savants MM. Mallard and Le Chatelier, exhaustively studied the question, and

reported in favor of the use of explosives other than gunpowder, recommending as preferable to ordinary dynamite a mixture of ammonium nitrate with nitro-naphthalene, nitro-benzene, nitro-cotton, etc. Accordingly, on August 1st, 1890, Government regulations were issued rendering the use of the explosives recommended in the report obligatory in mines in which firedamp or inflammable dust was prevalent. The chief safety explosives in use in France are "grisoutine" and "grisounite," both names being derived from "grisou," which signifies firedamp. There are two varieties of grisoutine, the composition of which is as follows: In one case: Ammonium nitrate, 88.00; nitro-glycerine, 11.76; follows: In one case: Ammonium nitrate, 88.00; nitro-glycerine, 11.76; nitro-cotton, 0.24. And in the other case: Ammonium nitrate, 87.00; nitro-glycerine, 12.00; nitro-cellulose, 1.00. The detonating temperatures are respectively 1,440° and 1,450°. Of grisounite that are also two kinds, one of which contains ammonium nitrate, 95.5; binitro-naphthalene, 4.5, and has a detonating temperature of 1,486°. The other kind contains ammonium nitrate 91.5; binitro-naphthalene, 8.5, and possesses a detonating temperature of 1,890°; the latter is used for blasting rocks. In the year 1897 (there are no later statistics) the consumption in France was: Grisoutine, 278 metric tons; grisoutine, 108 metric tons.

as: Grisoutine, 378 metric tons; grisounite, 108 metric tons. It is calculated that down to the end of last year 16 million shots have been fired with the new explosives. The results have been eminently satisfactory, for only one single case of explosion of firedamp has been shown to be due to the new blasting agents.

Explosives Used in the Coal Mines of Belgium. By Victor Watteyne and Lucien Densel

By Victor Watteyne and Lucien Densel.

In 1884 this subject attracted the attention of the Government, and regulations were published, specifying the conditions under which explosives might be employed in coal mines. These rules were supplemented by a fresh edict in 1895, in which the restrictions as to the use of low explosives are increased. The result of this control has been very satisfactory. The principal safety explosives employed in Belgium are the following, of which we subjoin the composition: Antigrisou Favier No. 2, ammonium nitrate 80.90, ammonium chloride 7.40, binitre-naphthalene, 11.70; grisoutite and forcite de Baelen No. 1, nitroglycerine 44, sulphate of magnesia 44, cellulose 12; antigrisou of Arendinck nitro-glycerine 27, gun-cotton 1, ammonium-nitrate 12; forcite de Baelen No. 1, nitro-glycerine 29.40, gun-cotton 0.60, ammonium-nitrate 70. And a number of others all containing ammonium nitrate in greater or less quantities. Considerable attention has been directed to mechanical means of breaking down rock and coal, and thus obviating the use of explosives in coal mines. The only appahas been directed to mechanical means of breaking down rock and coal, and thus obviating the use of explosives in coal mines. The only apparatus of which the use has become general are mining wedges acting on the plug and feathers principle, actuated by hydraulic pressure or mechanical percussion. The introduction of the portable hand drills has extended their employment to cuttings not large enough to accommodate a rock drill. The result is that explosives have been dispensed with in many cases where they were formerly deemed necessary. The drawback is that the cost of working is greater with the wedge than it is with explosives. with explosives.

Report on Dynamite Magazines.

By H. Le Chatelier.

By H. Le Chatelicr.

A number of experiments have been undertaken in France in recent years, with regard to the construction of dynamite magazines above and below ground. These trials were undertaken partly at the powder mills at Sevran, and partly at the collieries of Blanzy. If possible, it is desirable to be able to store a certain amount of dynamite in the pit. The question to be decided was, can this be effected with safety? As regards underground magazines—at the Blanzy mines—one was constructed by way of experiment, containing 500 kgs. of dynamite. The gallery of communication 1.70 m. in height and in width was twice bent like a hand-brace, and at the outlet ended in the safety automatic plugging device. This consists of a prolongation of the gallery through a mass of cement poured into an excavation made around it. In front of this channel, the plug, which is of cylindrical shape, 1.50 m. in height and width, is placed. Two-thirds of its length is made of cardboard, known as leather board, and the remainder of wood. The contents were known as leather board, and the remainder of wood. The contents were fired by electricity; a dull, subdued report was heard, accompanied by a slight trembling of the earth. After a few seconds yellowish smoke was observed to be issuing from the orifice. The experiment was a success. The commission accordingly recommend the use of such a plug, closing instantaneously after an explosion. Other experiments were made and described, and a code of regulations for underground magazines was prepared.

Papers were also presented by MM. Petit and Kotzowski.

AMERICAN IRON FOR AUSTRIA.—The Danick Machine Construction Works of Prague, Bohemia, one of the largest concerns in Austria. has lately contracted for 4,000 tons of foundry iron from the United States. This iron is to be delivered in August and September.

PETROLEUM PRODUCTION IN RUSSIA.—The "Petroleum Review reports the total production of the Apsheron Peninsula in May at 43,976,-145 poods of crude petroleum, equivalent to 720,329 metric tons. Of this 5,214,303 poods, or 11.8 per cent. of the total, were used for fuel at the wells and pipe line stations.

IMPORTS OF PRECIOUS STONES.—The value of precious stones examined and passed at the Appraiser's Stores, New York, during the fiscal year ending June 30th, 1900, is as follows: Cut, \$10,927,073; uncut, \$4,057,037; total, \$14,984,110. During the fiscal year 1899 the amounts were as follows: Cut, \$11,996,310; uncut, \$6,039,491; total, \$18,035,801. This shows a falling off for the year just completed of about \$3,000,000. which may properly be attributed to the disturbance in the diamond industry as a result of the siege of Kimberley, no diamonds having been mined during a period of nearly four months. There is a scarcity of rough diamonds in the market at present, and such cut diamonds as are offered for sale are at prices above figures which our importers are willing to pay.

THE AMERICAN PHOSPHATE COMPANY'S PLANT, NEAR MOUNT PLEASANT, TENN.*

By George F. Blackie.

The American Phosphate Company, organized in July, 1899, has just finished a complete washing, drying, crushing and screening plant of 450 tons capacity on the line of the Mount Pleasant Southern Railway, 2 miles from its junction with the Nashville, Florence & Sheffield Railway. This company owns about 3,200 acres of land in the Mount Pleasant Southern Railway.

way. This company owns about 3,200 acres of land in the Mount Pleasant field and something like 600 acres near Godwin, on the main line of the Louisville & Nashville Railroad.

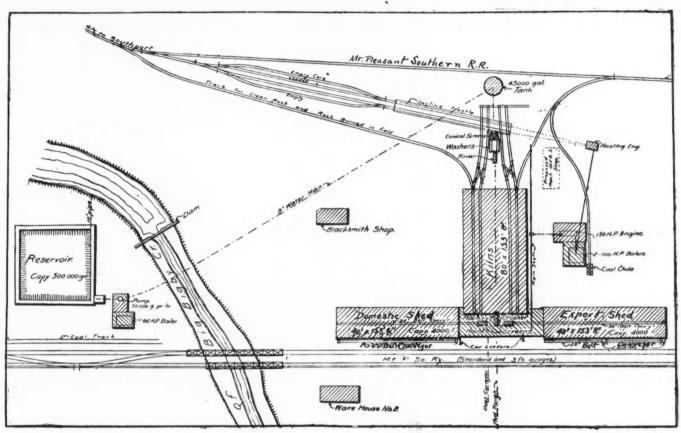
The general outline of the plant of this company is shown on the accompanying plat. The main buildings form a T, with the machinery building at the end of the kilns and between the export and domestic storage sheds. The main power plant is just back of the export shed and alongside of the kilns. It consists of a Hardie-Tynes Corliss engine 16 by 36 in., with 26 in. by 14 ft. wheel making 85 revolutions per minute, developing 150 H. P. This works on a 26 by 96 in. main driven pulley, and drives the entire plant, except the hoist. The boilers are two—100 H. P. each. They furnish steam for the Corliss and hoist. The boiler feed water is heated by exhaust steam through a Webster heater, and forced into the boilers by a No. 4 Garden duplex pump. An injector is also kept on in case of accident to pump or heater. The main line shaft runs the washer at one end, and the crusher, screens, main eleva-

than the creek and 500 ft. therefrom, and on a 60-ft. double-decked

The tank is for emergency use and for fire protection when the pump is not running. It will supply the washer for 1½ hours in case of accident to the pump. The washing is done by direct pump pressure, leaving the tank full at all times. The 8-in. main is tapped at the bottom of the tank foundation for fire protection and boiler feed pipes. At the washer it is divided into three 4-in. streams, which are in turn divided into 1-in. and 2-in. streams leading to the various parts of the washer. The rock, on being dumped into the chutes at the top of the incline, forced by 5 streams in each object in the course of 1½ in

The rock, on being dumped into the chutes at the top of the incline, is forced by 5 streams in each chute into two conical screens of ¼-in. steel, 4 ft. lesser diameter and 5 ft. major diameter, and 10 ft. in length, with 2-in. round perforations. These screens revolve 13 times per minute; four streams play against the rock in each screen from the large or lower end while passing through. The rock not rejected from these screens is then discharged into a 16-in. screw conveyor at the mouth of each screen. These conveyors are 10 ft. long, and the bottom lining is perforated by ½-in. holes. A 2-in. pipe with ¼-in. perforations is placed over each conveyor and gives the rock a thorough rinsing in transit before it is discharged into chutes and trammed into the kilns. The rejections from the two conical screens fall into a box. in which

The rejections from the two conical screens fall into a box, in which is a double-log washer 25 ft. long and revolving 18 times per minute. The paddles on the logs form a double screw, and draw the pieces of rock up an incline of 1 in. per foot through the mud and water, and discharge them into a rinsing screen 8 ft. long and 2 ft. in diameter, with



PLAN OF AMERICAN PHOSPHATE COMPANY'S PLANT.

tors and a rope drive at the other. This rope drive, extending the en-

tors and a rope drive at the other. This rope drive, extending the entire length of the domestic and export sheds and machinery house, drives all conveyor belts and loading elevators and car loaders, except one, which works directly off the line shaft.

So far the mining has been done here in about the same way as at other mines, and the phosphate is loaded on tram cars and hauled to the foot of the washer incline, which is double-tracked, loads going up while empties come down. Length of incline track, 134 ft. on a 22 per cent, grade, and 35 ft. at the top on a 2 per cent, grade, and 35 ft. at the top on a 2 per cent, grade. At the top loads are dumped to the center between tracks and fall into steel chutes leading into conical screens. The hoist is a double-cylinder, reversible 7 by 10 in. engine, and easily capable of raising 2 cars up the incline in 30 seconds. The washing system is the most complete and efficient. In connection with this, it will first be necessary to take up the water-power plant.

connection with this, it will first be necessary to take up the waterpower plant.

The creek passes the plant at a distance of about 500 ft. from the washer. This creek at its lowest stage will furnish 53,000 gallons of water per hour, which is much more than is required to run the washer. To enable works below to operate full at low water, a reservoir has been excavated one side of the creek, and the creek will be dammed to turn water into the reservoir. The reservoir is figured to hold sufficient water to run the plant for 12 hours, and will be filled at night and cut off in the day, so that the creek will flow free all day.

The pump is a Stilwell-Bierce & Smith-Vaile, compound, 10 and 16 by 12 and 12, 10-in. suction and 8-in. discharge, with capacity of over 50,000 gallons working under the required conditions. The 8-in. main leads to a 16 by 22-ft. tank (capacity 45,000 gallons), about 110 ft. higher

by %-in. perforations; speed, 34 revolutions per minute.

spray of water plays through this screen.

The rock discharged would not soil a silk handkerchief, and we have analyses of 83 per cent. bone phosphate of lime and 3 per cent. iron and alumina from this product which would have been left in the mines, were it not for the log washer; for small rock presents so much surface for dirt in proportion to its weight that it is almost worthless unless thoroughly treated.

With this washer the cost of mining is reduced, for the miners need not be so careful to separate rock from the dirt. The proportion of cleaned rock to that put in the washer has so far been found to be about 66 per cent. The muddy water is carried off by a trough lined with No. 10 steel bent to a half circle 18 in. in diameter, and is on a grade of 4 ft. per 100. This passes over the valley between the kiln buildings and through the machinery building to a point about 400 ft. from it; but it may be moved or extended easily as mud accumulates. The rock from the washer is taken in to the kilns in cars and dumped on the wood. The kilns are in two buildings, 35 by 153 ft. 8 in. each, with 10 ft. space between, but all under one roof. A rock wall, 5 ft. high, is built around the posts on the outside, and No. 10 boiler iron bent to a diameter of 18 in. is placed around the inside posts, and then filled with sand. This is protection to the posts while the kilns are aftre. The dried rock is taken to the shaking screen by end dump cars at present; but it will be handled with a flight conveyor, as it is almost impossible to feed the crusher to its capacity by cars.

The shaker is in the machinery house and at the end of the kiln tracks. It is a screen of ¼-in. steel 3 by 10 ft., with 2-in. round perforations, and on a slant of 2 ft. in 10. The screen moves longitudinally, with a 3-in. throw, 325 times per minute. The rejections from this With this washer the cost of mining is reduced, for the miners need

^{*}Abstract of paper read before the Engineering Association of the South, May 10th, 1900.

screen are hoppered into a boot and raised 50 ft. by a chain-and-bucket elevator, and discharged into the domestic screen described later on. The rock which is not rejected from the shaker feeds on the crusher, which is a McLanahan & Stone roll, and capable of crushing 500 tons daily. When crushed, the rock is raised 50 ft. by a chain-and-bucket elevator, and discharged into the "export screen," which is a double rotary, and made of one 3 by 8-ft. screen, with 1½-in. round perforations, inside of a 4 by 8-ft. screen, with ½-in. round perforations; speed of screen, 29 revolutions per minute. The rock retained in both the outer and inner screens can be either thrown on a conveyor belt and stored in the export shed, or it may be loaded direct into cars for shipment by a Praytor patent car loader, commonly called in this district a "scratch-back." The small rock which is rejected from the inner screen may be separated from the larger rock (and such is ordinarily the case) and taken with the dust down a chute into the elevator leading to the "domestic screen." This is also a double rotary screen, 10 ft. long; inner screen, 4 ft. in diameter, with ¾-in. round perforations; the outer screen being No. 13 wire cloth, 3-mesh. The product of these screens is either loaded into cars or stored by conveyor belt in the domestic shed. We now have all the dust discharged at the same point, and it drops into a 9-in. screw conveyor and is carried entirely out of the machinery house and thrown into the yard. After enough of this waste has accumulated in the yard to make some necessary filling, an elevator will be placed to carry the dust into the mud trough from the washer, and it will be taken far away into the settling pond.

Running the entire length of each of the export and domestic sheds are rubber belts, on which is discharged rock from the respective screens. These are only used when rock is to be stored and during the intervals of changing cars and scratch-backs. The belt in the export shed is 36 in. wide and 183½ ft. center to center of head shafts. The one in the domestic shed is 24 in. wide and 169 ft. 9 in. center to center of head shafts. These travel through 400 ft. a minute. The tripper travels on a T-rail and may be anchored at any point. They consist of a stand and two rolls, one roll about 2 ft. above the other. The belt passes over the upper one and under the one below. The speed of the belt throws the rock into sheet-iron chutes and distributes in either or both sides of the building.

As stated above, the rock may be loaded direct from the screens or may be stored. The stored rock is loaded as follows: Just outside the export and domestic sheds, and a little below the floor level, are conveyor belts traveling about 300 ft. per minute. In front of the domestic shed is one scratch-back, and in front of the export shed there are two. The belts carry the rock, which is dumped on them from the sheds, to elevators, and it is thrown into cars by the scratch-backs. There is also a scratch-back at the machinery building, which is used only to load direct from the export screen. The hoppers over the loading conveyors are arranged three to the door, and slanted so that the rock goes on the belt in the direction of travel and reduces the wear on the belt. The doors, 8 in number per building, are 8 ft. wide and composed of two parts. The bottom part is only 2 ft. high and is on a movable hinge, so that when raised it comes off the hinges and is placed on the opposite side of the belt and forms one side of the hopper. The rock then released at the bottom feeds on the belt till it gains its natural slope. The larger door is then raised and the rock left in the shed is cast on or taken to the belt in wheelbarrows.

The larger door is then raised and the rock left in the shed is east of taken to the belt in wheelbarrows.

Praytor car loaders are used, and they are certainly great labor savers in phosphate rock handling. This loader was patented in May, 1899, by Mr. William W. Paytor, who was at that time with the Tennessee Phosphate Company. It consists of a 37/16 in. shaft, 15 ft. 2 in. long, with a wheel similar to a turbine on the loading end. This wheel has from 7 to 12 paddles of ¼-in. steel, 14 by 8 in.; 1 tight pulley and 3 loose ones are on the loader shaft and 4 tight pulleys on the counter. A direct and a cross-belt are used. The loading shaft has a throw of 4 ft. 3 in., and, when extended, the wheel goes into the car door and bears on an adjustable jack-box. The wheel reaches nearly to the center of the car. The rock drops on the revolving wheel from a movable chute and is distributed in the car. For domestic rock, these scratchbacks are speeded about 300 revolutions per minute; and for export rock, about 285 revolutions per minute, on account of the difference in size of the grades. When one end of the car is loaded. Then the scratch-back is drawn out and the center of the car is loaded by the movable chute. The scratch-backs will be thrown in and out of cars by compressed air.

Special attention has been paid to the tracks about this plant, and as nearly as possible a complete gravity system is used, reducing the cost of switching to a minimum.

The water from phosphate rock washers makes the streams so muddy that it interferes with people and industries below, and other companies have had a great deal of trouble from damage suits; so this company has guarded against this trouble by building a settling pond. The creek channel has been changed for nearly ¼ mile, and a levee was thrown up on the bank of the creek through the property, forming an area of about 30 acres. This includes the old creek bed, which is very crooked, and will require a long time to fill with waste. A sluice gate will be placed at the corner of the pond farthest from the washer, and the water will be drawn off clear before passing into the creek. This pond is not yet complete and only a few acres are used now for settlings, but the result is perfectly satisfactory. The water is flowing through a trough into the creek just as clear as the creek itself.

The tank is kept full at all times for fire protection, and 2-in. pipe and fire hose are in all parts of the buildings. Barrels of water and buckets are placed at frequent intervals on the joists in the buildings, and vertain of the employees are commissioned on the fire brigade. The practice of fire drills will be carried on. The works are fully wired; electric call-bells are placed at all important points, and regular code of signals used

FRENCH IRON ORE TRADE.—Imports of iron ore into France from Spain during the first four months of the current year were 150,150 tons, showing a decrease from last year of 17,080 tons.

ABSTRACTS OF OFFICIAL REPORTS.

Baltic Mining Company, Michigan.

This company is engaged in the development of a promising copper property in the Lake Superior regions. The report is for the year 1899. At the close of the year the company had five shafts down respectively, 69 ft., 219 ft., 292 ft., 285 ft. and 248 ft. The drifting done on different levels has been 3,058 ft. The average cost of shaft sinking has been \$24.74 and of drifting \$6.45 a foot. During the year 35,411 tons of the rock taken out were stamped, yielding 789,763 lbs. mineral, or 603,570 lbs. refined copper. The average yield of copper was 17 lbs. to the ton, or 0.85 per cent. No estimate of the cost of this copper can be given, as the mining work was development entirely.

as the mining work was development entirely.

The financial statement for the year shows receipts as follows: Assessments, \$230,554; sales of 621,336 lbs. copper at 16.93c., \$105,240; Atlantic Mining Company, \$2,656; total, \$338,450. The payments were: Expenditure at mine, \$195,417; smelting, freight and marketing copper, and general expenses, \$13,900; real estate bought, \$1,001; total, \$210,318. This left a balance of \$128,132, to which is to be added \$39,711 from previous year and \$72,751 due on assessments, making the available surplus brought forward. \$240,594

able surplus brought forward, \$240,594.

The directors' report says: "Work has progressed as rapidly as could be expected considering the difficulty in procuring either labor, machinery or materials for construction under the conditions that have prevailed during the year. Regular production with one small head of stamps in the Atlantic Mill began with the month of July and has since been maintained. The rock stamped came mostly from the openings tributary to Nos. 1 and 3 shafts, supplemented latterly by a small quantity from stopes. The openings being carried on an arbitrary line, not always entirely in the lode, little chance is afforded for selection and it is believed that the average yield of the rock will improve when stoping is done on an extensive scale, and the ordinary selection of ground can be made. The developments made upon the lode during the year confirm the belief that there exists here a very large body of material containing sufficient copper to admit of a low cost of production, if worked upon an extensive scale. A large production cannot, however, be made without adequate development underground as well as surface equipment. An eligible site for a stamp mill on the shore of Lake Superior, near the Salmon Trout River, has been selected and the construction of a steel mill building to contain four heads of modern style stamps has been contracted for to be completed next summer, although it is not intended to erect more than two heads during the current year."

Montana Mining Company, Limited, Montana.

The report of this company for the second half of 1899 shows that work on the mine and mill was continued, and the treatment of the old tailings in the cyanide plant was also carried on. The result, as expressed in sterling from the London office was as follows: Receipts from produce, £71,386; rents, etc., £388; total, £71,774. Expenditures at mine were £58,382; on outside properties, £2,702; in London, £2,611; total, £63,695, leaving a balance of £8,079. This, with £24,687 brought forward from previous half-year, made a total of £32,766 on hand at the close of the year. The amount refunded to capital account was £1,888. The result of operations at the mine was, in American currency:

	Mill Ore				Tailings			Totals.	
	,	Total.	Per ton		Total.	Per ton.	A	mount.	
Tons worked		24,700			69,573	****		94,273	
Receipts		\$156,598	\$6.34		\$188,081	\$2.71		\$344,679	
Expenses		178,293	7.22		103,460	1.49		281,753	
Profit or loss	L.	\$21,695	L. \$0.88	P	. \$84,621	P. \$1.22	P.	\$62,926	

The mill expenses in detail were: Working expenses, \$119,359 (\$4.83 per ton); prospecting, \$53,066 (\$2.15); insurance, taxes, etc., \$5,868 (\$0.24). The tailings expenses were made up as follows: Treatment and transport, \$79,109 (\$1.14 per ton); redemption charge for plant, \$24,-351 (\$0.35). The quantity of the precious metals recovered was, in fine ounces:

	7	-Mill Ore		—-Та	_	
	Quantity	uantity. Proportions.		Quantity.	Proportions.	
Gold	. 7,024	Quant'y. 20.0 80.0	Value. 90.9 9.1	Ounces. 8,062 45,209	Quant'y. 15.1 84.9	Value. 86.3 13.7
Totals	35,169	100.0	100.0	53,271	100.0	100.0

The recovery from mill ore was \$5.77 in gold and \$0.57 in silver; total, \$6.34. The saving from tailings was \$2.34 in gold and \$0.37 in silver; total, \$2.71 per ton.

The directors' report says: "No decision has yet been given in the case of the St. Louis Mining and Milling Company vs. the Montana Mining Company, which was argued before the District Court of Appeals on 9th February last. The developments in the mine during the past half-year consisted of shafts, drifts, cross-cuts, upraises and winzes, representing a total progress of 3,500 ft., at a cost of \$53,066, or an average of \$2.15 per ton of ore treated. This excessive average is due to the relatively small tonnage extracted during the half-year. During the half-year a number of properties were offered, but, with the exception of a promising group of undeveloped claims in the State of Nevada, none of them stood the test of examination. A long option has been secured on this group of claims on advantageous terms, and they are now in course of development. The financial position of the company is sound, but, with the uncertainty attending our operations at the mine at the present time, and in view of the possible expenditure on the property under option, the directors consider it advisable to conserve the funds in hand, and do not therefore recommend the payment of a dividend. Notwithstanding the searching nature of the exploratory work which was undertaken during the past half-year, it failed to discover ore bodies of any sufficient for the requirements of one of our mills."

THE SANTO DOMINGO GOLD MINE IN PERU.*

Written for the Engineering and Mining Journal by F. C. Fuchs.

The Santo Domingo Mine is located in that zone of the great rivers known in Peru under the name of "Montana," and situated on the east of the great Andes Cordillera. The lack of rains and of great rivers in the western part of Peru can be readily explained. Crossing the of the great Andes Cordillera. The lack of rains and of great rivers in the western part of Peru can be readily explained. Crossing the Cordillera from west to east, the difference of the hydrographic conditions of its two slopes is very noticeable; on the east the enormous mass of evaporated water from the Atlantic is condensed, returning later to the ocean through the Amazon and other rivers. The topography of the Montana is very rough, and the continuous and heavy rains generate numerous torrential streams that give great intensity to the abrasion and transportation phenomena. An exuberant vegetation completely covers the mountains, making still more difficult the access to those regions.

The Province of Carabaya that forms part of the Department of Puno, seems to have been known since an early period previous to the domin-ion of the Incas. In 1553 the Spaniards began to explore and work

ion of the Incas. In 1553 the Spaniards began to explore and work the mines and placers of those regions, from which, according to ancient documents, they took out great quantities of gold.

Much has been written about the history of the Carabaya gold-fields, but of what can be called the modern epoch very little is known. About the middle of 1892 a man called Estrada, who had coca plantations on the margin of the Inambari River, made an exploration along one of its tributaries, the Machotacuma torrent, and discovered what promised to be a very rich gold vein. Associated with Mr. Velazco, from Arequipa, they invested a small sum and worked the mine periodically for about three years, obtaining small profits. In 1898 they struck a rich zone. three years, obtaining small profits. In 1898 they struck a rich zone,

zones already explored does not cut them, following, on the contrary, their irregularities and inflections. The vein has a width that varies from 3 to 15 ft.; when narrow the ore is composed of quartz, native gold, stibnite, pyrites, other sulphurets and tellurides; in the wide zones the content of the vein is almost all a black, very plastic clay, containing iron pyrites and accidentally small grains of native gold. The black clay, undoubtedly proceeding from the wall rock, is irregularly crossed by narrow veinlets and pockets of a white milky quartz, very friable, enclosing small needles of stibnite and nyrific crystals

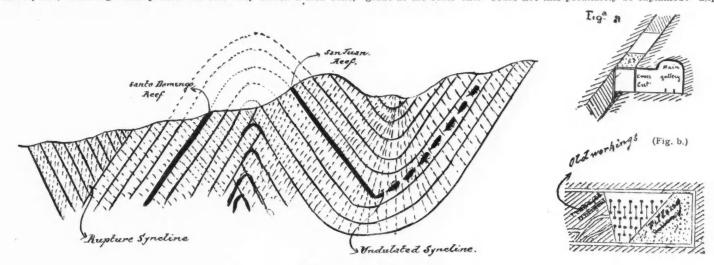
enclosing small needles of stibnite and pyritic crystals.

The bonanzas occur as shoots of ore, and are wonderfully rich, giving

in average \$10,000 per ton of ore.

In the Sucho region the gold was found native in the shape of a massive veinlet, ¼ in. thick. From all the other zones the ores obtained assay from \$4 to \$80 per ton. At a short distance from the Santo Domingo vein there is another one, the San Juan, also enclosed in the black slate as a bed vein, but instead of dipping as Santo Domingo to the southwest, it dips to the northeast, on the other side of an anticline, giving it the appearance of a broken saddle-reef. The San Juan vein has been carefully explored and no indications of rich zones have been found. The filling consists of the black plastic clay and milky quartz with pyrites very similar to those of Santo Domingo, but there is complete absence of the other sulphurets and tellurides that characterize this last vein. this last vein.

Mr. T. A. Rickard, in his paper on the Bendigo Gold-fields* points out the fact that while the saddle-reefs are almost always rich, the inverted-saddles are not workable, and explains this fact based on the mechanical principle of the arch, but he does not try to explain the difference of richness between the two legs of a saddle-reef, this being generally rich along the anticlinal line and at one of the legs, and low grade at the other one. Could not this peculiarity be explained? Sup-



SANTO DOMINGO MINE, PERU.

a true bonanza, from the upper part of which 16,800 oz, of gold were

a true bonanza, from the upper part of which 16,800 oz. of gold were obtained in the short period of five months.

During the bonanza, Mr. W. L. Hardison, from California, a well-known American, engaged in the oil industry, happened to pass Santo Domingo on his way to other mines further in the interior, and seeing the great output of the mine, he made a contract with the owners to buy it. Six months afterward the Inca Mining Company, a corporation organized under the laws of the State of West Virginia, with a capital of \$1,000,000, acquired the property and began workings on a larger scale. Nearly 18 months were devoted to the proper development of the mine, and in July, 1898, the old mill was completely modified and started continuous running, giving good profits and insuring the success of the enterprise. A 10-stamp battery and a chlorination plant have been erected, which in two months more will increase the production to 3,500 oz. of gold per month, or, say, \$70,000.

The predominant rock in the Santo Domingo Region is a black carbonaceous slate, containing a great quantity but not a great variety of

bonaceous slate, containing a great quantity but not a great variety of fossils. These fossils, first discovered by me in February, 1897, were classified by Prof. J. Balta from the Lima School of Mines, who describes them thoroughly.†

Most of them belong to the graptolite family (hydrozoary class) and most of them belong to the graptonte family (hydrozoary class) and are: Diplograptus palmeus, diplograptus pristi and monograptus priodon. Two others were classified as Lingula Attenuata and Medusae. The presence of graptolites in the black slates permits this rock to be assigned to the Silurian formation.

assigned to the Silurian formation.

Interspersed between the black slates are found strata of gray slate, more clayey than the other rocks. The black slate strata have a general strike from northwest to southeast, are very much disturbed, and form anticlined and synclined folds. The eruptive rock that has produced these disturbances does not appear on the surface nor at the level of the lowest works, but at this last point the slate shows many marks of metamorphism. The segregations of quartz so characteristic of the primary eruptive rocks, and the presence of porphyroid granite in Saco and Limbani (25 miles from Santo Domingo) as the only eruptive rock to be found in great masses in the whole region, confirm the supposito be found in great masses in the whole region, confirm the supposi-tion that to this rock is due the undulation and rupture of the slate

strata.

The Santo Domingo vein is enclosed in the slate strata, and in the

posing that while one of the legs is in relation with a ruptured syncline by which the mineralizing agents from depth found an easy way the by which the mineralizing agents from depth found an easy way the other leg forms part of an undulated syncline without free access to the deep region? If this hypothesis were true two periods must be considered for the filling of such a saddle-reef; one corresponding to the formation of the mineral elements common to both legs, and a second one that produced the enrichment of only one of them.

San Juan and Santo Domingo appear as the legs of a saddle-reef only in their central part, in the extremes forming a single bed-vein. In the product of the part of the par

in their central part, in the extremes forming a single bed-vein. In my opinion they belong to fissures formed by the emersion of the porphyroid granite with contemporary filling of both, with the black clay and pyritous milky quartz; and that for the Santo Domingo vein there has been a second period in the history of its formation, during which new mineralizing agents produced its enrichment.

It is more difficult to explain the distribution of the rich zones of the Santo Domingo reef, in the shape of columns or shoots of ore, because if in the veins that cross the different rocks, the enrichment of certain zones can be assigned to the variation of the enclosing rock, in the case of a bed-vein interstratified between two strata of the same formation, without "indicators" that theory cannot be applied.

The enclosing rock of the shoots of ore, does not differ from the gen-

without "indicators" that theory cannot be applied.

The enclosing rock of the shoots of ore, does not differ from the general slate formation. Could this special shape and disposition of the bonanzas be assigned purely to physical and mechanical causes? Perhaps the microscopical study of the ore and enclosing rock of the bonanzas † will throw more light upon this interesting problem.

When the Inca Mining Company took possession of the property the works on the vein were almost all caved in, and those on the hanging

works on the vein were almost all caved in, and those on the hanging wall stood only on account of the heavy timbering. The consumption of timbers was enormous and their supply required from 30 to 40 men working continually. The dampness of the climate very soon rots the wood, and from this cause and the pressure the sets only lasted from 2 to 3 months, a special gang being required for changing and repairs. In all mine workings the first necessity is to have the main galleries perfectly secured, and as it was impossible to obtain this having them

on the vein, I decided to carry the main galleries into the foot-wall, 3 ft. distant from the vein; the results obtained reduced 90 per cent. the consumption of timbers. With the galleries in the foot-wall making low floors, the total extraction of ore between two levels was very rapid. Timbers were only used as mud-sills supported against the foot wall by

[•] Abstract from a paper published (in Spanish) in the "Boletin de Minas" (Lima, Peru), Volume XIV, pages 6, 11, 21, 85, and Volume XV, pages 6, 12, 20, 25, 35, 42 and 49.

† "Boletin de Minas," Volume XIII., page 69, and Volume XIV., page 19.

[&]quot;Transactions" American Institute of Mining Engineers, Volume XXII, ge 316. page 316.
† Now being made at the Lima School of Mines.

means of buckstaves (Fig. A). The raises on the vein advanced with the stoping, and when this was finished between two levels the raises were filled, with waste rock. Between each two levels there were always

permanent raises in the foot-wall.

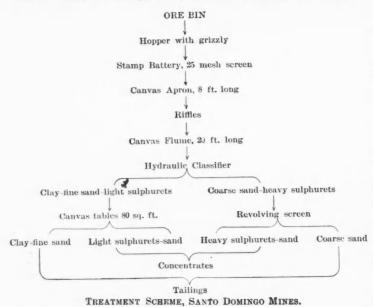
In the region of the old workings, the method proposed was to make big faces, having the stoping face and the filling with natural slopes (Fig. B) so as to have the roof pressure strongly supported upon the solid foot-wall by means of timbers which in the advancing were

changed from back to front.

From February, 1897, to May, 1898, the mine was developed in an extension of 3,200 ft., which gives an average of 200 ft. monthly; a small advance only due to the great difficulties arising through the want of food supply, which made it possible to retain only a small number of

miners.

Messrs. Estrada and Velazco, previous owners of the property, erected in 1896 a small plant, composed of a vertical water wheel, a four-stamp battery (450 lbs. each head) and a sluice with transverse riffles. With this rudimentary plant they took out 10½ quintals of gold, throwing into the Santo Domingo Ravine probably a double amount. With the only means at my disposal, the old mill was repaired and a special plant devised and erected. This plant can be understood from the accompany-



ing working scheme (A). The product obtained on the canvas apron,

riffles and canvas sluice, was washed out, settled, calcined and amalgamated, keeping the tailings, that were always rich.

The plant described being erected with the only elements at hand in the Montana was unable to permit a thorough concentration, but it was better to obtain dirty concentrates than to lose so much gold in the

In 15 days' test running, during which time small repairs and modifi-cations did not permit continuous running, 50 tons of ore were treated, with a total value of \$2,150, obtaining the following results:

Gold, 80 oz. at \$20 per ounce\$1	
	304.00 12.30
Forty tons canvas tables tailings, \$4.20 per ton	168.00
Loss	65.70

From July, 1898, to date, the small mill has run continuously, producing about \$150,000 in gold, and some 3,000 tons of concentrates that

will be treated by chlorination.

The Santo Domingo reef has proved to be very rich. With the new plant \$70,000 in gold bullion will be produced monthly, this sum representing for the company large dividends. It is just to state that this flourishing condition is mainly due to the good administration of its actual manager, Mr. Chester W. Brown.

Carabaya is still an unexplored country, and during my stay of two years there I have acquired the conviction that sooner or later enormous

riches will be discovered.

EXPLOSIVES IN FRANCE.—According to an order recently issued, every package or cartridge of explosives sold for use in mining in France must carry on it a statement indication of the nature and proportion of the substances entering into the composition of the explosive, in order that its detonation temperature may be calculated.

MANGANESE ORE IN CHILE.—According to the "Revista de Minas," of Santiago, the exports of manganese ore from Chile in 1899 were 23,000 metric tons; nearly all of it going from Vallenar and Coquimbo. This compares with 20,581 in 1898; 23,528 tons in 1897, and 26,151 tons in 1896. The heaviest shipments on record are 51,686 tons in 1892; the total for the 10 years ending with 1898 was 344,087 tons

DOLOMITE AS MONEY .- According to the "Bulletin" of the Field Columbian Museum, Chicago, pieces of dolomite are used as money by the Indians in Lake County, California. The stone tokens are shaped in cylindrical forms and burned, which brings out reddish streaks in the oxidation of the iron, and then polished and perforated. In this form they are highly valued by the natives. RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal

ASSUMPTION OF RISK BY MINER.—At the time of injury, deceased, an employee, was filling cars in a mine with ore from a chute. The employer had erected a platform along the cars for the men to stand on while barring ore at the mouth of the chute, and ladders alongside the chute for them to climb up and pry the ore loose when the ore became clogged, but deceased instead of standing on the platform, climbed into the car, and commenced to bar in this situation. He had never been authorized to get into the car for that purpose, and no custom to do so was shown. He struck his head against an overhead trolley wire and was killed. It was held by the court that he had assumed such risk.—
Lepalla vs. Cleveland Iron Mining Company (81 Northwestern Reporter, 553); Supreme Court of Michigan.

WHEN OPERATOR IS NOT LIABLE FOR INJURY.—A party was employed by a mine operator, at the time of his death, at the bottom of a shaft; his duty being to fill the ore bucket, which was hoisted by a horse led by a boy. The employee at the top of the shaft, whose duty is was to dump the bucket and let it down to deceased, dropped it without looking to see whether the boy had hooked the rope to the horse, as was the custom, in order to let the bucket down steadily, which he had not done and the bucket struck deceased and killed him. The court not done, and the bucket struck deceased and killed him. The court, on appeal held, that though it was shown that the boy was incompetent to manage the horse, such incompetency was not the cause of the accident, but that it was caused by the negligence of deceased's fellow servant at the top of the shaft, and hence the lower court did right to direct a verdict for the mine operator.—Adams vs. Snow (81 Northwestern Reporter, 983); Supreme Court of Wisconsin.

MINING PARTNERSHIPS IN WEST VIRGINIA.—Where tenants in MINING PARTNERSHIPS IN WEST VIRGINIA.—Where tenants in common, or joint tenants, of an oil lease, or a mine, agree to develop their common property, each giving his skill, paying his share of the outlay, and getting his share of the product, they constitute a mining partnership. Such members have a lien on the property for advances or balances due them; but when the partnership agreement of an oil partnership is to deliver the oil to a pipe line which should give each member "division orders" for his share, the partnership has no lien on such division orders, as against a partner—it constituting such a division of the property as divests the lien. When members of a mining partnership cannot agree in management, those having a majority interest control its management in all things necessary and proper for its operation. A sale of his interest by a member of a mining partnership to antion. A sale of his interest by a member of a mining partnership to another member, or to a stranger, does not dissolve the partnership, as in ordinary partnerships.—Childers vs. Neely (34 Southeastern Reporter, 828); Supreme Court of West Virginia.

SUFFICIENT EVIDENCE OF LIABILITY OF OPERATOR.—In an action for damages under the laws of Illinois (S. & C. Annual Statutes chapter 93, section 14) providing for a recovery for the death of a person killed in a mine by reason of the failure to inspect the mine before son killed in a mine by reason of the failure to inspect the mine before beginning work in the morning, deceased was a driver, and was supposed to have been killed by a collision between his cars, which he was driving in on the main line from a switch, and loaded cars standing on the main track. No one saw the accident. The driver's seat was on the front end of his car and was uninjured. When found his body was lying between the rail and a rib of coal 4 ft. distant, and in front of his trip. Witnesses testified that after the accident there was not space enough between the cars for a man to get through. Deceased might have been killed while on the seat, and the seat left uninjured, or he might have been between his cars and the cars on the main track, and been crushed on account of the latter being too close to the switch. The court on appeal held that the evidence was sufficient to sustain a verdict against the company.—Jupiter Coal Mining Company vs. Mercer (84 Illinois Appellate Court Reporter, 96); Appellate Court of Illinois.

THE COYNE GAS PRODUCER.

THE COYNE GAS PRODUCER.

The accompanying illustration shows a new type of gas producer, devised and patented by Mr. John Coyne, of Pittsburg, for which certain advantages are claimed. What these are can best be shown by the drawing, which shows two half-sections on different lines, and by the description which makes clear the operation of the producer.

The apparatus consists of a duplicate-chambered retort, the base of which is immersed in a tank of water, thus forming a seal, the water being kept at the proper level by inlet and outlet pipes. The body of the retort consists of an outer metallic and inner refractory shell, with intervening air space, which prevents radiation of heat. Partially inserted in the base of each chamber is a spherical perforated fire grate, with conical projections on the exterior, and conical openings to the interior. Gas, air, steam and oil may be conveyed to the interior of this blast chamber grate through hollow journals. Its lower part is immersed in the water-seal or tank. These fire grates are surrounded by tuyere pipes in order to keep the base of the retort cool, and are supported by friction rollers, which relieve the weight on the hollow journals, on and by which they are intermittently rotated, thus agitating and keeping open the base of the fuel charge. In the bottom of the water-seal tank is an opening, through which the grates may be removed from the retort.

At the top of the retort are two bell-valved conduits, for receiving and delivering the solid fuels (cool and solid by to a lither that the solid fuels (cool and solid by to a lither that the solid fuels (cool and solid by the solid fuels).

At the top of the retort are two bell-valved conduits, for receiving and delivering the solid fuels (coal and coke) to either combustion chamber. Properly arranged pipes, fitted with reversing valves, connect the chambers, and convey the gas and air blasts in either direction, provision being made for introducing a flue cleaner to remove carbon adhering to

In beginning operation both chambers are charged with fuel, which is then fired, the three bell valves being left open, permitting the escape of the initial product. A moderate air-blast is then introduced through the air pipes and hollow journals of the grates. When there is a proper depth of incandescent fuel in each chamber, a fresh charge of fuel is delivered to one side, termed the regenerating chamber, to which the air-blast is now directed—the bell valves being closed—the air entering in numerous radiating jets through the conical openings in the grate and, being forced up through the incandescent carbon, is at once decomposed.

The oxygen of the air unites with the carbon, producing carbonic acid The oxygen of the air unites with the carbon, producing carbonic acid gas, which, ascending through the incandescent and diminishingly heated carbon, becomes carbonic oxide. The hydrated bituminous vapor being distilled from the fresh charge on top mixes with the carbonic oxide, and is conveyed through the reversing valve, pipe and hollow journal into the opposite grate, where it mingles with a jet of steam (or steam and oil), and is forced through the upper perforations in grate, and the incandescent carbon in fixing chamber. The steam is decomposed, producing a large volume of carbonic oxide, while the

and as the volume of carbonic oxide produced in the fixing chamber is five times that brought over from the regenerating side, the amount of nitrogen in the resultant gas is inconsiderable.

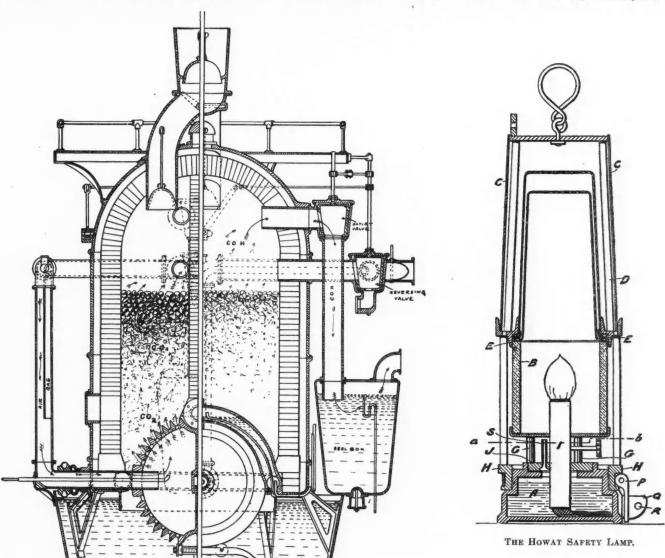
The regeneration can only be efficiently effected by the oxygen of the air blast, which accomplishes a double purpose, in that it volatilizes the

carbon as well as regenerating the charge to a state of decomposed

The conditions and results in this process are, it is claimed, strictly in accordance with natural laws, and to those skilled in the art of gas manufacture it will be evident that the process is entirely feasible.

THE HOWAT MINERS' LAMP.

The accompanying iliustration shows a form of safety lamp recently patented in Great Britain by A. Howat of Didsbury, England. The purpose of this invention is to render the use of paraffin a practical possi-



THE COYNE GAS PRODUCER.

will no longer decompose the steam, the direction of the blast is reversed and a fresh charge of fuel delivered to this chamber, which now becomes the regenerating side of the retort, while the other becomes the fixing chamber, the fuel in which has by this time come to a high state fixing chamber, the fuel in which has by this time come to a high state of incandescence. The connections to each chamber being identical, the method above described, where the first is the regenerating and the second the fixing chamber, is exactly the same when, with the direction of the blast reversed, the fixing side becomes the regenerating and the other the fixing chamber.

The process is therefore continuous, and no waste occurs, except when first firing the retort in beginning operation, when the bell valves, as before explained, are all left open. All the carbonaceous material is gasified, the product being a permanent or fixed carburetted, or bi-carburetted hydrogen. The mineral residuum or slag passes through the

buretted hydrogen. The mineral residuum or slag passes through the perforations in grate, and between the tuyere pipe and grate to the water seal-tank, from which it is removed. Any partially decomposed carbon comes to the surface of the water, and is recovered, to be returned to

In this process the only nitrogen is that introduced in the air blast,

hydrogen is set free, both gases passing through the outlet valve to the hydraulic main, and thence to the purifiers and holder.

When the temperature in this fixing chamber is so reduced that it low the wick burner, is isolated from the oil minimum of heat-conduction. low the wick burner, is isolated from the oil minimum of heat-conducting area. The lower supporting ring of the lamp glass is closed in, or is made as a complete plate to enclose the flame chamber, and the opening in the oil reservoir is covered by another plate. The studs for supporting the flame chamber are connected to the plates and produce what may be termed a lantern-wheel structure. Through the plates the wick tube passes from the oil reservoir into the flame chamber, and the upper end of the wick tube acts as a burner around which is placed a sleeve capable of sliding up and down and of regulating the light. The adjustment of the sleeve from the exterior of the lamp is effected by a fine wire rod, passing through a close-fitting gas-tight tube in or on the ring plate, and above such tube is fitted with a small screw, which under the moving of the rod rotates, but does not travel endwise, and by engaging with a screwed eye on the sleeve travels the sleeve up and down. A small button or milled edged disc below the plate facilitates the turning of the rod and screw. To the plate which closes the oil reservoir, and extends, by preference, into close proximity with the said upper ring plate, and being open to the atmosphere constitutes a vent for vaporized oil. for vaporized oil.

THE COAL BASIN OF MICHIGAN.

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

(Concluded from Page 768, Volume LXIX.)

Saginaw County.—This is the county in which the best coal has been found, analyses Nos. 1, 2 and 3. From it the bulk of this year's increase comes. There are at least three different seams worked in this county. The upper two might be considered a double seam, and are

the

11. Verne Coal Company, which is down only about 58 ft. The coal is a sulphurous coking coal of the type of the Sebewaing. This and the abandoned Colcord on the south side of the same section were opened some time ago, but the mine has changed hands more than once and has not proved very profitable in spite of the fact that it is one of the few that keep a company store, as it is practically compelled to, not being near any town. The company store has cut no figure in Michigan. The same coal seams appear to be traceable to the west and north, toward St. Charles and Paines Junction. The first explorers around St. ward St. Charles and Paines Junction. The first explorers around St. Charles appear to have reached this horizon, finding it about 2 ft. thick. They probably believed the general impression which has prevailed there was but one coal seam of any account in Michigan and so failed to go deeper.

The main seam worked at St. Charles is, however, deeper—from 180 to 220 ft. down, according to the rolls in the bed, and chemically is very much like the principal seam of Saginaw, as may be seen from analyses Nos. 1 and 3; a non-coking coal, but low in ash and sulphur. There are about 4 shafts producing at St. Charles from 700 to 1,000 tons a day each, and one or two others at least will be added.

12 and 13. The J. H. Somers Coal Company, F. G. Benham, manager,

have two shafts. 14. The Northern Coal and Transportation Company, T. W. Davis,

manager, have a shaft here and also one in James Township, half way to Saginaw. This company has done extensive exploration and leasing, and is said to represent the Ellsworth interests.

15. The Michigan Coal Company, C. R. Campbell, manager, is also a

steady producer.

An almost continuous line of explorations enable one to connect this An almost continuous line of explorations enable one to connect this St. Charles coal with that at West Saginaw at about the same depth. To the west and north the body of coal is cut off by a preglacial drift filled channel 250 ft. deep, and the coal, though of course rolling a good deal, and thickest only in spois, rises and runs out to the southeast. In the immediate future undoubtedly a number of shafts will be added

along this belt. Now in operation are:

16. The Saginaw Coal Company, in the south part of East Saginaw.

17 and 18. The Pere Marquette Coal Company. Shaft No. 1 close to the Saginaw Mine, about 140 ft. deep, and No. 2, west of Saginaw, about 190 ft. deep. These all have the same manager, Robert M. Randall, and are properties in which prominent officials of the Pere Marquette Railroad are interested.

An analysis of Shaft No. 1 is given above. The east side shaft is

rather too near the rock surface.

Tests of the coal from the west side shaft for fuel gas have been very satisfactory, as would be expected from the low percentage of ash and S. characteristic, of this seam. And though the moisture is high, it is intimately combined with coal, and, I suspect, is partly converted

into water gas at the expense of the fixed carbon.

19. The Standard Mining Company, T. B. Jones, manager, is a mine close to the Saginaw Mine, opened by some old Jackson miners, and has the reputation of being the most economically opened.

The Saginaw County field just described is the most important and

promising recently opened. Several million tons available have already been proved by drilling.

The high quality of the coal is sufficiently indicated by the calorimeter tests. None of the coal from this seam is, so far as I know, coking.

Bay County.—The coal worked in this county, so far as I have seen analyses, resembles more that of the upper seams in Saginaw County, being sulphurous and coking. See analysis No. 7.

20. The Monitor Company, E. L. Malthis, manager, and

21 The Bay Coal Mining Company, A. Zagelmeier, manager, Bay Mich

The above two mines are on adjacent sections, about 8 miles west of Bay City, and a new shaft is going down a mile south. They largely supply the North American Chemical Company, which will probably want about all they can turn out.

22. Michigan Coal and Mining Company, J. A. Etzold, manager.

23. Central Coal Mining Company, W. A. Knapp, manager. These two mines are on adjacent properties, West Twenty-third Street, and an analysis of coal from the latter is given, which is perhaps a somewhat extreme type of the Bay County coals, though it resembles three or four other analyses in my possession. Recent investigation by W. Hilton shows that the Fe and S are always very nearly in the ratio to form the sulphide

The Valley Coal Mining Company, J. H. Metcalf, manager, is located not far off.

Handy Bros. Mining Company, C. W. Handy, manager, West Bay City.

26. Wenona Mining Company, E. B. Foss, manager, Bay City.
These mines are north of Bay City, not far from the shore, and the coal here is quite thick. There are indications of more coal of valuable thickness in the same region. There is and has been more or less exploring for 20 miles north. The coal has not usually proved thick

In the Saginaw-Bay County District, in spite of the fact that the most valuable bodies of coal have been found there, the farmers have frequently leased on the basis of a royalty of 6 to 8c. per ton of screened coal. In no other district have the royalties been so low, and I do not think that any operator coming in now from outside can count on such figures, but I do not think there would be any difficulty in getting land

to test at from 10 to 15c. per ton of coal hoisted. Usually 18 months are given for testing. The cost of churn-drill test holes is not far from 50c. per foot. Machines are just being introduced in mining.

The following statistics from the report of the labor commissioner

may be of value:

may be of value:

From the Management.—Average number of employees for each mine (shaft), 56; hours worked per day (8.1 below), 7.8; days worked per month (22 below), 21.3; wages, per day (\$1.70 below), \$2.04; number kegs pcwder (25 lbs.), 12,913; number tons mined (six months ending Novem-

ber 30th, 1899), 283,898; average cost per ton, \$1.31.

From the Men.—Average age of employees, 32.6 years; number native labor (some negroes), 508; foreign (a good many Scotch), 507; average number years in this country, 17; average months' work per year, 9.3; average days per month, 22; average hours per day, 8.1; number who

average days per month, 22; average nours per day, 8.1; number who work by the day, 315; number who work by the ton, 700.

Average wages: Mine boss, \$2.75; weighman, \$2.25; engineer, \$1.83; fireman, \$1.67; machine miner, \$2.31; blacksmith, \$2.02; timberman, \$1.84; trackman, \$1.99; cager, \$1.74; miner, \$1.66; driver, \$1.76; laborer, \$1.63; general average, \$1.70.

Generally speaking, the miners are of a high grade, and, as appears from the number of years spent in this country, have thoroughly American

from the number of years spent in this country, have thoroughly Americanized. They do not herd together. Quite a number spin off on their

bicycles from the mines around Saginaw.

The following is an abstract of the wage scale agreed to by the miners and operators in the fall of '99. A new scale has just been introduced to agree with that in other regions. An 8 hour work-day; screens to be either diamond or flat bar at the option of the operators, all to have 7%-in. spaces between bars, and not to exceed 14 in. in length with a superficial area of not to exceed 72 in., the operators to be granted 60 days in which to arrange their screens to conform to this regulation, price of mine run coal to be determined on the actual percentage of screened coal at the mines producing the same: the base in Saginaw County to be coal at the mines producing the same; the base in Saginaw County to be on 70c. per ton for mining coal 30 in. and upward; for 27 in. and less than 30 in., 75 c.; for 24 in. and less than 27 in., 80c.; the base in Bay County to be on 75c. per ton of 2,000 lbs., for mining coal 30 in. and upward; 27 in. and less than 30 in., 80c.; 24 in. and less than 27 in., 85c. During the past year explorations have been undertaken all over the area indicated on our map and outside of it. They have not, I believe, materially altered the following forums:

materially altered the following figures, except that there is probably a good deal less coal over 4 ft. thick. A roof of black slate or low-grade cannel is too often included.

grade cannel is too often included.

Out of 110 holes put down in the coal basin, 43 have not any coal reported (39 per cent.), 7 have coal seams, but probably less than 1 ft. thick (6.3 per cent.), 11 between 1 and 2 ft. of coal (10 per cent.), 20 between 2 and 3 ft. (18 per cent.), 12 between 3 and 4 ft. (10.8 percent), 17 over 4 ft. (15.5 per cent.). From this we may provisionally infer that 61 per cent. of the basin is underlaid with coal. This coal will average 2.86 ft. thick or for the whole basin 1.75 ft. thick. But if we take into account only the coal 2 ft. thick or over, and allow but 1,000 tons to the acre to be vielded (and though modern practice can do much better much betyielded (and though modern practice can do much better, not much better is done in Michigan), and assume the area of the coal basin to be only 6,500 miles, we still have indicated 8,025,600,000 tons, nearly half in 4-ft, seams. The estimate of this last sentence should be cut down in 4-ft. seams. The one-half probably.

The general conclusion is that the Michigan basin is destined to large development, but that it will not be very rapid, nor can coal ever be produced very cheaply. Thus, while it can supply that part of the Great Lake basin where it has a distinct advantage in freights, it will hardly go out of that watershed. At present, however, the Ohio and other well-established coals have special rates which are a formidable handicap to the newcomer. However, whenever the supply exceeds the local d mand, water transportation is at hand. The coal basin is now mainly served by the Pere Marquette, the Michigan Central, and the Grand Trank systems. It would not be difficult for the Pennsylvania, via the Grand Rapids & Indiana, and the Ann Arbor line, to work in.

LIQUID FUEL.—A consular report from Java states that a new source of fuel supply will shortly be made available, says the London "Colliery Guardian." This fuel is the residue left after refining the crude petroleum obtained from the oilfields in Koetei, on the east coast of Borneo. It is maintained that one ton of this liquid fuel is equivalent in steamproducing power to two tons of the best Japanese coal. The price is said to be very moderate taking present values of coal into consider said to be very moderate, taking present values of coal into consider-

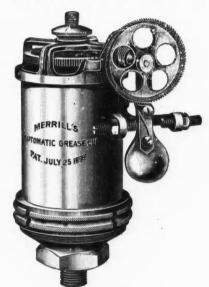
SPANISH AND LAKE SUPERIOR ORE FREIGHTS. esting question was raised at the meeting of the British Iron Trade Association by Mr. McCosh, of the firm of William Baird & Company, of Glasgow, says the London "Iron and Coal Trade Review." Mr. Mc-Cosh pointed out that it was not high railway freights alone with which the freighters and traders of this country had to contend, but that they had also to meet much higher rates of sea freight than were paid by the traders on the American lakes. The cost of the carriage of iron ore from the head of Lake Superior to Cleveland, on Lake Erie, as he pointed out, was last year not much over 2s. per ton, and Mr. Colby, of the Colby Mines on Lake Superior, and of the Whaleback Steamship Company, by which much of this work was done, at the same meeting certified that this work was done at a profit at the price quoted. Now, the lowest freight of which we have heard as charged for the carriage of iron ore from Bilbao to Cardiff or Middlesbrough is 4s. 6d. per ton, which is fully 100 per cent. more than the American lake rate for 100 than that which usually obtains. The more normal Bilbao-Cardiff rate is nearer 6s. than 4s. 6d., and there is no doubt that the higher rate is much too high. What are the traders to do? Competition is supposed to rule the cost of freights as it rules the cost of most things. Will the traders aim at more competitive conditions. It is only fair to add that the rate of 2s. to 2s. 6d. quoted on the great lakes is an abnormally low one, but still it shows clearly enough what can be done, and here appears to be a case where British circumstances might be Americanized with advantage.

A NEW AUTOMATIC LUBRICATOR.

The lubricator here shown is to be attached to any reciprocating or oscillating parts of engines or machinery requiring constant and reliable lubrication, such as the cross-heads, connecting rods, eccentric straps, etc., of engines, pumps, air compressors, etc. As it feeds grease instead of oil, it may be attached in any position desired, feeding vertically upward or downward, horizontally or at any angle desired. It feeds only when the part to which it is attached is in motion, and no feeding or loss can occur after the motion ceases.

occur after the motion ceases.

The base of the lubricator is screwed firmly into the part to be lubricated in the usual way. The body is attached to the base by the union nut or enlarged ring at the bottom. When this is unscrewed the upper part is all taken off together, the barrel is filled with a charge of grease and returned and securely clamped in the position again by the union nut. The feeding is accomplished by the pressure of the piston, and this pressure is applied by the vibrations of the pendulum seen in the front. By the adjustment of the stop-screws at the side, the pawl attached to the pendulum may be made to take from one to six or more teeth of the ratchet wheel for each vibration. On the ratchet-wheel shaft is a worm which meshes into the large worm wheel at the top. The central screw or spindle is splined and revolves with this wheel at the same time that it travels downward by the operation of its thread in the central nut which is screwed into the bracket or guide at the top. The feeding goes on if the vibrations continue, until the piston reaches the bottom and the grease is all expelled. To raise the piston for refilling the barrel, the central nut, which has a milled and notched head, is unscrewed from the bracket, the piston is pulled, the nut is whirled down the screw by hand and screwed tight in its place again. The ratchet



THE MERRILL LUBRICATOR.

wheel may be pulled around by hand, until the slack is taken up and feed is fully established, and if at any time it is desirable to feed in an extra quantity of grease, this also may be done by turning the ratchet wheel. The lubricator may be made of any size and for any rate of feed desired. The one here shown will hold about 14 cub. in., or somewhat less than half a pint of grease. The ratchet wheel has 100 teeth, the spindle wheel has 125 teeth, the central spindle is 24 threads to the inch and the travel of the piston is 3½ in. If, then, the pendulum is set to take two teeth of the ratchet wheel for each stroke, the number of strokes required to empty the barrel will be 525,000, and at 200 strokes per minute this would last 2,625 minues or say 45 hours. Any of the usual kinds of grease may be used in the lubricator and any percentage of pure graphite may be mixed with it. The worm is of steel, the pawls are of steel hardened and the wheels are of hard bronze. The lubricator was designed and patented by G. U. Merrill, of Paterson, N. J., and is made and sold by James L. Robertson & Sons, of New York.

LATE IMPROVEMENTS IN THE FORBES PATENT DIE STOCK.

The accompanying illustration shows the latest form of the Forbes patent die-stock. The machine consists of a die-carrying ring, surrounded and supported by a shell, and having a pinion imbedded in its side, with a pipe-vise attached to the back of the machine. The pipe is inserted through the back of the machine, with the end to be threaded against the back of the dies. The gear is then revolved by means of the pinion which engages with it, and, as the dies revolve, they are caused to recede into the shell, by a lead-screw on the back of the gear, which brings the dies onto the pipe. The recent improvements are the adjustable shell, the new automatic cutting-off device, and the adjustable face-plate stop. One of the chief objections that has been made to this style of machine, of whatever make, is that the diecarrying ring is supported only on the ends of the teeth inside the casing, and, as this partial support is constantly full of oil and chips, sooner or later, the ends of the teeth are worn or ground off, which makes the gear a loose fit in the shell. As soon as this occurs, the gear will tip, when subjected to any strain, which, in turn, prevents the dies from tracking, with the result that a crooked or drunken thread, or no thread at all, is cut. The only remedy is a new gear, made especially to fit the enlarged casing or shell. All the Forbes die-stocks are now provided with an adjustable shell for the purpose of taking up this wear.

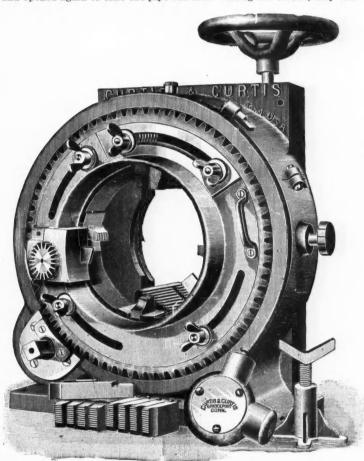
In the cut, on the top of the machine will be seen a slot, with a lug on either side of it connected by a screw. By simply tightening this screw there is enough spring in the casting to take up almost any amount of wear. By this means very loose gears can be made a very tight fit. This improvement prolongs the life of the machine many times. With this adjustment the gear can be kept a tight working-fit for a practically indefinite time.

for a practically indefinite time.

In the old style the cutting-off device was simply a blade-cutter, forced forward by a wedge driven in behind it by a screw. In the new style a skew rack is cut on the cut-off tool, which engages with a worm-wheel. This worm-wheel in turn engages with a worm, which, by means of a star-wheel, is driven automatically by the machine. As the die-carrying gear is revolved, the cutter-blade is driven forward by an automatic feed, and cuts the pipe off, without leaving any burr, and perfectly true and straight. The feed is both forward and backward, and it can be used either automatically or by hand, as desired.

The new face-plate stop is designed so that after the dies are once set

The new face-plate stop is designed so that after the dies are once set and opened again to take the pipe out after cutting the thread, they can



THE FORSES IMPROVED DIE STOCK.

be snapped back to the original position quickly and without the trouble of resetting them. Messrs. Curtis & Curtis, of Bridgeport, Conn., manufacture this machine.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

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

bunch of radiating crystals is hematite, a common ore of iron. Its mode of occurrence in the specimen you send is, however, decidedly uncommon. Specimen No. 2, the black mineral occurring in plates in a quartz gangue is probably not promising. No. 3 is quartz carrying galena, lead sulphide, and tetrahedrite, gray copper ore. The rock is very rich looking, and an assay will very likely show good values. A 2-ft. vein of such stuff is well worth prospecting carefully. No. 4 is a very pretty specimen. The white mineral is calcite, the black menite, a titanium-iron oxide. Neither specimen is tin ore.

166.—A. H.—Quartz.—Specimen No. 1 is a coarse granite containing large red crystals of orthoclase feldspar. No. 2 is vein quartz, carrying crystals of iron pyrite and possibly some copper pyrite. The specimen may carry gold, but it looks like argentite, silver sulphide, rich stuff.

167.—G. W. S.—Platinum Nuggets.—We do not know who has the largest nugget of platinum in existence, but in all probability the Russian Government has the finest collection of large nuggets. In this country there are some nice specimens in the mineralogical collection of

Harvard University, while Baker & Company, of Newark, N. J., the platinum refiners, have a very large nugget. There is also a large nugget in the Egleston Museum of Columbia University, New York.

168.-Inesite.-The latest "Bulletin of the Field Columbian Museum Chicago, notes some specimens of this rare mineral from a mine near Villa Corona, in Durango, Mexico. It occurs in tufts of radiating crystals of flesh-red color. In composition it is chiefly silica and manganese oxide, with small quantities of lime, magnesia and iron oxide.

QUESTIONS AND ANSWERS.

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

Magnetic Separators.—Where can I find accounts of the Wetherill eparator? Also of some other forms of magnetic separator in actual separator? Als use?—T. E. E.

Answer.—The Wetherill separator was fully described in the "Engineering and Mining Journal," July 17th and 24th, 1897. Other forms of magnetic separators in use at iron mines in Sweden were described and illustrated in a paper by Mr. H. C. McNeill on "Recent Practice in Magnetic Separation in Sweden," which was published in the "Engineering and Mining Journal," November 18th and 25th, 1899.

Solvent for Precious Metals.—I have received proposals from a company having a secret solvent for gold, silver and copper ores, which, it is claimed, will take out all the values. Do you know anything

Answer.—We do not know the special process you mention. On general principles, however, it is best to distrust anyone who has a "secret" solvent or process for the extraction of metals. Such solvents usually act much more promptly and efficiently on the bank accounts of those who invest in them, than on the ores or metals.

Uranium Ore.—I have several uranium claims, and would like to know what the ore is worth; where it can be sold; and what are its uses.— L. F. S.

Answer.-The value of the ore depends on its nature and the pro-Answer.—The value of the ore depends on its nature and the proportion of metal contained. There are several buyers, one of the best known being located in Denver. Others may be found if you will consult the advertising columns of the "Engineering and Mining Journal." We suggest that your best way to find buyers is to advertise that you have ore for sale. The uses of uranium have been fully treated in previous numbers of the "Engineering and Mining Journal" and in the volumes of "The Mineral Industry."

Power Required to Run Jigs.—Can you tell me any way of estimating the power required to run several jigs?—N. McD.

Answer.—Prof. R. H. Richards ("The Mineral Industry," Volume VIII.) says: "The power required to drive a jig depends on the area of the sieve; the height of the tail-board; the specific gravity of the jigging stuff; the length of stroke and the number of strokes per minute. The consumption of power varies between 0.5 and 2 H. P. as a rule. Fraser & Chalmers, in computing new work, allow 1.5 H. P. on a 1-sieve jig, 2 H. P. for a 2-sieve jig, 2.5 H. P. for a 3-sieve jig, and 3 H. P. for a 4-sieve jig. To this they add 15 per cent. for friction of shafting, slip of belts, and other mechanical losses of power."

Bromine Recovery.—Can you tell me what is the latest method for the recovery of bromine from waste liquors?—J. T. R.

Answer.—Dr. Borchers ("The Mineral Industry," Volume VIII.) says: "Electrolysis offers a most economical way for the recovery of bromine from the waste liquors of potassium chloride works. The lyes contain 40 per cent. magnesium chloride, small quantities of alkaline chloride, 2 to 4 per cent. magnesium sulphate and 0.2 to 0.3 per cent. bromine. These solutions were subjected to the following treatment. They form the electrolyte contained in wooden tanks, each about 6 ft. long, 2.5 ft. wide and 1.5 ft. deep. Carbon blocks were arranged as electrodes in wide and 1.5 ft. deep. Carbon blocks were arranged as electrodes in series 0.5 in. apart, and an electromotive force between the two electrodes of from 3 to 3.5 volts was maintained, with a current density of about 35 amperes to 1 sq. ft. of surface. The bromine was subsequently recovered from the electrolyzed lye by distillation."

Utilizing Waste Heat from Roasting Furnaces.—Is there any way of utilizing the waste heat from a roasting furnace? There seems to be much heat lost in some forms of such furnaces?—J. T. R.

Answer.—Mr. H. W. Hixon—"Notes on Lead and Copper Smelting and Copper Converting," page 113—says: "I have made experiments in utilizing the heat of the waste gases of the Bruckner flue in making steam, and have succeeded in raising steam to 100 lbs. pressure in small quantity. The steam generator was made of 10 pipes, 3-in. diameter and 130 ft. long, suspended from the arch by hangers, all being consected to the converted to th and 130 ft. long, suspended from the arch by hangers, all being connected at one end with a common feed-water main, and at the other to n steam drum. Ample return pipe was provided for the water which is blown into the steam drum to return along with the feed-water. It was found that the pipes were soon coated with flue-dust, and did not absorb the heat as rapidly as they did when clean. The steam generated fell off rapidly and, unless the pipes were cleaned the steam amounted to little. This device, however, acting as a feed-water heater attached to a boiler, effected considerable saving."

CEYLON GRAPHITE.—According to a paper read recently before the London Geological Society by Mr. A. K. Coomara Swami, the Island

of Ceylon is surrounded by raised beaches, and has been elevated in recent geological times; fluviatile deposits also occur; the gems for which Ceylon is famous are obtained from gravels in the Ratuapura district. With the exception of these recent deposits, the island probably consists entirely of ancient crystalline rocks. Graphite occurs chiefly in branching veins in igneous rocks, which at Ragedata are granulites and pyroxene granulites. The relations to the matrix aae held to favor the idea of the deposition of the mineral as a sublimation product (Walther) or from the decomposition of liquid hydrogarbons. product (Walther), or from the decomposition of liquid hydrocarbons.

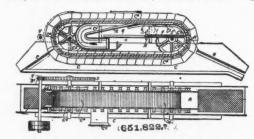
PATENTS RELATING TO MINING AND METALLURGY.

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.

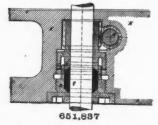
Week Ending June 19th, 1900.

WASHING PYRITES OR OTHER MINERALS. Cuthbert Burnett, The Grange, and Henry T. Newbegin, Newcastle-on-Tyne, England. An endless inclined metallic traveling belt, metallic prismatic grid-bars inclined downwardly in the direction of travel, a second series of grids on the



bases of said prismatic grids carrying the load, a screen between said series of grids, upstanding overlapping side plates at the ends of said grids to form a traveling trough and means for projecting water up through the belt contrary to the direction of travel.

CONSTRUCTION OF DOUBLE-ACTING AIR-COMPRESSORS. Edmond M. L. Duval, Paris, France, assignor to La Compagnie de Fives Lille, same place. Combination with high and low pressure cylinders arranged tandem wise, pistons therefor, and a piston-rod common to both pistons, of an intermediate part interposed between and closing the inner end of the cylinders and through which the piston-rod passes and has a bearing, an interiorly screwthreaded recess about the piston-rod extending part way through



the intermediate part, a movable compressing-sleeve about the piston-rod at the inner end of the recess formed at one end with gear-teeth and at the other end with exterior screw-threads in engagement with the interior threads of the recess, a fixed sleeve about the piston-rod screw-threaded into and closing the open end of the recess, packing interposed between the fixed and movable sleeves, a worm in engagement with the gear-teeth on the movable sleeve, and an operating-shaft for turning said worm, said worm and shaft being mounted entirely within the intermediate section.

able sleeve, and an operating-shaft for turning said worm, said worm and shaft being mounted entirely within the intermediate section.

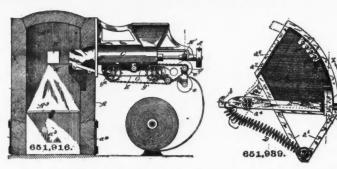
651,849. ELECTROLYTIC APPARATUS. Max Haas, Aue, Germany. In an electrolytic apparatus for the manufacture of bleaching-lye from chloride, the combination of a tank having inlet and outlet openings at its opposite ends, with double-pole electrodes provided within said tank, ribs and serving as top and bottom supports for said electrodes, openings alternately arranged in the middle and at the sides of the electrodes, electric connections leading from the positive and negative end electrode.

651,900. ROLLING-MILL GUIDE. Owen F. Leibert, Bethlehem, Pa. The combination with the rolls of a rolling-mill, of a feed-table and cross-bars arranged at the delivery side of the rolls, side guards on the cross-bars, and a bridge between the cross-bars.

651,900. BURNER FOR LIQUID FUEL. Paul E. Thurow, Hamburg, Germany. A burner comprising an internally threaded cup-shaped base provided with an axial threaded bearing, and an external nozzle closed at its inner end and screwed to the base to form a chamber between the two, an internal open-ended nozzle screwed axially into the closed end of the external nozzle, means for supplying liquid fuel and a combustible vapor under pressure.

651,916. FURNACE FOR PRODUCING CALCIUM CARBIDE. John Zimmerman and Isedere S. Prenner, Chicago, Ill. The combination of a furnace-chamber, electrodes in the chamber having an arcing space between them, a flat strip of combustible flexible material projected horizontally into the furnace-chamber in line with the arcing space and having a forward feed, means for continuously introducing a supply of carbide-producing material thereon, and means for projecting and feeding the strip horizontally forward.

651,939. FUSE-IGNITER. Maurice O. Smith, Springfield, Ill., assignor of one-third to Charles Kritzberger, same place. The combination of a sweep having a serrated and upturned foot, a box above which said sweep is osci

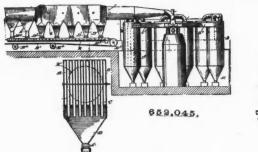


supply-pipe extending up into the cylinder, separate connections between the guide and the cylinder.

651,965. PROCESS OF HARDENING AND TOUGHENING ARMOR-PLATES. Emil Ehrensberger, Essen, Germany, assignor to Fried. Krupp, same place. The process consists in heating the side which is to be hardened to a temperature corresponding to the degree of hardness desired, heating the other side which is to become tough to a temperature lower than that necessary to produce hardening, and suddenly cooling the plate from the different temperatures.

651,972. DERRICK APPARATUS. Samuel Matison, New York, N. Y., assignor to the Lidgerwood Manufacturing Company, of New York. In a derrick, in combination, a mast, a hoisting and swinging boom, a boom-hoisting rope, a load-hoisting rope, a boom-swinging rope, two frame members containing the bearings for rope-drum shafts, a load-hoisting rope drum and a boom-hoisting rope drum revolubly mounted between said frame members.

652,045. METHOD OF CONDENSING FLUE-DUST. Rudoif Ruetschi, Perth Amboy, N. J. The method for condensing flue-dust carried in fumes, consists in cooling the fumes under exclusion of air, by an external cooling medium, to precipitate a portion of the solid matter in the fumes, then compressing the fumes and mixing the same





with air, and then dividing and expanding the mixture and giving each divided current a whirling motion under exclusion of air, and at the same time cooling the mixture by an external cooling medium, to precipitate the remaining solid matter.

652,053. NOZZLE. Victor C. Swanson, Salem, S. D. The combination of a nozzle, means on which the nozzle is mounted, a spring attached to the body and extending longitudinally of the nozzle and engaged therewith or a strong of the control of t

652,106. DISINTEGRATOR. Rollin Hathaway, Detroit, Mich. In combination with a vat adapted to gyrate, means for giving the same a gyrating motion upon a lower universal joint.

652,119. METHOD OF MAKING SULPHURIC ANHYDRIDE. Rudolph Knietsch, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. The process consists in passing a gas containing sulphur dioxide and oxygen through a chamber containing a contact substance while removing from the contents of said chamber excess of heat due to the reaction.

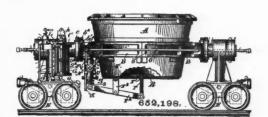
652,179. AIR-DRYING PROCESS. James Gayley, Plttsburg, Pa. The method of drying air, which consists in passing the air through a cooling-chamber and intermittently interrupting its flow therethrough, whereby the air is caused to have alternate periods of rest and motion, cooling the air in contact with the cooled surfaces, and delivering the air so dried to a furnace or converter.

652,139. FURNACE FOR ROASTING ORES. Harrison B. Meech, Denver, Colo. A furnace for roasting ores having two or more ovens, each of said ovens having an opening in the bottom or bed thereof, and a shaft with longitudinal blades located in each of said openings, said shaft extending through the wall of said furnace, and mechanism for simultaneously rotating said shafts from the outside of said furnace.

652,138. DUMPING-CAR. Samuel Stewart, Woodward, Ala., assignor of one-half to Frank W. Extern same place.

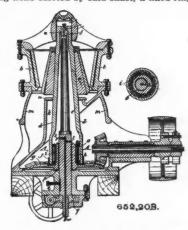
652,198. DUMPING-CAR. Samuel Stewart, Woodward, Ala., assignor of one-half to Frank M. Eaton, same place. A pivotally mounted car-





body, a cylinder and air or steam pipes connected therewith, a rack and pinion forming an operative connection between the piston-rod of said cylinder and said car-body, whereby the said car-body may be tilted.

652,208. CRUSHING-MILL. Robert A. Hadfield and Alexander G. M. Jack, Sheffield, England. Crushing apparatus comprising a hollow shaft, a crushing-head carried by said shaft, a fixed ring surrounding said



crusher-head and mounted independently thereof, an upright pillar extending upwardly within the shaft which rests upon and is vertically supported internally at or near its upper end solely by said pillar, and means for imparting gyratory motion to said shaft.

MANUFACTURE OF OPEN-HEARTH STEEL. Ambrose Monell, Pittsburg, Pa. The method herein described of making steel which consists in introducing into a basic open-hearth furnace iron oxide and lime and molten pig-iron, substantially eliminatng phosphorus from the iron while the iron is at a comparatively low temperature; withdrawing, at an early stage in the removal of carbon, the bulk of the slag containing the eliminated phosphorus, and heating the bath of metal and oxidizing the carbon until the carbon has been reduced to the point at which the metal is to be tapped.

GREAT BRITAIN.

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

Week Ending May 19th, 1900.

10,850 of 1899. TREATING ZINC FUMES. T. Ryan and N. Hughes, Flint.
Treating zinc fumes, tailings, etc., by adding caustic alkali and
precipitating the zinc as oxide by means of carbonic acid.

Treating zinc fumes, tailings, etc., by adding caustic alkali and precipitating the zinc as oxide by means of carbonic acid.

12,232 of 1899. GAS ABSORBER. C. Still, Bruch, Germany. Improved absorbers for catching the gaseous by-products of coke ovens.

13,141 of 1899. COAL DRILL. W. F. Osborn and J. Morewood, Sheffield. An improved renewable drill for coal drilling machines.

14,303 of 1899. COAL HANDLING. W. H. Wall, Nanaimo, B. C. System for moving and discharging coal trucks on wharves.

15,206 of 1899. HARDENING STEEL. C. G. Meissner and R. Bennewitz, Magdeburg, Germany. A composition for use in hardening and tempering steel tools.

472 of 1900. ZINC SMELTING. C. Casorette and F. Berbani, Milan, Italy. A furnace for smelting zinc ores with carbon and with the aid of the electric current.

4,467 of 1900. BLAST FURNACE GAS RECEIVER. H. Rochling, Diedenhofen, Germany. A drawing-off apparatus for gases of blast furnaces, particularly applicable where there is much dust.

Week Ending May 26th, 1900.

9,175 of 1899. TIN ORE DRESSING. J. Rule, Camborne. An improved construction of buddle for dressing tin ores.

1,892 of 1900. ZINC RETORT. A. G. Clark, Cincinnati, O., U. S. A. An improved lining of retort for treating zinc ores that contain much iron.

2,290 of 1900. PARTING BULLION. H. Thofern, Paris, France. Method of oxidizing metals by means of superheated steam and air blown through their solutions, particularly for separating precious metals from bullion.

2,906 of 1900. ZINC FURNACE. J. D. James, Jersey City, U. S. A. A grate for zinc furnaces that produces a softer clinker than usual.

6,045 of 1900. TUNGSTATE OF SODA. G. T. Holloway and H. W. Lake, London. A method of producing tungstate of soda.

PERSONAL.

Mr. James W. Neill is in Butte, Montana

Mr. Ezra Rue of Elgin, Ill., visited Central ity, Colo., this week, where he has mining interests.

Mr. R. G. Legg resigned his position as super-intendent of the Dexter Mine at Trescavora, Nev., on July 1st.

Mr. Victor M. Clement returned to Salt Lake ity from California 10 days ago to remain a fortnight or more

Mr. L. Humphrey of Central City, Colo., is in New Mexico, examining mining property for a New York syndicate.

Mr. P. L. Kimberley arrived in Salt Lake City last Saturday and probably will remain in Utah a fortnight, if not longer.

Mr. T. H. Oxnam, formerly with De La Mar's Mines, is on his way to London. He will visit the Paris Exposition before he returns to this country.

Senator S. V. Newell of the Concrete Mining Company, operating in Gilpin County, Colo., is spending a portion of his vacation in Milwaukee. Wis.

Nat Baxter, Jr., president of the Tennessee Coal, Iron and Railroad Company, is in the East, Mr. Baxter spends the greater part of his time in Birmingham.

Mr. Thomas Dempster of Chicago, Ill., paid a visit to the property of the Banta Hill Gold Mining Company near Central City, Colo., dur-ing the past week.

Dr. T. Kochibe, the director of the Imperial Geological Survey of Japan, has arrived at San Francisco on the steamer "Pippon Maru" on his way to the Paris Exposition.

Mr. W. F. Snyder has returned to Utah from a trip to Chicago and New York, having suc-ceeded in interesting a coterie of wealthy peo-ple to investigate the worth of some promising

Mr. Fred W. Bradley, of San Francisco, has been appointed to succeed the late Capt. Thomas Mien in the management of the mining inter-ests of the London Exploration Company on the

Mr. Allen Kinkead has resigned his position as foreman of the Best & Belcher and Gould & Curry mines, to accept a position in South Af-rica. He will leave Virginia City for New York about July 4th.

Mr. F. L. Bosqui, who has been superintendent of the cyanide department of the Peck reduction plant at Pandora, Colo., has been appointed superintendent of the entire plant. He succeeds Mr. Carl Andersen, who will go to Arizona.

Mr. H. W. Hardinge, of Denver, Colo., has just returned from a trip to Arizona, where he has been investigating zinc-lead producing mines which have been idle for years, with a view to their profitable reopening by the employment of modern improvements in concentrating and smelting.

Captain J. R. De La Mar sailed from Liverpool for New York a week ago. He will spend several days near the Atlantic Coast, and is booked to be in Salt Lake City July 15th. His large mining undertakings in Utah, Nevada and California will detain him in the United States for two months or longer.

Mr. R. Kondo, president of the Ashio Copper Mining Company, of Shimotsuke, Japan, and Mr. Masayuki Otagawa, mining engineer of the company, have been spending some time in this country, where they have visited a number of the leading mines. They expect to sail from New York July 14th, on their way to visit the Exposition in Paris.

Mr. Chauncey G. Newton has resigned his position as mining engineer with the Century Coal Company of Valga, Barbour County, W. Va., to accept the position of superintendent and engineer for the Congo Coal & Mining Company of Congo, Parry County, Ohio. The change takes place in about a month. Mr. Newton's successor has not yet been named.

Professor W. B. Clark, of Johns Hopkins University and the Geological Survey of Maryland, has been appointed by the Governor of Maryland, Commissionr on behalf of the State of Maryland to act with a similar Commissioner on behalf of the State of Pennsylvania and the Superintendent of the United States Coast and Geodetic Survey in the re-establishment of the old historic Mason & Dixon line, in part forming the boundary between Maryland and Pennsylvania.

OBITUARY.

Hamilton Smith, well known both in this country and abroad as a mining engineer and

mine operator, died suddenly at Durham, N. H., July 4th. His death was caused by heart failure, the immediate result of over-exertion while boating. Mr. Smith was the son of Hamilton Smith and grandson of Valentine Smith. He was a native of Louisville, Ky., and 60 years of age. As a mine operator he was identified with some of the largest deals in mining properties in the United States, particularly in gold and copper mines. He was a member of the firm of Smith & Perkins, of New York, and was for a number of years actively connected with the Exploration Company of London, representing its interests in America. He was an expert mining engineer and his opinions on mining properties were regarded with great respect, both here and in England. We hope to publish a fuller obituary in our next issue.

properties were regarded with great respect, both here and in England. We hope to publish a fuller obituary in our next issue.

Charles A. Martine, who died in Georgetown, Colo., recently, was born in Germany in the year 1838. He received a thorough scientific education at the University of Goettingen and in his early youth numbered among his intimate friends such distinguished German scientists as Liebeg, Plattner and others. He came to this country in the year 1858, and as one of his old-time friends, Professor Charles Joy, was then professor of chemistry at Columbia College, he went to him as assistant, and remained in New York in this position for a year or two. He spent some time in Buffalo, where he made many friends. At the outbreak of the War he volunteered his services, and was for four years a chief engineer in the United States Navy. His very thorough mechanical skill was of great service on shipboard. At the close of the War, in 1866, he crossed the plains and went to Central City, Colo., remaining there, however, but a few months, going over the mountains into what is now the town of Georgetown, in the summer of 1867. His thorough knowledge of chemistry and metallurgy prompted him to make the first effort to reduce the silver ores discovered about this time in the mountains surrounding Georgetown. The firm of Garritt, Martine & Company was formed, and in what was known as the "What-Cheer" Mill he produced the first silver bars ever made in the State of Colorado, in the winter of 1867. This antedates the metallurgical treatment of ores by the late Senator Hill at Blackhawk, and to Mr. Martine belongs the credit of having first successfully reduced into bullion the silver from the complex ores of this district. In 1870 he entered into partnership with the late G. W. Hall and General Frank J. Marshall, and built a sampling mill for the purchase of ores. He was intimately connected with the development of the mines of this district, and did much toward placing the mining and treatment of the ores upon chase of ores. He was intimately connected with the development of the mines of this district, and did much toward placing the mining and treatment of the ores upon a thoroughly practical basis. Mr. Martine was a man of very high scientific attainments, and especially excelled in the sciences of metallurgy, mineralogy and kindred subjects. He was of an exceedingly retiring disposition, but his cabin in the town of Georgetown was the center of interest to many distinguished men who in the early days visited the camp. He entertained at different times Generals Grant and Sherman and many other well-known men. He was looked up to by the entire community as a man of great learning, and everything with which he was connected bears the imprint of his strong character. Living comparatively alone, he passed his leisure time in study. His books of reference were of the best and he kept himself abreast of the times by taking the leading journals published, both in this country and abroad, on science, literature and art. A fluent scholar, he read with equal ease in French or in German. He was an active member of the Colorado Scientific Society, and also held membership in the Loyal Legion. Although he had no relatives in this country, he had a host of friends who will learn of his death with great sorrow. Fully conscious to the last, he faced death as he had the hard life of the early pioneer, with fortitude.

SOCIETIES AND TECHNICAL SCHOOLS.

Royal Society of Canada.—The nineteenth meeting was held in Ottawa, Canada, from May 28th to May 31st inclusive, in the Assembly Hall and rooms of the Provincial Normal School. Besides fellows of the Society from various provinces there were delegates from affiliated societies in all parts of the Dominion of Canada who reported as to the work done by them. Rev. Professor Clark, the principal of Trinity University, Toronto, delivered the annual address "On the Work of the Royal Society." Numerous papers bearing upon history, science and belles-lettres were read. The following is a list of the officers of the society elected for the ensuing year: President, Dr. Louis Honore Frechette: vice-president, President Loudon of Toronto University; honorary secretary, Sir John G. Bourinot; honorary treasurer, Dr. James Fletcher. In the Geological and Biological Section the following officers were elected: Chairman, Dr. A. H. Mackay, Halifax, Nova Scotia; vice-chairman, Professor F. D. Adams, McGill University, Montreal; secretary, Professor G. U. Hay, St. John, New Brunswick.

The Western Pennsylvania Central Mining Inthe Western Pennsylvania Central Mining Institute.—This association met in Pittsburg last week. About 50 members were present. T. B. DeArmit is president of the Institute and called it to order. James Blick is secretary. The business began with remarks by President DeArmit as to the financial condition of the Institute. He reminded the members of the Institute that their ness began with remarks by President DeArmit as to the financial condition of the Institute. He reminded the members of the Institute that their organization had secured much useful legislation for their work and the miners, and cautioned them not to give up the work they have already begun. Fred C. Keighly of Uniontown read a paper on "Bituminous Coal Mining Operations of the Past, Present and Future." He traced the history of the discovery of coal in the earliest ages down to the present, and mentioned the various uses to which it had been put as a fuel. He showed that the first discovery of coal in America was made by Father Hennepin, a Catholic priest, in 1669, in Illinois. The city of Pittsburg was laid out in 1764, and 20 years later the privilege to mine coal was granted by William Penn. Anthracite coal was discovered in 1768. Mr. Keighley spoke of modern appliances for mining coal and predicted that many more improvements would soon be made. The members of the Institute and their friends visited the Homestead mills of the Carnegie Company, and the Carnegie Library during the afternoon. afternoon.

Company, and the Carnegle Library during the afternoon.

Engineering Association of the South.—On Friday, June 15th, the Association held its annual outing at Mount Pleasant, Tenn, where the Local Committee on Entertainment gave a hearty welcome and throughout the day exerted themselves to make everyone have the most delightful time. At the plant of the Tennessee Phosphate Company the party was entertained. After the plants of this company were thoroughly inspected the special was run up the Mount Pleasant Southern Railway to the plant of the American Phosphate Company, where dinner was served. After dinner a short business session was held, and in the absence of President Geddes, Mr. John B. Atkinson of Earlington, Ky., was called to the chair. Ballots for membership were canvassed and resulted in the election of the 15 applicants. Applications for membership were received from two gentlemen. Resignation of Mr. Howard White, Jr., was accepted. Resolutions thanking the following parties were passed: President M. H. Smith of the Louisville & Nashville Railroad, for the transportation of the party, and other officials of said road who contributed largely to the success of the occasion; the ladies; the committee on arrangement and the local committee; and the various phosphate companies. The business session then adjourned. Under the guidance of Messrs. H. D. Ruhm, general manager, and G. F. Blackle, superintendent of the American Phosphate Company, an inspection of their recently completed plant was made. Much credit is due Messrs. Ruhm and Blackie, who were the designers and constructors. The special then made a run to the Bluegrass Phosphate Company's works, after inspecting which, the return trip to Nashville was begun.

Society for the Promotion of Engineering Education.—The eighth annual meeting began at

pany's works, after inspecting which, the return trip to Nashville was begun.

Society for the Promotion of Engineering Education.—The eighth annual meeting began at Columbia University, New York, July 2d. In the absence of President Ira O. Baker of the University of Illinois, Vice-President Robert Fletcher of the Thayer School, Dartmouth, presided. Prof. James M. White of the University of Illinois read President Baker's annual address. The paper said there are 89 institutions which had classes in 1898-9, while the total number of students was 9,679, with graduates for the year 1898-9 of 1,413. In the afternoon Prof. J. B. Johnson, dean of the College of Mechanics and Engineering in the University of Wisconsin, read a report for the committee on industrial education. Prof. Johnson described the demands at present for a specific industrial training for particular employments and the present agencies in Amèrica for meeting the demand. These consist of manual training schools, art industrial schools, textile schools, engineering schools, agricultural colleges, night schools, correspondence schools, and schools maintained by large manufacturing industries. While these wefe all to be commended, according to the report, it pleaded for more specific trade or monotechnic schools similar to those of Germany. A general discussion of the report followed. It was decided to continue the committee for a year. Before the close of the meeting a paper on secondary technical education in mechanical and electrical lines was read by Prof. A. L. Williston, director of the department of science and technology in Pratt Institute.

The society elected the following officers for

department of science and technology in Pratt Institute.

The society elected the following officers for the ensuing year: President, Prof. C. O. Marvin, of the Kansas State University; vice-president, Prof. Albert Kingsbury, of the Worcester Polytechnic Institute; secretary, Prof. H. S. Jacoby, of Cornell University; treasurer, Prof. C. A. Waldo, of Purdue University.

American Association for the Advancement of Science.—At the closing meeting in New York last week, it was decided to hold the next an-

nual meeting of the association at Denver, Colo., beginning August 24th, 1901. The following officers were elected:

President—Charles Sedgwick Minot, Harvard Medical College, Cambridge.

Vice-president of the various sections of the General Council—Mathematics and Astronomy, James MacMahan, Cornell University, Ithaca; Physics, D. B. Brace, University of Nebraska, Lincoln; Chemistry, John H. Long, Northwestern University, Evanston, Ill.; Mechanical Science and Engineering, H. S. Jacoby, Cornell University, Ithaca; Geology and Geography, C. R. Van Hise, University of Wisconsin, Madison; Zoology, D. S. Jordan, Leland Stanford University, Stanford, Cal.; Botany, B. T. Galloway, Department of Agriculture, Washington; Anthropology, J. Walter Fewkes, Bureau of American Ethnology, Washington: Economic Science and Statistics, John Hyde, Department of Agriculture, Washington.

Ethnology, Washington; Economic Science and Statistics, John Hyde, Department of Agriculture, Washington.

Permanent secretary—L. C. Howard, Department of Agriculture, Washington.

General secretary—William Hallock, Columbia University.

Secretary of the Council—D. T. McDougall, Botanical Gardens, New York.

Secretaries of the sections—Mathematics and Astronomy, H. C. Lord, Ohio State University, Columbus; Physics, J. O. Reed, State University of Michigan, Ann Arbor; Chemistry, W. Mc-Pherson, Ohio State University, Columbus; Mechanical Science and Engineering—W. H. Jacques, Massachusetts Institute of Technology, Boston: Geology and Geography, R. A. F. Penrose, Pierce, Ariz.; Zoology, H. B. Ward, University of Nebraska, Lincoln; Botany, A. S. Hitchcock, State Agricultural College, Manhattan, Kan.; Anthropology, G. G. McCurdy, Yale, New Haven; Economic Science and Statistics, C. A. Bennison (unattached), Cambridge, Mass.; Treasurer, R. S. Woodward, Columbia University.

INDUSTRIAL NOTES,

The Birmingham Rail and Locomotive Company of Birmingham, Ala., has sold 50 tons of steel rail to a sugar plantation in the United States of Colombia, South America, shipment to be made in August next.

It has been announced that the boiler works of the James Rees & Sons Company and the works of the Carroll-Porter Boiler and Tank Company, in Pittsburg, both of which were destroyed by fire last week, will be rebuilt at

The American Sheet Steel Company is overhauling the old Meadow rolling mill property at Scottdale, Pa. It is expected the plant will be in shape to be operated in August. Two annealing furnaces and a large warehouse are being built at the plant, and new rolls will replace worn-out ones.

President H. B. Shields, of the Girard Iron Company, Girard, O., states that Mattie Furnace is not to be blown out for repairs. Although the furnace is in the fourth year of its present equipment, it is enjoying its usual run, and will not be blown out until absolutely necessary. Mattie Furnace is regarded as one of the best producers in the Valley.

A company, composed of York, Pa., men, with a capital of \$300,000, has leased for 20 years the mining right of 6,200 acres of land in the Tonawanda Indian Reservation, Genesee County, New York. The company will erect a mill at Buffalo and work a gypsum deposit into plaster. The new plant will be in operation by November next.

Robesonia furnace, at Robesonia, Pa., Rooesonia Turnace, at Robesonia, Pa., which had been in continuous blast for nearly two years, has been blown out for repairs. This is one of the largest stacks in the Lebanon Valley, and had been producing an average of about 1,100 tons weekly ever since it went into blast. It will take about six weeks to reline the stack and complete the necessary renairs. stack and complete the necessary repairs.

Fraser & Chalmers, Chicago, have received from the Anaconda Copper Mining Company orders for a large amount of machinery for the new concentrating plant which will have a capacity of 4,000 tons per day. This machinery includes 24 heavy pattern 5-ft. Huntington centrifugal roller quartz mills, 24 sets of 40 by 60-in. crushing rolls, with forged steel shells, and 24 Blake crushers, sizes 24 by 12-in. and 15 by 9-in.

The Jeanesville Iron Works Company, Denver The Jeanesville Iron Works Company, Denver Branch, A. Middlebrook, manager, reports the following recent sales and shipments. The City of Grand Junction, Colo., compound pump, capacity 1,500,000 per day. Parral, Mexico, compound condensing mine pump and 9 B sinker. B. & M. Mine at Ward, Colo., high lift station pump. Victor Fuel Company, Denver, two electric station pumps. S. J. Sullivan, Leadville, Colo., 9 B sinker. El Paso Mine, Cripple Creek, Colo., 9 B sinker.

The E. A. Humphries Brick Company has be-

gun the manufacture of all kinds of special shapes of brick, including sleeves, nozzles and runner brick for steel plants, at its works at Gratztown, near West Newton, Pa. A large amount of special machinery has been installed, which wift greatly increase the capacity of the plant, and which will also make a more uniform brick than heretofore. Samples of the work are now being sent out to many of the steel plants. E. A. Humphries, the president of the company, has been connected with the H. C. Frick Coke Company for many years, and B. F. Johnston, general manager, has had wide experience in the manufacture of these shapes, as manager of the Manufacturing Company's works.

the Manufacturing Company's works.

The Aultman Company, at Canton, O., reports that its recent orders include a sand-handling system for the foundry of the Massillon Iron and Steel Company, at Massillon, O.; two large No. 5 Aultman rock crushers for the Bonnet Company, of Canton, O.; one No. 5 rock crusher and one car-haul for the Page Woven Wire Fence Company, of Monessen, Pa.; refuse conveyors for the Acker Lumber Company, of Livermore, Ky., and the Hall & Lyon Company, of Waverly, N. Y.; one complete plant for the Beatty Fire Clay Company, of Magnolia, O.; one tipple-house equipment for the Indian Run Coal Company, of Canton, O.; one complete system of elevating and conveying machinery for A. W. Colwell & Company, at Marine City, Mich.; six ingot charging machines for the Wellman-Seaver Engineering Company, of Cleveland, and a pulp carrier for the Munroe Falls Paper Company, of Munroe Falls, O.

A. W. Colwell & Company, at marine clay. Mich.; six ingot charging machines for the Wellman-Seaver Engineering Company, of Cleveland, and a pulp carrier for the Munroe Falls Paper Company, of Munroe Falls, O.

The American Bridge Company has issued a circular giving particulars of the consolidation which have been already published in our columns. A corrected list of the various companies forming the consolidation is as follows: American Bridge Works, Chicago, Ill.; Berlin Iron Bridge Company, East Berlin, Conn.; Buffalo Bridge Company, East Berlin, Conn.; Buffalo Bridge Company, Keystone plant), Pittsburg, Pa.; Edge Moor Bridge Works, Wilmington, Del.; Elmira Bridge Company, Elmira, N. Y.; Gillette-Herzog Manufacturing Company, Minneapolis, Minn.; Groton Bridge & Manufacturing Company, Horseheads, N. Y.; Horseheads Btjdge Company, Horseheads, N. Y.; Lafayette Bridge Company, Horseheads, N. Y.; Lafayette Bridge Company, Trenton, N. J.; New Columbus Bridge Company, Columbus, Ohio: Pittsburg Bridge Company, Pittsburg, Pa.; A. & P. Roberts Company (Pencoyd Iron Works), Pencoyd, Pa.; Post & McCord, Brooklyn, N. Y.; Rochester Bridge & Iron Works, Rochester, N. Y.; Schultz Bridge & Iron Works, Pittsburg, Pa.; Milme Bridge Company, Athens, Pa.; Milwaukee Bridge Company, Milwaukee, Wis.; Wrought Iron Bridge Company, Youngstown, Ohio. The executive organization is made up entirely of men of large practical experience, headed by Percival Roberts, Jr. Joshua A. Hatfield has been appointed assistant to the president, and will also have charge of the sales of the rolling mill products of the Pencoyd plant. The engineering department is in charge of Mr. Charles C. Schneider, formerly chief engineer of the Pencoyd Iron Works, with the title of vice-president in charge of ageneral managers are under the direct charge of a general manager for the Pencoyd Iron Works, with the title of vice-president in charge of operating. All local managers are under the direct charge of a general manager, Mr. James P. Kennedy, formerly preside

Bridge Company, and F. H. Schmidt, formerly secretary and treasurer of the Youngstown Bridge Company, as assistant treasurer. The auditor is Mr. Charles C. Price, formerly with the Pencoyd Iron Works. The purchasing department is in charge of Mr. Francis W. Heisler, formerly purchasing agent for the Edge Moor Bridge Works, with headquarters at 259 South Fourth street, Philadelphia, Pa. The assistant purchasing agent is Mr. E. A. Muench, formerly purchasing agent for the A. & P. Roberts Company. The secretary of the company is Mr. Douglas O. Morgan, formerly a member of the law firm of Seward, Guthrie & Steele.

TRADE CATALOGUES.

J. H. Frenier & Son, of Rutland, Vt., successors to Frenier & Le Blanc, issue a very neat twelve-page pamphlet describing the special sand pump they manufacture. This device has been well tested at numerous mills and quarries for pumping sand, crushed ore, pulp slimes and tailings. It has no valves and is not open to the objections to a centrifugal pump. The pamphlet shows its construction very clearly.

The Baldwin Locomotive Works, of Philadelphia, Pa., has issued an illustrated pamphlet of 35 pages describing its exhibit at the Paris Exposition. The pamphlet gives a brief history of the works and describes at length two types of locomotives recently built by the Baldwin Works for export. These are the "American Compound" express locomotives built for the French State railways and the "Mogul" locomotives built for the Great Northern line of England. England.

The Thew automatic steam shovel for which many points of excellence are claimed is described in an 8-page circular issued by the Thew Automatic Shovel Company, of Cleveland, O. This shovel has been installed at seven iron ore docks and has been well tested. Its dipper has a horizontal motion imparted by a sliding trolley, from which the dipper is suspended by an adjustable arm and about which it rotates. The shovel thus differs widely from the usual type of shovel in which the point of rotation is fixed and the motion of the dipper arm. All movements on the Thew shovel are stated to be governed by levers so arranged as to be easily operated by one man. Wire ropes are used instead of chains for moving the dipper and the turntable on which the shovel is mounted revolves in an entire circle. The Thew automatic steam shovel for which

The Great Northern Portland Cement Company, of Detroit, Mich., issues a handsome prospectus that treats of the plans of that company, incorporated with a capital stock of \$5,000,000. The company intends to establish a large plant at Baldwin, Mich., 30 miles east of Ludington, where the company has 6,000 acres of land, much of which is underlaid by marl and clay suitable for the manufacture of Portland cement. The president of this company is George Anderson, Detroit; first vice-president, Charles A. Strelinger, Detroit; second vice-president, Burton W. Yates, Detroit; treasurer, David Ogilvie, Detroit; secretary, Charles B. Parsons, Detroit; auditor, Arthur E. Barley, Detroit; directors, George Anderson, Charles A. Strelinger, David Ogilvie and Lemuel H. Foster, all of Detroit; William Fillingham of East Orange, N. J.; C. Frederick Smith and Frederick W. Garvin of New York, and Burton W. Yates and Charles B. Parsons of Detroit; consulting engineer, R. C. Carpenter, Cornell University, Ithaca, N. Y.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

Oil Production.—In May the New York, Pennsylvania and West Virginia, Buckeye, O., Southeastern, O., and Indiana fields completed altogether 1,489 new wells, having an average daily capacity of 22,059 bbls., showing an increase of 140 wells and 1,077 bbls. in production, as compared with April. There were 1,218 wells drilling on June 1st, or 46 more than on May 1st. The total receipts by the pipe lines in May were 4,696,861 bbls., while the deliveries during the month were 4,042,902 bbls. The stocks on June 1st were 25,291,978 bbls., showing an increase of 813,018 bbls., as compared with May 1st. The average prices of crude petroleum in May were;

Tiona, \$1.54% per bbl.; Pennsylvania and Barnesville, \$1.39%; Corning, \$1.22%; New Castle, \$1.14%; North Lima, \$1.08; South Lima and Indiana, \$1.03.

CALIFORNIA

Amador County.

(From Our Special Correspondent.)

Cosmopolitan.—On this property, near Plymouth, a rich ledge is reported to have been discovered. The mine is owned by Boston parties.

Calaveras County.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

Del Monte Mining and Milling Company.—
This company has been incorporated for the purpose of working the Del Monte group of six claims, which comprise 120 acres, including the mill site, all located in Railroad Mining district, about 20 miles from Jackson. The directors are C. O'Neil, B. O'Neil, T. Schenck, F. A. Voorhies and G. J. Wright.

Oriole.—Seventeen men are employed at this mine, 1½ miles from Angels. In the cross-cut on the 400-ft. level some good rock has been encountered.

Ozark.—The channel at this mine on the 6-mile road to Angels has been well defined by winzes and cross-cuts. Very little water has been encountered so far. The gravel, which carries course gold, is very rich. A company is to be formed.

El Dorado County.

(From Our Special Correspondent.)

Blue Gouge.—Twenty-five men are employed at this mine, 9 miles east from Pleasant Valley, under Superintendent H. Whitney. Fifty tons of ore from 2 tunnels are milled daily in the 4 Huntington Mills. The property is being operated by a Boston company.

Boulder.—The main work at this mine, 8 miles northwest from Shingle Springs, is being done in tunnel No. 4, where a large amount of good rock is being stoped out. The 20-stamp mill is running day and night. Twenty-four men are

employed.

Hart.—This quartz mine, near Garden Valley, has been bonded by Jones & Roberts, who are engaged in cleaning out and retimbering the tunnel on the property. A new tunnel is being driven to tap the four parallel ledges at a depth of 200 ft. The owners of this mine also own the Epps Place mine, adjoining on which they contemplate erecting a 20-stamp mill.

Larkin.—On the 400 and 600-ft. levels of this mine, 1 mile east from Diamond Springs, highgrade ore is reported. The ledges are from 3 to 4 ft. in width. The 10-stamp mill is running day and night.

ning day and night.

ning day and hight.

Texas Hill.—A large body of rich gravel has been developed on this property, 2½ miles east from Placerville. The mill on the property is running day and night and 25 men are at work.

Siskiyou County.

Siskiyou County.

Siskiyou Placer Mining Company.—Two judgments, aggregating \$6,572, were entered in New York last week by default against this company in favor of Mary A. Conkling on two debenture bonds, which became due on April 1st. The summons was served on Wm. H. Middleton, secretary and treasurer, at No. 209 Bowery.

(From Our Special Correspondent.)

Gazelle District.—In this mining district 2 new towns have been laid out, and everything looks favorable for a lively season. The Dewey Mine is running full blast, and is being hauled to Gazelle for shipment to the Keswick smelters. Berry & Alger have opened up a prospect nearby, the ledge being about 20 ft. wide, some of the rock assaying over \$20 per ton.

Humbug Flume and Mining Company.—There is a good supply of water for sluicing at these mines at the mouth of Humbug Creek, 12 miles northwest from Yreka, and pay gravel is washed with good results. A large amount of the top ground was sluiced away during the winter. It is thought the water supply will last most of the summer.

Wedge.—This group of mines in Tyler Gulch, owned and operated by Myers & Company, is developed enough to show large bodies of porphyry which carries enough gold to make it milling rock. In this porphyry are numerous small veins which are quite rich.

COLORADO.

Clear Creek County.

Clear Creek County.

(From Our Special Correspondent.)

Adit Mining Company.—The Turner water rights on Clear Creek, near Idaho Springs, extending for one mile, have been sold to the Adit Company. This company is also acquiring considerable mining property and it looks as if it intended to carry forward heavy mining operations. It is in possession of the Freeland Mine, having bought the three-fifths interest formerly held by the Gold Coin crowd.

Franklin —This mine on Sector Mountain et

Franklin.—This mine, on Seaton Mountain, at Idaho Springs, has been sold to the parties working the Crown Point-Virginia Mine. The con-

sideration was for \$35,000, of which \$10,000 was paid on Monday. W. H. Knowles will manage both mines. The Wilkle and Allen mills have also been secured to treat ores from both the Crown Point and the Franklin. The company has purchased 30 head of horses. A plan is on foot for the driving of laterals from the Newhouse tunnel on this vein to reach the two properties, one of which lays 2 miles west, and the other ½ mile east of the tunnel.

Golconda Mining and Tunneling Company.—Driving of the cross-cut has been resumed after an idleness of almost 6 months. It is claimed that the tunnel will be continued from Fall River toward North Spring Gulch. The same company is working the Mahala lode on the opposite side of the gulch. They have 3 ft. of sulphide ore.

phide ore.

Matt Adams.—This claim, formerly worked by Mr. Adams, on Santa Fe Mountain at Idaho Springs, and in a new section, has been under development by a Denver pool. At a depth of 205 ft. they came upon a body of ore 10 in. running \$123.25 per ton and 2 ft. \$41 per ton. This is considered as an important strike owing to the locality, which had been turned down by the old-time prospectors, who did not find value along the surface. along the surface.

Gilpin County.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

Mining Deeds and Transfers.—J. H. Brown to Hawley Merchandise Company, 1/3 interest in Wolverine lode; L. E. Drake leased to J. Grassi the Washington Extension lode; Hal Sayr et al to C. W. Pollard, the Hampton lode; J. Flynn to W. Trebilcock et al ¼ interest in Lake View lode; The Rival Gold Mining Company to W. B. Pushing et al the Rival and East Rival lodes; W. Roderick et al to E. J. Boudy the Smuggler and Eunice lodes.

A New Engine —McFarlane & Company of

A New Engine.—McFarlane & Company of Black Hawk are showing to the mining men of this county one of their new Bell gyrating hoisters. It is of 27½ H. P., and the principal lies in the motion and power being applied without sliding valves and it can be easily handled, stopped and reversed in a second of time. The one on exhibition will hoist 2,000 lbs. 300 ft. in one minute.

Cook Mining Company.—Manager Colvin has ordered an electric motor from the Jeffrey Electrical Company as a means of hauling the ores through the tunnels to the new mill in Black Hawk. The property is now shipping about 150 tons to the new mill.

Crockett Mining Company.—Sinking operations have been started at the Virginia mine, the intention being to sink 100 ft. deeper than the present depth of 350 ft. W. Couch, Central City, Colo., is manager.

Crown Point & Virginia. The new shaftbuildings are completed and the property is being un-

Crown Point & Virginia. The new shaftbuildings are completed and the property is being unwatered, and they have got it down about 600 ft. Daily shipments of about 50 or 60 tons of dump ore are being made to the company mill and it is giving good results. A heavy production is expected when operations are again commenced in the property. The Colorado-California Shareholding Mining and Milling Company, composed of Des Moines, Ia., parties, are the operators, with W. H. Knowles, Idaho Springs, Colo., is manager.

Gunnison County.

(From Our Special Correspondent.)

Lucky Strike.—Three carloads of new machin-ery have been received for this mine at Gunni-son from Fraser & Chalmers, Chicago, to be installed at once in a 10-stamp mill for lowgrade ores.

Pocahontas.—The road to this property at White Pine is being repaired and shipments will be resumed shortly.

Vulcan.—The crosscut in this Gunnison property has cut the vein at the fifth level, and is now following the ore shoot pending the arrival of a new hoist.

Hinsdale County.

(From Our Special Correspondent.)

American Eagle.—A crosscut is being driven to cut the vein at greater depth. The rock is seamed with brittle silver and shows free gold. Crown Point.—Manager L. D. Hicks is arrang-ing to put a force of men on development work about July 1st.

Golden Fleece.—New machinery is being pur-chased for this company's mill and will be in place by August 1st.

place by August 1st.

Hidden Treasure Mine and Tunnel Company.—
The Dewey interest in this company was sold
June 13th for a cash consideration of \$125,000. A
new tunnel has been started and will be continued 4,000 ft., lapping the ore bodies 650 ft.
below the present workings. Two Sullivan and
two Ingersoll drills have been ordered, and a 12drill air compressor is being put in.

Monte Queen.—W. D. Richards is managing the property for a Central City company. A large body of silver-lead ore, running high in copper, is disclosed.

Silver Fleece.—Arrangements are being made to start up this old-time property on a large scale.

Tobasco Group.—Owners are preparing to erect a large mill just below Animas Forks, which will be connected by tramway with the mine. Enough low grade ore is in sight to supply the mill for several years.

Vermillion Extension.—A company is being organized to erect a mill for treating these ores, of which there are immense bodies.

Lake County—Leadville. (From Our Special Correspondent.)

A. V.—This new company, at the foot of Harrison avenue, is making rapid progress on its shaft. A heavy plant of machinery has been ordered. The company is to be a close corporation, with Messrs. Dennis Sheedy and C. B. Kountz, of Denver, at the head.

Kountz, of Denver, at the head.

Big Zinc Shipment.—Another zinc ore shipment of 2,000 tons leaves here this week for Galveston, where it will be sent to Europe. The shipment is made through Jacobson & Co., of New York City, who are handling a great many shipments of this character from this camp. The tonnage of manganese ore to Chicago from this camp averages 300 tons daily.

California Gulch Mining Company.—Sinking is being pushed. Two new boilers and a large engine have been ordered.

Comstock Gold Mining Company.—Boston men are at the head of this gold belt proposition and

are at the head of this gold belt proposition and operations are conducted under the direction of N. M. Estey. The new shaft, one of the best equipped in the camp, is down 600 ft. in pyritiferous porphyry.

Home Mining Company.—On July 2d these people paid another dividend of 50c., a \$25,000 payment, making three dividends in three months, the total of three amounting to \$100,000. months, the total of three amounting to \$100,000. All three shafts of the company are in fine condition and great quantities of ore are blocked out, so that the 400 ton a day production can be kept up steadily. Important new development work is in progress, including the sinking of the Penrose shaft below the water level, which is 490 ft., a further distance of 80 ft. to get under the massive iron bodies.

New Monarch Combination, Biffer to the conditions of the conditions of

New Monarch Combination.—Fifty tons a day of good sulphide ore are shipped from the Winnie shaft, while sinking continues so as to enable the working of the sulphide ore bodies to better advantage. Work on the New Monarch shaft and the Lida shaft is also to be pushed.

Orion—This days town territory is operated.

Orion.—This down-town territory is operated by lessees headed by Chas. Steed, who are ship-ping 30 tons a day from a fine iron body which averages 20 ozs. silver.

Yankee Doodle.—New York men own this ground, which is worked by lessees who are simply making iron shipments and searching for a lead ore body.

San Juan County.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

A big enterprise, of considerable importance to San Juan County, has just been brought to successful culmination through the efforts of Mr. Rasmus Hanson. Mr. L. S. Jackson, formerly city engineer of Chicago, has arranged to purchase several mining claims, and to organize a company for the erection of a large concentrating plant at Animas Forks. From above Animas Forks a flume 6,000 ft. long will be built to Mineral Point, and in Mastodon Gulch another flume will be built to Mineral Point 3,000 ft. long, the two flumes generating 700 H. P.

Mining Transfers.—T. M. Francis to R. H.

Mining Transfers.—T. M. Francis to R. H. Walker, Lead King lode; Joseph Gibbons' Construction Mining Company to Hugh W. Kennedy, Pride of the West lode; Ida M. F. Iles to C. E. Myers, Star of the West lode; C. S. Casady to Edgar Buchanan, sheriff's deed Columbus lode bus lode.

Tungsten Ore Treatment.—Chas. Voilleque and Chas. Poulet, French experts, have taken a lease on the Fisher Mill and are purchasing all tungsten ores offered for sale. They also have a lease on the Leslie in Dry Gulch and are mining considerable quantities of tungsten.

Almango Girl.—This Silverton property has started up with a force of 6 miners, and 6 more will go to work soon.

Bluff & Waterfall.—E. H. Blunt, representing Pueblo company, has started work on these laims. The Waterfall has 105 ft. of tunnel and claims. The Waterfall has 105 ft. of tunnel a expects to cut the vein within another 50 ft.

expects to cut the vein within another 50 ft.

Boston & Silverton Mining Company.—This company will develop the Uncle Sam claim at Silverton by 3 crosscut tunnels. A 1-mile tramway is to be built from the Lamont Tunnel to the mill. A 100-ft. contract has been let for driving the Yukon tunnel. The Yukon is now in 700 ft.

Broadway.—G. H. Burrows, representing a New York company, has started a 6,000 ft. tunnel to tap the Broadway vein. The vein is 30 ft. wide at the surface and averages well.

Copper Belle.—On June 15th Nelson Brothers began shipping from the Copper Belle. A 2-ft.

vein of good ore was recently encountered, an 8-in. streak of which carried 25% copper. A 10-in. streak of yellow copper is also worked. The tunnel is now in 375 ft.

Copper King.—This group on Boulder Mountain started June 13th with a small force on

Emma.—Lacey & Herr are sinking a shaft in order to ascertain the exact dip of the vein, after which work will be resumed on the tunnel, now in 300 ft. Rich ore has been opened up in the shaft at a depth of 30 ft.

shaft at a depth of 30 ft.

Esmeralda.—A trial shipment of 22 tons just made from this new claim gives returns of 1.31 oz. gold and 104 oz. silver per ton.

Eureka District.—W. T. Wheeler has began work for the summer with a small force. Manager Martin has ordered a 5-H. P. gasoline engine for the Tom Moore. C. E. Condit is preparing to do considerable development on the Surprise claim of the Sioux Mining Company.

Evening Star Group.—A new company is being formed to work these claims on a large scale, lessees having failed to meet with suc-

Gold Bar.—A force of men is developing this property with good results.

Gold Bug Mining and Milling Company.—This company has started up the Gold Bug on a small scale and will do considerable development before breaking the ore now stoped.

Gold Coin Group.—A 100-ft. contract has been let by Kindrick Brothers, who have just secured a lease and bond on this property.

Gold King Mining and Milling Company.—This Silvester company will add 40 stamps to the mill at once, to be finished by the Gates Iron Works of Chicago.

Lead Carbonate Group.—This group, owned by A. M. Jackson et al., has been leased and bonded to A. A. Brown for \$50,000, one payment of which has been made. A contract has been let for driving 100 ft.

Tom Moore.—The lower tunnel on this property, owned by the Colorado Iron Works, will soon be driven ahead and a mill will be erected as soon as conditions warrant.

Woods Investment Company.—This company, well known in the Cripple Creek District, has secured several properties on Bare Mountain and has 10 men at work on development.

Teller County-Cripple Creek

has 10 men at work on development.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Anaconda Gold Mining Company.—A circular has recently been issued to the directors of this company by its president, Mr. J. T. Milliken, of St. Louis, calling for a special stockholders' meeting of the company. This meeting is for the purpose of making some amendments in the constitution of the company in order to provide some way to liquidate the present debt of the company. This indebtedness is at present about \$125,000, the notes being held by Mr. J. T. Milliken. These notes until recently were held by the First National Bank of Denver. If the notes are not paid the property will have to be sold to satisfy the indebtedness. There are two propositions to be submitted to the stockholders, either of which will provide for the indebtedness. The constitution of the old company prevents any reorganization being made, so in order to do anything like this it will be necessary to make some amendments in it. The affairs of the company are looking somewhat brighter than for some time past. An immense amount of development has been done on the property until recently was under the control of the Moffat people, of Denver.

Hoosier.—The Anstie lease on this property which was recently acquired by the company is

Hoosier.—The Anstie lease on this property which was recently acquired by the company is being worked in the old shaft, though it is rumored that a new shaft will be sunk. This property is situated on Tenderfoot hill and has shipped considerable ore. A new strike was recently reported.

cently reported.

Independence Town and Mining Company.—
The affairs of this and the Wilson Creek Company still continue to be the prevailing talk in mining circles. The Wilson Creek people seem to be confident that the patent to the Hull City placer will be set aside and in turn the Independence people are confident that it will not. At any rate the fight bids fair to be a very bitter one. The property involved is certainly very valuable, having already produced in the neighborhood of a million dollars' worth of gold. This litigation is very much to be regretted, as in any event the title to this ground will be in doubt for some time and necessarily interfere with the mining operations.

Jack Pot Mining Company.—This property is

with the mining operations.

Jack Pot Mining Company.—This property is soon to be operated through the deep shaft of the Morning Glory Leasing Company on the Morning Glory claim of the Work Company. This shaft is now down considerable depth. The Jack Pot is controlled by the Woods Investment Company, as also the Morning Glory Leasing Company. It is understood that the Jack Pot Company is to have one compartment of the

shaft for its own exclusive use. The shaft is a three-compartment one.

Opnelia Tunnel.—It is rumored that work is to be resumed in this tunnel a short distance south of the town of Cripple Creek. A large amount has been done in this tunnel, though it has been idle for some time. It was formerly operated by Mr. D. H. Moffat and associates of Denver, but of late has been worked by foreign capital.

IDAHO.

Ada County.

Branscombe & Sonneman of Spokane, who have been making explorations at South Moun-tain for several months, believe that they have discovered a valuable deposit of silver-lead ores. They will put a large force at work to open up the property.

MICHIGAN.

Copper-Houghton County.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

Atlantic.—A new engine house to aid No. 3 in hoisting from D shaft will be erected near the mining office.

The contract for the concrete foundation of the Redridge dam has been let to Pendergast & Clarkson, of Chicago.

Baltic Mining Company.—This company is having three large rock crushers constructed at Cleaves foundry.

Calumet & Hecla.—A party of men descended

Calumet & Hecla.—A party of men descended No. 2 shaft, Calumet Gulch, and crossed over to No. 2, Hecla branch, which they ascended to the 20th level. From this level up the shaft is frequently blocked by rock and debris. A force of men have been set to work retimbering this shaft near the first level and they will work down.

At the mouth of the old No. 1 shaft, Hecla branch, a steam jet has been placed and the rising steam from this jet creates an up draft.

Isle Royale.—The cables for the hoisting en-ines at both No. 1 and 2 shafts have arrived.

Quincy Mining Company.—The new blacksmith shop which this company will erect is to be 50 by 90 ft.. The building will be of red sandstone, with a slate roof, and will contain 12 forges, one steam hammer and bolt cutter.

Rhode Island.—The shaft house at No. 2 has been completed and the large skip has gone into commission.

Tamarack.—The contract for a new compressor house at No. 5 shaft has been let to G. Procissie & Co. It will be constructed of stone and will be commenced immediately.

Copper-Keweenaw County.

(From Our Special Correspondent.)

Mohawk Mining Company.—The second ship-ment of Mohawkite from this mine was made this week. The steamer "Hudson" received 60 tons for the Oxford Smelting Works of New

Copper-Ontonagon County.

(From Our Special Correspondent.)

Michigan.—This mine made its first shipment of copper this week; 54 tons were shipped over-the Copper Range Railroad to the Quincy smelters. This shipment consisted of mass and

MINNESOTA

(From Our Special Correspondent.)

(From Our Special Correspondent.)

In this correspondence last week mention of the Fayal Mine was made under the heading Minnesota Iron Company, and a reduction of the mining force thereat noted, together with the statement that the Minnesota company was mining from only the Fayal, Genoa and Alba mines on the Mesabi Range. The name of the Auburn Mine was in some way omitted, for it is at the Auburn that a reduction has taken place, and that is a fourth operating mine of the Minnesota Company on the Mesabi.

A wreck took place on the ore division of the

sota Company on the Mesabi.

A wreck took place on the ore division of the Eastern Minnesota road Saturday that sent 10 new 50,000-lb. steel cars into the ditch. As this is the first serious wreck that has occurred to this style of car in this section, and as facilities for repairing and breaking them are as yet inadequate, the managers of other lines using the same type are watching the Eastern's work with much interest. The Duluth & Iron Range is to install at once a steel wrecking shop for handling the steel car, and will fit it with heavy tools. But the job of handling these cars when smashed along the line is a difficult and serious problem as yet.

as yet.

The State Labor Bureau is deciding to recommend the establishment of a mining inspector or commissioner, who shall have charge of mines and kindred interests in Minnesota. The bureau is led to this step by the recent accidents at mines, and has no further thought for such an office than to inspect mines with the idea of reducing danger. But the value of State lands containing mineral, the tax questions and other important considerations, demand such an official no less than the safety of miners. Indeed, the underground conditions at most Minnesota

mines are good and there is less danger than almost anywhere else.

MISSOURI.

Jasper County.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The price of zinc ore was cut \$2 per ton last week for top grade, although lower grades sold at the previous week's quotations; \$25 per ton was the best price paid except for some ore at Wentworth, where \$26 was paid for ore delivered on the cars. Operators are dissatisfied with the price in view of the \$1 Louis for ore delivered on the cars. Operators are dis-satisfied with the price in view of the St. Louis quotations for metal, and some of the producers of fancy grade are holding their ore, while all the big mills of the Boston-Little Circle Zinc Company at Oronogo have shut down on ac-count of the low price and will remain shut down until the market situation improves. Lead went up \$2.50 per thousand, selling all the week at \$24 per 1,000 lbs.

\$24 per 1,000 ibs.
As compared with the previous week the sales show an increase of 146,040 lbs. of zinc and 200,-390 lbs. of lead and the value was greater by \$5,458. Following is the turn-in by camps of the Joplin district for the week ending June 30th,

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,113,490	421,850	\$36,534
Galena	1,315,150	159,820	19,618
Oronogo	669,770		7,950
Carterville	1,028,090	258,850	18,549
Webb City	637,330	40,580	7.984
Belleville	213,350	5,870	3,061
South Jackson	196,860	4.880	2,479
Aurora	1,035,000	27,410	10,642
Duenweg	50,120	26,620	671
Wentworth	71,690		932
Cave Springs	162,320	14,370	2,120
Carthage	127,240	17.570	1.511
Carl Junction	18,540		2 2
Granby	109,220	13,160	1,210
Neck City	67,520		810
District total	7,845,690	990,980	\$114.283
Total 26 weeks	248,922,380	29,072,750	\$4,364,122

During the corresponding week last year top grade zinc ore sold at \$44 per ton and lead at \$26 per 1,000 lbs. The lead output was less than last week by 270,960 lbs., but the zinc sales were greater by 2,234,770 lbs., and the value was greater by \$92,702. For the first 26 weeks last year the lead sales were less than this year by 5,168,460 lbs., but the zinc sales were greater by \$19,024,510 lbs. and the value was greater by \$1,414,271.

St. Francois County.

St. Louis Smelting and Refining Company.— This company has put on record a mortgage of \$1,000,000 to the Mercantile Trust Company of New York, trustee, to secure an issue of \$1,000,000 in 5% bonds having 20 years to run.

MONTANA.

Broadwater County.

Broadwater County.

East Pacific.—This mine at Winston, owned by R. A. Bell, is making large additions to the plant, says the Helena "Herald." A new crosscut 300 ft. in length is being driven to straighten out the big No. 4 tunnel, the lowest tunnel in the mine, preparatory to using mules to haul the large accumulation of ore and waste from the workings to the dump at the end of the drift. The No. 4 tunnel is now 2,500 ft. in length, and the time consumed in wheeling the ore and waste to the dump by car pushers is so great as to materially interfere with the operations of the mine. Twelve large ore cars and a carload of heavy T rails have been ordered and will be on the ground by the time the cross-cut is completed. The mules will draw 10 carloads at a trip and the saving in time in disposing of the ore and waste will very largely increase the output of the property. An electric plant to light the mine, buildings, etc., has been ordered and will be installed on arrival. A hoist has been purchased and as soon as the tunnel is driven another 400 ft., which will bring it about the center of the big ore shoot, a station will then be cut, the hoist installed and sinking commenced. This hoist will be run by air power from the compressor plant which operates the drills.

Cascade County.

(From Our Special Correspondent.)

Cascade County. (From Our Special Correspondent.)

(From Our Special Correspondent.)

Florence Mining Company.—The suit of Preston vs. this company was tried before Judge Leslie, of the District Court at Great Falls, and the plaintiff won on all points. Preston claimed a tenth interest through purchase from W. J. Clark in the Concentrated, British Lion and Monarch quartz claims. Clark afterwards sold the nine-tenths remaining to the Florence people, who assumed possession of the property. The property was then allowed to be sold for the taxes and was bought in by A. M. Henry, president of the Florence Company, who then claimed that Preston had lost his rights by the sale. The judge decided against the Florence people on the tax title, claiming Henry could not act in the matter as an individual. The Concentrated claim lies alongside of the Florence, with one side line between. Preston also claimed that 247 ft. of the Florence vein apexed on the Concentrated ground crossing the side line and the jury so found. the jury so found.

Part of the contention of the defence was that the location of the Concentrated was defective in the notice not stating in the affidavit that the affiant "had read the contents and knew them

The plaintiff showed that some 800 mining locations had been made in the county and more than 500 of them contained the same error, therefore it became a common error and became valid.

Another contention was that while the Con-centrated location was the older the patent on the Florence was obtained first and priority

the Florence was obtained first and priority should date from patent.

The judge ruled that on account of the defect in the location notice priority should date from patent, but notwithsanding his ruling the jury found on question of fact for plaintiff. W. F. Word, of Helena.

The Florence Company has been a steady dividend-payer for several years, so the verdict, unless reversed on appeal, will carry heavy damages.

Silver Bow County.

The Parrot Silver and Copper Company has commenced suit against Arthur P. Heinze, F. Augustus Heinze and the Montana Ore Purchasing Company to have the defendants restrained from carrying on mining operations in what is known as the 1,100-ft. level of the Nipper Mine. The plaintiff claims title to the ore bodies on that level for the reason that they are alleged to apex within the surface boundaries of the Adventurer lode claim. The plaintiff further alleges that the defendants have unlawfully and without its consent entered in and upon the disputed territory and are mining and extracting ore therefrom and will continue so to do unless restrained by an order of the court. Pending the final determination of the cause the court is asked to restrain the defendants from further trespass. ing Company to have the defendants restrained trespass.

NEVADA

Elko County.

(From Our Special Correspondent.)

(From Our Special Correspondent.)
Bull Run.—The 10-stamp mill which is being set up will start operating in August and the cyaniding annex to handle the tails will be in commission in September. A. H. Smith and J. M. Murphy are the principal owners and they and their associates are practical miners and the undertaking has the ear-marks of success. Bull Run is a gold proposition, situated on Bull Run Mountain, about 35 miles north of Tuscarora, 80 miles from Elko, the nearest railroad station.

Tuscarora.—The workings of the Dexter and Tuscarora are connected, in appearance forming one mine, and one surface equipment would suffice for both. Exploration is opening handsome high grade gold ore bodies. No stoping is

Young America.—After some little experimenting the 10-stamp mill is handling 30 tons per diem. Power is supplied by a gasoline engine. Another gasoline engine operates the hoist and gives the best of satisfaction. It is said Young America is making a clean profit.

NEW MEXICO.

Grant County.

John C. Rutherford, Charles R. Smith and G. M. Rutherford of Grant County have incorporated the Wilson Mining and Milling Company, with \$30,000 capital, with offices at Stein's Pass. The directors are Geo. B. Wilson, at Graham; D. Wilson, Geo. B. Wilson, Jr., John C. Rutherford and Charles R. Smith.

OREGON.

Jackson County.

Golden Standard Mining Company.—This company has bonded its mine near Jacksonville to a Montana man for six months, and the latter has started extensive operations for rapid development work, while the bond lasts. Casey & McWilliams are in charge of the mill and docustom work while the property is under bond. The price is not stated, but it is reported to be in the neighborhood of \$50,000.

PENNSYLVANIA.

Anthracite Coal.

Anthracite Coal.

Archbald.—Work has been resumed at this colliery after several months' idleness. The breaker has received a thorough overhauling, a new engine house has been erected, and the section-motion engines which have been in use at the colliery have been replaced by a first-motion engine. About 600 hands are employed.

Bituminous Coal—Connellsville District.

Bituminous Coal—Connellsville District.

Hamilton Coal Company.—This company has been formed at Tarentum and has purchased 800 acres of coal lands opposite that town. In the purchase are the farms of Caldwell and Ross. The officers are: President, Robert Fields; vice-president, Herbert Russ; secretary and treasurer, D. G. White. Besides these officers the directors are: Samuel Lamond, J. N. Stewart, H. W. Boyd and William Kern. R. A. Caldwell will be the assistant superintendent.

(From Our Special Correspondent.)
Charles F. Hood, who has a patent process for the manufacture of briquettes, gave a suc-

cessful exhibition of the value of his process and its fuel, at his laboratory. The briquettes were half coke waste and slack from the Pittsburg District. They are about 6 in. long and 4 or 5 in. in diameter. They do not break with severe handling and burned freely. There was no clinker with the ash and less of the latter than with ordinary coal. There will be a company organized to manufacture these briquettes.

The late James G. Blaine, who always had great faith in coal land as an investment, had a tract of 600 acres near Elizabeth, Pa. The tract has been bought by the Barnes-Thompson syndicate, of Uniontown, the deal involving

son syndicate, of Uniontown, the deal involving \$350,000.

The old Poundstone farm, south of Uniontown, was purchased from J. V. Thompson, the banker and coal operator of Uniontown, by the Rocks Coal Company, of Connellsville. There are 119 acres in the tract and the price paid for it was \$325 an acre. This is a high rate for coal in that section. The land borders for ½ mile on the Monongahela River, and for ½ mile on the Baltimore & Ohio Railroad. The company will open mines on the tract and develop the land. Francis Rocks of Connellsville owns five-eigths of the stock; E. D. Fulton and J. V. Work, both of Uniontown, each one-eighth, and Bernard O'Connor of Connellsville one-eighth.

A despatch from Pittsburg, June 28th, says: "One of the quickest coal deals on record has been completed. A tract of about 1,100 acres was secured near Canonsburg, and during the day openings were made and the coal is being mined. The new owners are three sons of James Jones, the old operator, who retired from business when he sold his interests in the River Coal Combination. The entire cost of the property was \$125,000. The mines are to be equipned with the

he sold his interests in the River Coal Combina-tion. The entire cost of the property was \$125,-000. The mines are to be equipped with the latest improved machinery, the improvements to cost \$75,000. It is expected that within a few weeks the daily output of coal will be 3,000 tons. The mines are on the line of the Chartiers Valley branch of the Pan-Handle road."

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Grand Junction.—The owners of this mine have had the ore vein sampled thoroughly preparatory to a sale.

Newark.—The shaft in this mine is being put down 200 ft. on a wide vertical of ore. Spokane.—The Crown Hill Company has run

spokane—The Crown Hill Company has the the new 50-ton concentrating plant 2 weeks, the first clean-up being satisfactory. The ore is a galena, averaging about \$60 per ton. The company is mining and treating by cyanide quantities of low-grade ore at Crown Hill station, 1 mile east of Ragged Top.

Lawrence County.

(From Our Special Correspondent.)

Boston-South Dakota.—This company is running 40 stamps in the old Minerva Mill, in Blacktail Gulch. The ore is in large cement beds, the values being fair.

TTTAH

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending June 30th there were sent forward from the different smelters 29 cars, or 1,206,650 lbs. lead-silver bullion, 5 cars, or 249,750 lbs. copper bullion. In the same week there were shipped to smelteries outside of the State for treatment, 67 cars, or 2,528,700 lbs., lead-silver and gold ores and 2 cars, or 80,400 lbs., copper ore.

and 2 cars, or 80,400 fbs., copper ore.

Cyanide Products.—Consignments of products from cyaniding mills for June, marketed at the Salt Lake branch of the Argentine plant of the American Smelting and Refining Company, amounted to about \$85,000. This compares favorably with the corresponding month of 1899.

Lead Situation.—Beginning with July 2d the uniform price at which lead in ores will be settled for during the next 12 months is \$4.12½ per 100 lbs. It is understood that the producers of Utah have signed contracts with the American Smelting and Refining Company on this basis, with the understanding that like contracts basis, with the understanding that like contracts are entered into by the producers of Idaho, Montana, Colorado and Missouri, which, it is said, has been done. Very little lead ore was marketed at Salt Lake in the last 10 days of June, as shipments generally were held back to obtain the advantage of the advance. Mine owners appear to be quite well satisfied with the plan of a uniform price for the lead in their ores, though a few wish that other arrangements were adopted.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—For the week ending June 30th there were sent forward from the 3 railroad points of the district 127 cars of ore and 1 bar of bullion, contributed as follows: Centennial-Eureka, 39 cars; Mammoth, 28 cars ore, 1 bar bullion; Swansea, 12 cars; Gemini, 16 cars;

Ajax, 8 cars; South Swansea, 8 cars; Bullion, Beck, 7 cars; Godiva, 5 cars; May Day, 4 cars; Star Consolidated, 3 cars; Showers, 2 cars; Hum-

Bullion-Beck.-There was talk of an assess Bullion-Beck.—There was talk of an assessment or a close-down this week, as sort of side issue of the suit of E. W. Wilson, trustee in bankruptcy of the estate of John Beck, to recover 51,000 shares from J. A. Cunningham, which Beck claims were hypothecated for a loan. It will not be easy to get at the truth relative to the mine or mill till the ownership of this block of stock is finally determined—more's the pity.

Piute County.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

Annie Laurie.—Manager L. C. Huck and Superintendent W. G. Filer, after devoting several days in camp, returned to Salt Lake. Mr. Huck is to remain in Utah giving his attention for the next few months to the construction of the equipment. Foundation for the 150-ton cyaniding mill is complete. The lumber for the buildings and long flume will begin to arrive next week. Exploration of the mine progresses most favorably. Average gold content of the ore is \$16 per ton. Mr. Huck states that the expenditure for mine and equipment will exceed \$500,000 by the time the mill is placed in commission. The electric power plant will be the finest in Utah. The e Utah.

Utah.

Blue Bird.—A second high-grade shoot is cut on lower tunnel. It is 18 in. thick and carries \$96 gold. Manager Ryan says it resembles the shoot in the upper tunnel from which \$24,000 of No. 1 rock was marketed.

Huck Placer.—John Weimer is having the Huck Placer surveyed for patent. He positively affirms that he will hold the ground taken up and extensively improved by the Snyder Improvement Company. Until he made the surprising discovery none imagined this was placer ground.

Sevier.—Since cutting the lodge in the drift.

ground.

Sevier.—Since cutting the ledge in the drift from lower tunnel no further work has been done at this point, owing to foul air. A new blower and Pelton wheel will be installed next week and this uncovering will be further proven. Point where the vein is cut is 700 ft. vertically below upper workings, and next to the Annie Laurie is the most important development in Gold Mountain.

Salt Lake County.

(From Our Special Correspondent.)

Shawmut.—Everything at the mill is waiting on the machinery. Exploration the past 6 months has uncovered large bodies of paying copper

West Mountain Placer.—The signs are again hope-inspiring that this undertaking is nearing the end of its long hard pull. In No. 1 incline there is gravel carrying \$5 gold a cubic yard. The point of chief interest is, that the difficulties of getting at it and handling are about surmounted.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—For the week of June 30th the total smelter products sent forward from the camp was 1,172,460 lbs., made up as follows: Silver King, crude 355,420 lbs., concentrates 205,800 lbs.; Daly-West, crude, 410,670 lbs.; Anchor, concentrates 200,570 lbs. Production is being held back, due to the settling price of lead, which for this week is \$3.62½ per 100 lbs., while next week it will be \$4,12½. July promises to be a banner month for the outpouring of Park City mines.

Silver King.—Daly-West.—A rumor of a pro-proposed union of Silver King and Daly-West prop-rties is current. There seems slight likelihood if this happening, but if it should come to pass t would be the greatest lead-silver property in the country.

Tooele County.

(From Our Special Correspondent.)

Chloride Point.—The mill will be in commis-on again in July.

Daisy.—Permission of the court is asked by the receiver to borrow \$5,000 to resume opera-tions, on a presentation that the mine can be made to more than pay expenses.

made to more than pay expenses.

De La Mar-Mercur.—Another step is taken in the joining together of the De La Mar and Mercur mines. An objection was made by the Mercur folk to placing 200,000 shares in the treasury and this point prevailed, so that each 100 shares of the original Mercur will be replaced by 166 2-3 shares of the new company. It is understood that Captain De La Mar will be president; John Dern, vice-president; Harturg A. Cohen, general manager; George Dern, assistant general manager, and George Z. Edwards, superintendent. ent.

Ophir.—From 4 to 6 cars of lead concentrates are shipped each week.

Frederick County.

London & Virginia.—At Whitehall, June 28th, this property, including 400 acres of land, was sold at public sale. It was bought by Mr. William O. Gantz of New York City for \$15,800. This property was worked before the War for gold.

WASHINGTON.

Kittitas County

In the Peshastin District John Snyder and others are operating a hydraulic claim. They have 10 claims on the creek, extending for a distance of nearly 3 miles. They have a 2-mile ditch, with 115-ft. fall from the lake, whence the water supply comes.

Culver.—This mine lately shipped a lot of 8 tons picked ore to the smelters.

Okanogan County.

Kruger Mountain.—This camp is a new one and the chief operators are prospectors and the original claim owners. Kruger Mountain is on the international line and runs parallel to the Okanogan River and Osoyoos Lake to the northeast of them. The best prospects so far discovered are on the east or Similkameen slope of the mountain. The mines so far opened are the Dividend, the Golden Chariot and the Lakeview. The ores generally carry gold and copper.

Stevens County.

Stevens County.

A large bed of marble is reported in the northwestern corner of the county, on Kettle River, near Baulne's Ranch, just south of the interna-tional boundary. It has been examined by ex-perts and pronounced of fine quality.

Whatcom County.

There is considerable excitement over a discovery said to have been made of gold in the beach ands near Blaine. The location is near the mean hof the Nooksak River.

FOREIGN MINING NEWS.

CANADA.

British Columbia-East Kootenay District.

(From Our Special Correspondent.)
Crow's Nest Pass Coal Company.—The management has 200 coke ovens in operation. These will shortly be increased to 250 ovens.

North Star.—The management is shipping 100 tons daily. Frank Robbins is superintendent. St. Eugene.—The smelter is treating about 50 tons daily.

Sullivan .- The company is shipping 2 cars

British Columbia-West Kootenay District.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Ore shipments.—The output of ore from Rossland mines for the half year ending June 30th amounted to 72,000 tons, divided as follows:

Le Roi, 52,000; War Eagle, 10,600; Center Star, 7,000; Iron Mask, 1,500; occasional shippers, 900.

The shipments for the corresponding period of last year were 64,000 tons, made up as follows:

Le Roi, 41,000; War Eagle, 20,500; Iron Mask, 1,200; Center Star, 1,100; occasional, 200.

British America Corporation.—In this com-

British America Corporation.—In this company's Columbia & Kootenay property pay ore has been found in the foot-wall of the main ledge about 1,000 ft. below where the run appears on the surface. The dimensions of the ore body so found are not given.

Center Star.—The engine, skips, cable gallows and ore bins are being changed to the new conditions, the mine being temporarily closed during the alterations.

Le Roi.-For the six months ending June 30th the output of ore amounted to 51,000 tons. The foundations for the new hoist are complete. The shaft has been timbered to the 800-ft. level. The work of sinking to the 900-ft. level will be resumed shortly. The management is now shipping about 600 tons daily.

War Eagle.—According to the statement of the manager considerable progress is being made on the fifth, sixth and seventh levels. The new machinery is reported to be working well.

Nova Scotia—Cape Breton.

Dominion Coal Company.—The shipments of coal from the company's mines in June were 226,000 tons. For the four months of the company's fiscal year, from March 1st to June 30th, the shipments were 645,000 tons, against 431,735 tons in 1899, and 334,187 tons in 1898.

Ontario-Sudbury District

(From Our Special Correspondent.)

(From Our Special Correspondent.)

Canadian Copper Company.—The output of this company is on a larger scale than in any previous year. Seven furnaces are constantly turning out matter and the company is preparing to work 2 more new mines in the township of Snider on the line of the Manitoulin & North Shore Railway, which is to run from Sudbury to Georgian Bay, traversing the main nickel range almost from end to end. almost from end to end.

Demand for Nickel.-Owing to improved con-

ditions in the nickel market and to the advent of several new companies in the field in past 2 years, there is far more activity in nickel mining in the Sudbury District than ever before. Most of the mines on the main range have already been bought up, and, judging by the present outlook, very few, if any, desirable properties will be left unsold by next fall.

Victoria.—Ludwig Mond's men have been exploiting this mine in Denison for 15 months, and are now beginning to put up a large smelting plant near Ranger's siding on the Soo line. H. W. Hiven of Montana has been progressed as W. Hixon, of Montana, has been engaged as manager of the mine and works.

NEWFOUNDLAND.

NEWFOUNDLAND.

The Belle Island mines, the scene of the recent strike, have closed down. The companies have withdrawn their staffs and will open mines in Canada, preferring this course to a submission to the terms of the strikers. The steamer "Regulus" had to return to St. Johns, having been unable to land her load of machinery on the island, owing to the refusal of the strikers to permit any work. The entire cargo had to be put ashore at Harbor Grace, where it will be stored pending the termination of the strike.

COAL TRADE REVIEW.

New York.

July 6.

Anthracite.

Business continues quiet and the much-quoted "midsummer dullness" is held responsible for this condition. The advance in prices noted last week has had little effect one way or the other. Of course it does not apply on existing contracts, and it is looked upon chiefly as a caution to dealers to close their fall contracts in good season. Very little new business has been done and the holiday on Wednesday added to the blank in the trade.

Production in June was larger, and that for July will probably show well also, though there is some talk of a general restriction in mining. There is a general feeling, however, that good stocks on hand for the fall trade will do no harm.

There is less activity in shipments westward, as the Lake trade is well supplied, or perhaps over-supplied at present.

Notes of the Week.

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

Earnings	May. \$1,466,363 1,505,450	Year. \$8,518,825 8,894,836
Deficit	\$40,087	\$376,011

For the six months the earnings increased \$330,240, and the expenses \$361,845; leaving an increase of \$31,605 in the deficit.

Bituminous.

A slight improvement is noticeable in the Atlantic seaboard soft coal trade, though there is still some backwardness in the purchases by large consumers. This is undoubtedly due to the fact that some sellers are offering all grades and kinds of coal, irrespective of quality, wishing to make as many sales as possible before the market becomes stocked. This will likely be the case when the Georges' Creek strike is settled, which may be soon if the reports of miners' wishes are correct. It appears as though the men are desirous of returning to work, but the producing interests are disposed to hold off until they attain their end. Meantime meetings are held between the two factions looking toward an early settlement of the strike.

In the Far East business has improved somewhat, and along the Sound there is also a better demand, but in New York harbor buying is limited.

ter demand, but in New York harbor buying is limited.

A slight falling off in all-rail buying is noticeable. Stocks of coal at the shipping ports are plentiful and rates are easy. No delay is reported in the transportation from mines to tide. Coastwise vessel rates continue firm and vessels are in fair supply. Concerning export business we understand charters have been booked to France from Philadelphia, Baltimore or Norfolk, Va., on the basis of 17s. (\$4.08). There are many inquiries from foreign consumers, while some producers here have been obliged to turn down orders owing to their regular business.

We quote current rates of freight from Philadelphia as follows: Providence, New Bedford and the Sound, 65@70c.; Boston, Salem and Portland, 75@80c.; Portsmouth and Bath, 80c.; Lynn, 90c.; Newburyport, 95c.; Bangor, 90c.; Dover, \$1.15@\$1.25 and towages; Gardiner, 80@85c. and towages; Saco, \$1.15 and towages, with 10@15c. above these rates from Chesapeake Bay ports.

Birmingham, Ala. July 2.

(From Our Special Correspondent.)

The miners belonging to the United Mine Workers of America, who are in majority in the mines of Alabama, have failed to agree, so far, on a contract for the ensuing year. It may be a week before a contract is arrived at or

it is possible that a strike of indefinite period may result. The miners and operators in this State have been holding a conference for some and result. The miners and operators in this State have been holding a conference for some days, but have failed to come to a conclusion satisfactory to both sides. The miners first held a convention, appointed a scale committee, that committee reported on a scale which was adopted in the convention and presented to the operators. The scale asked for an advance of 10c. per ton in mining wages, 8 hours to constitute a day's work, uniform wages for day men, which means advances at many places, a semi-monthly pay day and several other things. This scale was promptly refused by the operators, and the operators and miners each appointed members of a joint scale committee, and that committee was in session 3 days with but little success. Work will be suspended for a few days in the miners until some agreement can be arrived at or a strike declared. The outlook is anything but favorable in this State. The miners have been working hard for the last 12 months and have been able to save some money. The operators claim that they have some coal on hand, but no great supply is visible.

There is no telling at this writing what will be the result. If the miners return to work there will be a demand for all the coal that can be mined this year. The new mines being opened in this State will experience some delay if a strike should occur in the State. There has been no labor trouble in the State. There has been no labor trouble in the State recently except in two small places in Shelby County.

A good price has been obtained for the product in this State and the operators have many orders on hand which will last them for weeks to come. Much, therefore, depends on what the miners will do as to the making of a new contract.

Cleveland, O.

(From Our Special Correspondent.)

Cleveland, 0. July 3.

(From Our Special Correspondent.)

Coal shippers, in taking account of the stuff that has been shipped up the Lake so far this year find, from the reports gathered the latter part of June, that they have now on the docks at the upper Lake ports as much coal, and even a little more, than had been carried up by the first of September last year. In addition to this the shippers have a vast amount of contract tonnage this year which is moving the coal rapidly. This almost assures a reversal of conditions which prevailed last fall. Then the shippers were at the mercy of the vessel interests and had to pay an increase in rates such as the owners might demand. Now the shippers are to be in a position to dictate to a certain degree, and would be more thoroughly in control of the situation were it not for a compact among the owners that is keeping the rates up. All the shippers can do now is to prevent an advance in the rates, whereas the conditions under ordinary circumstances would warrant them in forcing a change in the rates which would be to their advantage. The compact among the Cleveland vessel owners has been able this week to head off a second attempt to break the coal rate to Duluth. Two boats were put in here Saturday, by a Buffalo broker, for Duluth at 40c. The same firm and the same broker broke the rate at Buffalo a few weeks since and it was thought the result would be the same here. The manner in which the owners rallied and kept up the rate has brought out the rumor that the Bessemer Steamship Company is behind the owners urging them to maintain the rates and threatening to turn loose all of the tonnage tied up on the Lakes if they allow a break. They see that this would mean demoralization in all lines of trade and so refrain. The movement from the mines to Lake ports and up the Lakes continues brisk, with good dispatch to boats. Carrying rates are unchanged.

July 4.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

Coal.—There is but little change in the coal situation as to the demand and prices. The demand exceeds the supply, but prices remain the same. The Pittsburg Coal Company, the railroad coal combination, is mining about 60,000 tons daily and during the past few weeks has been buying about 8,000 additional tons each day. A number of new coal companies are being formed in this district and an unusually heavy tonnage will be produced this year. The latest new company was formed by David G. Thomas and Harry P. Jones, sons of James Jones, the old coal operator, who sold his large interests to the Monongahela River Consolidated Coal and Coke Company, the river coal combination. The Jones brothers last week bought 1,100 acres of valuable coal land on the Chartiers branch of the Panhandle Road, about 20 miles from Pittsburg, for \$125,000 and are now opening mines. They will be equipped with the latest improved machinery at a cost of \$75,000 and will soon have a daily output of 3,000 tons. A report was extensively circulated during the week to the effect that the River coal company had struck a solid rock at one of its mines in Washington County and that the supposed valuable coal land in Greene County adjoining was worthless. It was subsequently shown that the report had been circulated by speculators who

à

are trying to secure coal tracts in Greene County.

County.

Connellsville Coke.—The report of the situation in the region shows a decrease in production, shipment and price. During the week 825 ovens were blown out and the shipments fell off, being over 600 cars less than the previous week. The price of furnace coke is quoted at \$2.50 a ton, but it is believed contracts are being made as low as \$2 a ton. Foundry coke is quoted a trifehigher than furnace coke. This month and August will undoubtedly be the dullest months in the year for the coke trade. Over 25% of the blast furnaces have been blown out and but few are likely to be put in blast again before the latter part of August. Of the 20,341 ovens in the region, 16,633 are active and 3,708 are idle. The production last week was 173,254 tons, a decrease of 4,806 tons compared with the previous week. The shipments for the week aggregated 9,183 cars, distributed as follows: To Pittsburg and river tipples, 2,801 cars; to points west of Pittsburg, 4,705 cars; to points east of Connellsville, 1,677 cars. This was a decrease of 637 cars compared with the shipments of the previous week.

SLATE TRADE REVIE W.

New York, July 6.

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

Size, inches	Monson or Br'n- ville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green,	Red.
14 x 14	\$ 6.50	\$ 3.50	3,00	\$ 3.25	\$ 3.10	\$ 5.10	\$ 3.15	8	3
4 x 12	6.60	3.50	3.00	3.25	3.10	5.25	3.15	3.75	*******
22 x 12	6.60	3.50	3.25	3.50	3 25	5.25	3.15	3.75	******
2 x 11	6.50	3.75	3.25	3.50	3.25	5.25	3.15	4.00	
0 x 12	6 90	3.75	*****	3 50	3.25	5.25	3.15	3.75	
0 x 11	6.80			3.75	3.50	5.25	3.15		
0 x 10	6.80	4.25	3.50	3.75	3.50	5.35	3.15	4.25	10.50
8 x 12	6.80	3.75		3.50	3.25	5.25	3.15	3.50	
18 x 11	7.00						3.15	3.75	
18 x 10	7.00	4.25	3.50	3.75	3.50	5.35	3.15	4.00	10.50
8 x 9	7.00	4.50	3.50	3.75	3.50	5.35	3 15	4.25	10.50
6 x 12	6.80	3.75		3.50	3.25		2.95	3.50	
6 x 10	7.00	4.25	3.50	3.75	3.50	5 25	2.95	4.00	10.50
6 x 9	7.00	4.25	*****	3.75	3.50	5.35	2.95	4.25	10.50
6 x 8	7.00	4.50	3.50	3.75	3.50	5.35	2.95	4.25	10.50
14 x 10	6 69	3.75	3.25	3.25	3.25	5 25	2.85	3.75	10.50
14 x 9	6.50		*****		3.10	5.10	2.85	3.75	10.50
4 x 8	6.60	3.75		3.25	3.10	5.10	2.85	4.25	.10.50
4 x 7	6.40	3.75			3.10		2.60	4.25	10.50
2 x 10	5.75			****	****	***	2.60	3.25	
2 x 9	5.60 5.50	3.50	****	3.00	2.80	4 85	2.60	3.25	
2 x 8	5.00	3.25		3.00	2.80	4.85	2.60		9.00
2 x 6	4.80	3.25			2.80	4.75	2.50	$\frac{3.50}{3.50}$	9.00 8.50

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

The market for roofing slate is unsatisfactory. Not only is production decreasing, but prices are demoralized. We understand the schedule herewith has been cut as much as 20% owing to competition for what little business is offering. Summing up the shipments for the first 6 months of this year we notice a heavy falling off as compared with 1899. This is due not only to the decreased exports, but to lesser home consumption as well, for building operations have been curtailed. It is also intimated that many of the quarries that did a large export business last year were thereby "gutted," and now new top has to be removed. This naturally curtails the production of marketable slate for the time being, and as half the year is already passed, we may expect a heavy loss in this year's output. Stocks at the quarries are well contracted for on old orders, and dealers report a scarcity in some sizes of roofing slate. Practically the same conditions prevail in the mill stock trade.

Some apprehension is noticeable in export circles over the aggressiveness of the Welsh quarrymen to keep out American slate. A short time ago the Welshmen reduced their prices 15 and 20%, and it is said they will continue to shade their schedules until our sellers are forced out of the British market.

The exports of slate from the United States in the five months ending May 31st are compiled by us as below:

	Roo	Mfrs.	
January February March April May	Squares,	Value.	Value.
	14,151	\$72,103	\$4,489
	12,062	60,312	6,701
	6,249	31,245	10,978
	6,368	32,447	19,887
	8,809	47,567	17,594
Total	47,639	\$243,614	\$59,649
	120,355	521,058	65,045

The total exports this year amounted to \$303,-263, against \$589,103 in 1899, showing a decrease of \$285,840, or 49%. Roofing slate shipments were 72,716 squares less than last year.

Freight rates continue firm. From New York to London 15s. is asked, but we learn 12s. 6d. was

obtained from Boston.

IRON MARKET REVIEW.

NEW YORK, July 6, 1900. Pig Iron Production and Furnaces in Blast.

	1	Wee		From	From Jan., '00.	
Fuel used	July	7, 1899.	July 6, 1900.			
	F'ces.	Tons.		Tons.	Tons.	Tons.
& Coke. Charccal.	204	258,500 6,250		291,425 6,025	6,419,182 134,735	
Totals	991	961 750	909	997 450	6 553 917	7 889 989

The iron market continues in an unsatisfactory condition. Although we have closed the first half of the year, very little new business is reported. The blast furnaces are generally keeping at work, though a few have gone out since the first of the month, and others are preparing to blow out. Some of the Eastern furnaces which continue have announced reductions in wages. The Alabama furnaces are affected by the trouble with the coal miners.

The usual summer shut-down for repairs in the rolling mills is reducing production. How long the mills will remain closed depends largely upon the settlement of wages, which will this

ly upon the settlement of wages, which will this year be a matter of some difficulty.

Notes of the Week.

Motes of the Week.

Imports of iron ore into the United States in May were 81,525 tons. For the 11 months of the fiscal year, from July 1st to May 31st, the total was 840,694 tons, against 225,257 tons last

Exports of iron and steel, including machinery, from the United States in May were valued at \$12,054,655. For the 11 months of the fiscal year from July 1st to May 31st the total values were \$110,066,849; which compares with \$84,873,910 in 1899, and \$63,235,029 in 1898. The increases were 29.7% over last year, and 74.1% over 1898.

Birmingham, Ala. May 2.

(From Our Special Correspondent.)

The pig iron market in the Birmingham District and in the State is in a bad condition, as admitted by both the furnacemen and the selling agents. There is difficulty being experienced in getting orders. There is, however, still much iron being shipped out of the district. The prices have dropped in the last 2 months no less than \$3 on the ton, and there are indications that this sum will go down \$5 to \$7. The export trade is quite active, though the business is on orders accepted some weeks since. There is not much ship room obtainable either, and there are prospects that there will be some accumulation of iron after July if conditionns do not improve and there is no change in the production. The Tennessee Coal, Iron and Railroad Company sucsmip room obtainable ethics, and there are prospects that there will be some accumulation of iron after July if conditionns do not improve and there is no change in the production. The Tennessee Coal, Iron and Railroad Company succeeded last week in putting two out of four of the furnaces at Bessemer which had to bank fires because of a strike of stock-house employees in blast again, and have hopes of putting the other two in blast this week. The same company had to blow out one of the Alice furnaces in the city on account of needed repairs. Four furnaces at Ensley belonging to the Tennessee Company are in blast yet, with two at Sheffield. The Sloss-Sheffield Steel and Iron Company has the two city furnaces, the two North Birmingham and one furnace in the Sheffield District in blast. The Woodward Company has one furnace in blast. The Republic Company has two and several of the smaller furnace companies have from one to two furnaces in blast.

The local consumption has been reduced materially by the shutting down of rolling mills. Many of the employees have left the district. There is no telling how long the mills will be closed down, but the finished iron and steel markets being dull and there being considerable of the finished product on hand makes it almost certain that there will be no resumption of work at these plants under 4 weeks to come. Very little can be learned concerning the signing of the scale of the Amalgamated Association by the Manufacturers' Association. It is heard that the manufacturers will refuse to sign the scale on the ground that the conditions in the past few months and that prospects for the next 12 months do not justify an advance as asked for.

The following quotations are given: No. 1 founders \$15.60\$\$15; No. 2 foundry. \$14.50\$\$15; No. 3

The following quotations are given: No. 1 foundry, \$15@\$15.50; No. 2 foundry, \$14.50@\$15; No. 3 foundry, \$14; No. 4 foundry, \$12.50@\$13; Gray Forge, \$11.50@\$12; No. 1 soft, \$15@\$15.50; No. 2 \$14@\$15.

Soft, \$14@\$15.

The entry into warrant yards is not so very pronounced as yet, but there are anticipations that before the end of the summer the iron will go into the yards in large quantities, provided, of course, there is no cessation of work at the furnaces caused by a coal miners' strike.

Buffalo.

(Special Report of Rogers, Brown & Co.)

While sales in this district during the past week have been for the usual small amounts, yet in almost every case they were for imme-diate shipment, and the aggregate amounts to a heavier tonnage than would appear at a first

glance. When you consider that foundry yards could not be more bare of stock, and when confidence is once more restored it will be but natural to stock up, you can readily see the small surplus on hand at furnace yards will be quickly absorbed. The local output is somewhat reduced by the blowing out of one of the Niagara furnaces. The months of July and August will be utilized to give this a new lining and general repairs. We quote below on the cash basis, f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, \$19.50@\$20; No. 2, \$18.50@\$19; Southern soft, No. 1, \$20@\$20.50; No. 2, \$19.50@\$20; Lake Superior charcoal, \$22; coke malleable, \$19.75@\$20.25.

(leveland, O.

(Ieveland, 0. July 3. (From Our Special Correspondent.)

Iron Ore.—Both shippers and vessel owners have been looking in vain for the advance in ore carrying rates down the Lakes, as a result of the bull movement started by the Bessemer Steamship Company. While the ore rates have not advanced, the effect of the retiring of the Rockefeller barges is felt all through the market and it is generally conceded that this movement is all that has maintained rates at their present standard. Iron men are now figuring on a movement of 18,000,000 tons down the Lakes this year. This is the amount covered by contract tonnage, but with the Rockefeller barges out of the way 2,000,000 tons of ore, or thereabouts, are thrown onto the market. This has increased the demand for boats slightly, but it is offset in a minor degree by the dispatch which Lake vessels are getting this year, allowing some of the contract boats to carry more than their proportion. By moving the ore easily as they now are and taking all of the tonnage that is offered at prevailing rates the shippers are getting the bulk of their surplus ore down, so that when the fall comes the vessel men will have no club to hold over their heads to force the carrying rates up. The rates remain as they have been, on wild cargoes, \$1 from Duluth, 90c. from Marquette and 70c. from Escanaba. The movement away from the Lakes is being slightly curtailed by the announcement of a number of furnaces in the Mahoning Valley that they have gone out of blast.

Pig Iron.—The expiration of a number of large blast.

-The expiration of a number of large contracts has materially increased sales for spot contracts has materially increased sales for spot delivery. The conditions governing these sales have not changed. The buyers are taking only that stuff which they need imperatively, which means small sales and rush delivery. There is no market quotation, but the understanding is that most of the sales have been made about

Finished Materials.—This has been one of the biggest weeks for sales for a couple of months. The feeling on the market is that prices of steel biggest weeks for sales for a couple of months. The feeling on the market is that prices of steel have lowered about to rock-bottom or at least to that place where business can be done with a reasonable prospect of profit. In addition to the sales, which have been heavy, there have been inquiries which are also heavy, both tending to make the market strong. In only a few instances has any weakness been shown. The week has seen an effort to break the price on billets, but this came from the smaller concerns, the standard mills standing firmly by the agreed prices. The market has heard of a number of big contracts which will be closed in a day or so, which makes all anxious about the prices. Bars have gone down to 1.35c., at which several sales were made, although the standard mills refuse to go lower than 1.40c. Either of these prices is a reduction from a week ago. The weakest point in the market has been on angles of the smaller sizes. These have gone to 1.45@ 1.50c. The larger sizes hold firm at 1.80c. Beams and channels are strong at 1.90c, the price agreed upon some time ago. Plates are firm at 1.45c., with tank plates bringing 1.40c. The market shows an increased demand for steel rails, on which the price remains at \$35 a ton.

Philadelphin.

July 3.

Philadelphia. July 3.

(From Our Special Correspondent.)

The reports from Western Pennsylvania of reductions in billets and Bessemer pig were most welcome to our men generally who are anxiously awaiting rock-bottom prices in all mill and fur-nace products.

nace products.

Pig Iron.—Scarcely any business has been definitely closed. Considerable is hanging fire, despite the fact that buyers do not believe prices have struck bottom. Parties concerned refuse to name the prices submitted, but they must be at least 50c. below lowest current quotations. Nothing but a sharp cut will sell pig iron now. Orders for No. 2 are taken at a shading from \$17. As to No. 1 X, it is hard to quote it.

Billets—Just as soon as the price of billets is

Billets.—Just as soon as the price of billets is fixed at \$22 at mill, or some such favorable but definite price, business will be done.

definite price, business will be done.

Finished Iron and Steel.—At present there is no business in finished products, but there will probably be some big deals for bridge iron and steel before the close of this month. Bars are weak and dull despite the suspension of production. Sheets, pipes, tubes, merchant steel are all weak and without feature.

Steel rails are too high for big orders, but the

general impression here is that prices will be adjusted before long.

Pittsburg.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

The prediction made last week that prices would go down to bed rock before there was any buying in iron and steel has been confirmed as far as prices are concerned, but not as to buying. It will probably require some further shading of prices before consumers are convinced that the lowest notch has been reached. The week opened with practically an open market in all lines of iron and steel products except structural material and steel rails. Bessemer pig-iron will go down to \$17 before the end of the coming week and a lower rate may rule. Foundry iron is likely to drop to \$15. Bessemer steel billets have been quoted this week at \$24 despite the fact that the leading steel concerns had decided to maintain the \$28 rate. It is probable that as low as \$22 can be done before another week. There is no demand for iron and less than half a dozen furnaces in the valleys are shipping any this week. The others are either out of blast or are stocking up the product in the yards. It is reported that at the meeting of the Bessemer Pig Iron Association at Cleveland on Saturday an effort was made to cut the nominal price of \$20, Pittsburg, to a lower figure, but without success, and prices were thus left open. By this action it is believed that conditions will soon begin to improve. The uncertainty as to the cost of production of finished material due to the unsettled wage question is responsible for some hesitation on the part of the manufacturers in looking for new business. All the union iron, steel and tin plate mills under the jurisdiction of the Amalgamated Association were closed on Saturday. The shutting down of these plants is not designated by the workers' organization as a strike or lockout, as negotiations on the different scales are pending. Conferences on the scales in the various branches are to be resumed within a week or ten days and a satisfactory settlement is looked for by the workers who have expressed themselves as confident that the terms demanded are very reasonable an

Pig Iron.—The sales of Bessemer pig iron this week did not aggregate more than 1,000 tons, the price being \$18 for a 500-ton lot and \$19.50 for several smaller lots. It is believed that \$17 could be done for a large order. There were no sales of foundry iron.

no sales of foundry from.

Steel.—There were no sales of Bessemer steel billets. Some manufacturers do not believe that billets will go any lower, while others predict \$22 billets within another week or when buyers begin to make inquiries. Tank plates are quoted as low as 1.30c.

Sheets.—There have been no sales of any consequence during the week that would warrant any change in the quotations given last week, which were 3@3.05c. for No. 27 and 3.05@3.10c. for No. 28.

Ferro-manganese.—The price o' 80% domestic dropped yesterday when a sale was made at \$85, but \$100 is still quoted for small lots.

New York.

The market is quiet and buyers are still waiting for prices to reach bottom, whenever that may be.

may be.

Pig Iron.—There is more demand for small lots, which is not strange, as foundry yards are generally empty. Prices have been shaded still further, and we quote: No. 1 X foundry, \$190 \$20; No. 2 X, \$17.50@\$18.50; No. 2 plain, \$16.50@\$17. For Southern irons on dock, New York: No. 1 foundry, \$20.25@\$20.75; No. 2, \$19@\$19.50; No. 3, \$17.50@\$18.25; No. 1 soft, \$20.25@\$20.75; No. 2, \$19@\$19.50; gray forge, \$16.50@\$17.

Cast Iron Pipe.—There are quite a number of orders to be had, chiefly for small pipes in moderate sized lots.

Bar Iron.—Demand is for small lots and the

Bar Iron.—Demand is for small lots and the market unsteady. Common bars are quoted as low as 1.45c. for large lots on dock; refined bars,

low as 1.45c. for large lots on dock; refined bars, 1.60@1.65c.
Plates.—Business is about the same, and prices are unchanged. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.60@1.70c.; tank, 3/16-in., 1.70@175c.; shell, 1.75c.; flange, 1.85c.; marine, 2.20c.; universals, 1.60@1.70c.
Structural Material.—Business is better than in any other section of the market, and more is in sight. We quote in large lots at tidewater: Beams, 2.10c.; channels, 2.10c.; angles, 2c.; tees, 2.15c.; zees, 2.10c.
Steel Rails and Rail Fastenings.—No reduc-

Steel Rails and Rail Fastenings.—No reduction is announced yet, and we continue to quote for standard sections, \$35 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., \$40; 16-lb., \$40; 20-lb., \$40; 30-lb. to 40 lb., \$38; 40-lb. to standard, \$36, with the usual advance for small orders. We quote angle bars, 2.20c.; fish plates, 2.15c.; spikes, 2.20c.; bolts, 3.20c.

METAL MARKET

NEW YORK.

July 6.

Gold and Silver.

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

Metal.	IM.	Гау.	Year.			
	1899.	1900.	1899.	1900.		
Gold. Exports Imports		\$12,209,596 3,706,161	\$6,644,997 20,281,961	\$22,330,474 12,869,812		
Excess SILVER.	E. \$1,021,010	E. \$8,503,435	I. \$13,636,964	E. \$9,460,662		
Exports Imports		6,066.058 2,461,493				
Excess	E. \$1,426,196	E. \$3,604,565	E.\$10,735,327	E.\$11,391,014		

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

Gold and Silver Exports and Imports, New York For the week ending July 5th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Pe-	Pe- riod. Exports. Imports.			ver.	Total Ex- cess, Exp. or Imp.		
riod.			Exports.	Imports.			
We'k 1900		\$13,559	\$565,865	\$91,050	E.	\$23,07 1 37,639,099	
	11,411,612 4,495,054	7,170,773	14,279,404	1,716,857	E.	16,806,386 48,714,031	
1897	14,157,264		21,315,533			32,155,057	

Exports of gold were in small parcels to various ports; imports were from the West Indies. Exports of silver went chiefly to London; imports were from Mexico.

The United States Assay Office in New York reports the total receipts of silver at 48,000 oz. for the week. Total since January 1st, 2,556,000 oz.

Average Prices of Silver per oz. Troy.

	190	00.	18	99.	1898.		
Month.	Lond'n Pence.		Lond'n Pence.		Lond'n Pence.	N. Y. Cents.	
January	27.30	59.30	27.42	59.36	26.29	56.77	
February March	27.59	59.76 59.81	27.44 27.48	59.42 59.64	25.89 25.47	56.07 54.90	
April May	27.41 27.56	59.59 59.96	27.65 28.15	60.10 61.23	25.95 26.31	56.02 56.98	
June July	27.81	60.42	27 77 27 71	60.43 60.26	27.09 27.32	58.61 59.06	
			27.62 27.15	60.00 58.89	27 48 28.05	59.54 60.68	
October November			27 02	57.98 58.67	27.90 27.93	60.42	
December.			27.21	58-99	27.45	59.42	
Year			27.44	59.58	2.76	58. 29	

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

Average Prices of Metals per lb., New York.

Month	COPPER.		TIN.		LEAD.		SPELTER	
Month.	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.
Jan	15.58	14.26	27.07	22.48	4.68	4.18	4.65	5.34
Feb	15.78	17.02	30.58	24.20	4.675	4.49	4.64	6.28
March	16,29	16.35	32,90	23.82	4.675	4.37	4.60	6.31
April	16.76	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June		16.89	30.50	25.85	3.901	4.43	4.29	5.98
July		17.10		29.63		4.52		5.82
August		17.42						5.65
Sept		17.34		32.74	*****	4.58		5.50
October		16.94						5.32
Nov		16.49		28.51		4.575		4.64
Dec	*****	15.85		25.88	*****	4.64		4.66
Year		16.67		25.12		4.47		5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1990. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 16.33c.; for February, 16.08c.; for March, 16.55c.; for April, 16.94c.; for May, 16.55c.; for June, 16c.

Prices of Foreign Coins,

	Bid.	Asked
Mexican dollars	\$.48	8 .491/6
Peruvian soles and Chilean pesos	.45	.4616
Victoria sovereigns	4.8616	4.88
Twenty francs	3.8616	3.90
Twenty marks	4.77	4.88
Spanish 25 pesetas	4.78	4.82

Financial Notes of the Week.

Financial Notes of the Week.

Business is much quieter and the midsummer dulness is beginning to be felt very generally. At the same time trade cannot be called depressed. Money is in good supply and rates have not advanced. No gold is reported taken for export this week so far.

The unsettled condition of affairs in China has a tendency to stiffen the price of silver. This is on the theory that exports would be stimulated and imports contracted. The market closes toand imports co day at 28 7/16d.

The monthly comparative statement of the Government receipts and expenditures shows that the total receipts for the month of June were \$51,435,832, and the expenditures \$33,540,673, leaving a surplus for the month of \$17,895,155. The receipts for the 12 months of the last fiscal year amount to \$568,988,948, and the expenditures to \$487,759,171, making a surplus for the year of \$81,229,777. The receipts for the full fiscal year

Imports and Exports of Metals.

Dowt	- 1	Week,	July 3.	Year 1900.		
Port.		Expts.	Impts.	Expts.	Impts.	
*New York.						
Aluminumlong to	ms	10	* **7	82	51	
Antimony ore "	6				1,646	
" regulus "			****		625	
Chrome ore	16	5,378	360	57,066	1,501 11,211	
marre	16	216	37	2,106	77	
" ore "	14				4,254	
" ash "	14	*******		****	64	
rerro-Unrome	66	** - * * * * *	******	******	31 342	
rerro-mangan se	66	******		******	17,447	
	40	208	**50	5,809	3,543	
pipe	66	608		8,188	157	
" plates, sheets "	44	1.000		880	13	
1.00.0	44	1,875	950	40,851	37,856	
" dross "	66		*******		7,600 24	
Manganese ore. "	64		3,200 **35		8.614	
Metals,old,scrap "	66	86	**35	1,990	4,387	
	44	10		1,025	185	
NAHA	44	56 75	*2	12,161		
ore, matte		13	-2	1,103	67 146	
&Railr'd material "	68	251	**321	943	5,493	
Rails old "	66		1	1,037	518	
Spiegeleisen	66		**212	****	1,512	
Steel Dars, plates	44	3,532	**141	13,187 24,733	10,555	
ralls	44	489	******	13,854	18	
not spect d.	44	340	**83	1.897	1,668	
	64		. 20	5	13,671	
" and black plates"	16	******	. 1857		17,709	
Zinc	44			322	144	
" dross " ashes, skim "	66	154		412 717	50	
" ore	66	102		8,073	20	
			1	0,010		
†Baltimore.		1				
Chrome orelong t	one	428	******	00 700	2,930	
Copper, fine "	66	920	10000000	22,792	2,556	
Ferro-manganese "					155	
Iron pig. bar. etc. "	44	517		2,905	18,126	
" ore "	66	******	. 5,118		239,493	
Manganese ore "	**	******			18,489	
Metals, old & Rails"	44	******		384	89,930	
Nail8	06			1,206		
Pipe,iron & steel	44	167		2,983		
Silicon	45			******	8	
Spiegeleisen " Steel, bars, etc "	6.6	5,329		18,794	1,38	
wire	44	0,020		663	7,000	
rails	66	501		. 49,385		
Tin	66					
"and blackplates"	**		* ******		1,599	
'Philadelphia.				1		
Antimonylong t	on	3			. 14	
Chrome ore	66				3,65	
Copper, fine "	66			2,402	1	
Iron nig	44		*** ***		18,27	
Iron, pig	44		. **12,18	ò	1,18 111,12	
" pyrites	6.6				87.45	
Manganese ore "	66		. **8,025		87,455 58,76	
Spiegeleisen "	46	*****			3,953	
"andblack plates"	44	******	. 111		213	
and black plates"			- 111	******	1,98	

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, 3/c. alb. Lead, 11/c. alb. on lead in ores; 21/c. perlb. on pigs, bars, etc.; 21/c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c per lb. Spelter or zinc. 11/c. per lb. on pigs and bars 2c. on sheets. etc Copper, tin and plat num are free of duty.

Total United States. §§

Articles.	May	, 1900.	Year, 1900.		
Articles.	Expts.	Impts.	Expts.	Impts.	
Antimonylon	g tons		151 213		973 1,287
Copper, fine, in all forms " Iron, pig & bar. "	44	‡13,997 968	§§3,745 5,994	173,643 41,374	21,393 35,589
Iron & steel plates " Iron & steel rails "	66	2,841 8,299 45,616	81,525 161 294	2,961 18,182 144,439	299,487 4,521 763
Lead, pigs, bars & old		9,351	117	37,080	716
Lead in ore, etc. "Manganese ore		6,657	5,647	329 35,565	689 34,971
and oxide " Nickel "&matte	46	121	25,746	925	184,472
Nails, cut "		1,071 1,752		4,600	
Quicksilver " Steel, billets,	64	18	*******	16,441 203	******
rods, etc "		1,573	2,235	25,542	15,943
" &black plates "	64	89 85	3,251 6,181	216 167	14,772 28,58×
Zinc		2,757 2,944	38	10,698 14,874	471

*New York Metal Exchange returns. *By our Special Correspondent. \$ Not specified. \$ Monthly returns. Treasury Department. [Report of Mr. John Startor.] Week June 28th. *Week ending June 26th. Exports include domestic and foreign metals.

have been derived from the following sources: Customs, \$233,857,958, an increase over 1899 of \$28,729,577; internal revenue, \$296,299,388, an increase of \$22,862,227; miscellaneous, \$38,831,601 an increase of \$2,400,000. The expenditures for the last fiscal year were \$118,313,008 less than for the fiscal year 1899 fiscal year 1899.

The statement of the United States Treasury on Tuesday, July 3d, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	June 27.	July 3.	C	hanges.
Gold	\$69,413,691	\$70,511,981	I.	\$1,098,290
Silver	15,001,112	15,678,947	I.	677,835
Legal tenders	25,045,356	26,450,623	I.	1,405,267
Treas. notes, etc	681,741	660,564	D.	21,177
			1988	

for the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending June 30th, gives the following totals, comparisons being made with the corresponding weeks in 1899 and 1898:

with the corresponding week	is in room a	110 1000.
1898.	1899.	1900.
Loans and discounts. \$620,983,800	\$810,025,800	\$808,468,500
Deposits 750,074,600	905,127,800	888,249,300
Circulation 14,659,800 Reserve:	13,583,500	23,124,700
Specie 186,070,200	182,466,100	166,679,600
Legal tenders 63,462,000	58,090,400	72,242,100
Total reserve \$249,532,200 Legal requirements 187,518,650	\$240,556,500 226,281,950	\$238,921,700 222,062,325

Balance, surplus.... \$62,013,550 \$14,274,550 \$16,859,375 Changes for the week, this year, were increases of \$91,600 in circulation, \$455,400 in specie, \$193,-800 in legal tenders and \$332,525 in surplus reserve; decreases of \$1,556,500 in loans and discounts, and \$2,733,300 in deposits.

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

	1	899	1	900
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd	\$182,466,100		\$166,679,600	
England	158,257,660			********
France	376,597,005		422,530,110	\$229,745,290
Germany	137,605.000	70,790,000	146,390,000	75,415,000
Spain.,		67,020,000	68,445,000	
AusHun	150,810,000	53,130,000	187,920,000	48 450,000
Neth'l'ds		31,510,000	24,365,000	
Belgium		7,485,000	14,510,000	
Italy	76,945,000	10,910,000	77.260,000	8,280,000
Puggia	478 895 000	95 960 000	416 900 000	40 355 000

The returns of the Associated Banks of New York are of date June 30th and the others are of date June 29th, 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.

Shipments of silver from London to the East for the year up to June 21st, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	C	hanges.
India	£2.255,900	£2,810,127	I.	£554,227
China	641,296	1,256,536	I.	615,240
The Straits	41,046	215,443	1.	174,397

Totals...... £2,938,242 £4,282,106 I. £1,343,864 Arrivals for the week, this year, were £165,000 in bar silver from New York and £15,000 from the West Indies; total, £180,000. There were no shipments this week.

Indian exchange continues strong, and the Council bills offered in London were taken at an average of 15.97d. per rupee. There is still a good deal of buying of silver for Indian account.

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

Denomination Pieces. Double eags. 184,021 Eagles	Value. \$3,680,420.00 200.00 140,090.00 60.00	Pieces. 2,672,534 374,911	Value. \$53,450,680.00 3,749,110.00 5,100,250.00 67,780.00
Total gold. 212,083	\$3,820,770.00	4,122,625	\$62,367,820.00
Dollars . 1,000,135 Half-dollars 1,006,135 Quarter-dol . 1,456,007 Dimes 2,270,135	\$1,000,135.00 503,067.50 364,001.75 227,013.50	13,068,512 3,550,512 7,727,097 10,650,512	13,068,512.00 1,775,256.00 3,840,092.25 2,715,391.20
Total sil 5,732,412	\$2,094,217.75	34,996,633	\$21,399,251.45
Five c. nicks. 492,742 One c. bronze. 8,657,787	24,637.10 86,577.87	10,458,895 29,595,664	
Total mnr9,150,529	\$111,214.97	40,054,559	\$818,901.39

Total cn'g.15,095,024 \$6,026,212.72 119,173,817 \$84,585,972.84 Total 1899.14,575,974 10,478,903.53 47,789,811 79,108,797.24 As compared with May the total coinage in June, 1900, shows a decrease of \$5,542,851, owing chiefly to the lesser gold mintage.

Other Metals,

Daily Prices of Metals in New York.

,	Silv	ver.	C	opper.				Spe	lter.
Sterling	Fine oz. Cts.	London, Pence,	Lake.	Elcetro-	London,	Tin, cts.	cts.	N.Y. cts. ₩ lb.	St. L. cts.
4.86	611/4	281/4	16	15%		313/4	W. 20	4.30	4.15
4.861/4	611/4	281/4	16	15% @15%	7134	32	@4.12	4.35	4.171
4.861/4	61¼	281/4	16	153/4 @157/8	715%	311/2	4.07½ @4.12½	4.30	4.121/2
		281/4			713/8	****			
4.861/4	615%	$28\frac{7}{16}$	16	1534 @15%	711/8	31	4.07½ @4.12½	1.30 @4.35	4.15 @4.2
4.861/4	615%	287	16	1534	77	31	4.07½ @4.12½	4.30 @4.35	4.15 @4.2
	4.86 4.86 ¹ / ₄ 4.86 ¹ / ₄ 4.86 ¹ / ₄	Stephing Ste	4.86 61¼ 28¼ 4.86¼ 61¼ 28¼ 4.86¼ 61¼ 28¼	## 15 ## 16	4.86 6114 2814 16 61554 4.864 6114 2814 16 61554 4.864 6114 2814 16 61554 4.864 6114 2814 16 61554 4.864 6114 2814 16 61554 4.864 614 2814 16 61554 4.864 6156 2816 16 61554 4.864 6156 2816 16 61554 4.864 6156 2816 16 61554	## 15% 15%	### 15	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Second S

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

Copper.—The market has been quiet and without special feature, the holiday having interfered with business and some of the larger mills being closed down for inventory. Demand from abroad continues good. We quote Lake at 16c.; electrolytic, in cakes, wirebars and ingots at 15½@15%c., in cathodes at 15½@15%c.; casting copper at 15½c.

The London market, which closed last week at £71 15s. for spot, £71 17s. 6d. for three months, opened at £71 15s. for spot, £71 17s. 6d. for three months. At the beginning of the week it fluctuated but little, but on Thursday it declined to £71 2s. 6d. for spot and £71 2s. 6 d. for three months.

Statistics for the second half of June show a decrease in the visible supplies of 100 tons. Refined and manufactured sorts we quote: English tough, £75 10s.@£76 10s.; best selected, £76 10s.@£77 10s.; strong sheets, £84; India sheets, £82; yellow metal, 6%d.

Tin.—The market has fluctuated in sympathy with the yieler changes in London, but busing

Tin.—The market has fluctuated in sympathy with the violent changes in London, but business has been of small volume. Buyers are reluctant to take hold heavily in view of the uncertain condition of the market. Prices have ranged from 31 to 32c.

The London market, which closed last week

certain condition of the market. Prices have ranged from 31 to 32c.

The London market, which closed last week at £144 for spot, £134 for three months, opened at £145 for spot, £137 10s. for three months, and immediately declined to £139 for spot, £132 10s. for three months. On Tuesday it was £142 for spot, £134 for three months; on Wednesday £140 10s. for spot, £133 15s. for three months, and on Thursday £139 for spot, £133 for three months. It closes at £139 for spot and £132 10s. for three months.

Statistics for the month of June show a decrease in the visible supplies of 100 tons.

Imports of tin into the United States in May were 7,283,453 lbs., against 4,744,534 lbs. last year. For the five months ending May 31st the imports were: From East Indies, 15,274,569 lbs.; Australasia, 336,096; Great Britain and Holland, 17,244,807; other countries, 235,289; total, 33,090,761 lbs., against 35,129,308 lbs. in 1899, showing a decrease of 2,038,547 lbs., or 5.8%, this year. The visible supplies of tin on July 1st are reported as below, in long tons of 2,240 lbs.:

Store, Afloat, Totals.

S	tore. A	float. 7	otals.
Great Britain	1,681	3,813 383 1,670	8,908 2,064 4,220
Totals	9,326	5,866	15,192

The total is less by 1,234 tons than on June 1st; and less by 3,576 tons than on July 1st, 1899. Exports of tin from the Straits for the four months ending April 30th were, in long tons:

To United States	7,990	1899. 9,310 5,795 263	1900. 7,112 7,670 532
Totals	16,631	15,368	15,314
The total this year was le	ss by	54 tor	is, or

0.4%, than in 1899; and by 1,317 tons, or 7.9%, than in 1898.

Spelter.—The market continues strong and active. A good business is doing in this country and we also hear of inquiries from abroad. We quote St. Louis at 4.15@4.20c., New York at 4.30

The European market has experienced a sharp advance, our cables quoting good ordinaries at £20 5s.

£20 5s.
Exports of spelter or metallic zinc from the United States in May were 6,174,386 lbs. For the five months ending May 31st the exports were 24,645,784 lbs., against 12,635,429 lbs. in 1899; an increase of 12,010,355 lbs., or 95%, this year. Exports of zinc ore for the five months were 14,874 tons, against 9,630 tons in 1899; an increase of 5,244 tons, or 54.4%, this year.

Imports of spelter, or metallic zinc into Great Exitain for the five months ending May 31st were

Britain for the five months ending May 31st were

32,114 long tons; in 1899 they were 30,822 tons, showing an increase of 1,292 tons, or 4.2%, this year.

Imports, Lead in ores and bullion Lead, metallic	1899. 87,698,119 311,694	1900. 78,440,703 1,541,858
Exports of foreign lead	88,009,813 64,466,603	79,982,561 80,374,370
Excess of imports		391.809

The imports this year show a decrease of 8,-027,252 lbs., or 9.1%, while the exports increased 15,907,767 lbs., or 24.7%. Of the imports this year 70,466.748 lbs. (88.1%) came from Mexico; 7,882,985 lbs. (9.9%) from Canada, and the balance of 2% from other countries.

St. Louis Lead Market.—The John Wahl Com-mission Company telegraphs us as follows: Lead is quiet at 4.07½c. Trading is very light.

Antimony.—There is no change.—We quote Cookson's at 10½c.; Hallett's at 9%c., and U. S. Star at 9½@9%c.

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

Platinum.—Consumption is increasing and prices are strong and likely to go higher. For ingot platinum in large quantities \$18.20 per Troy oz. is quoted in New York.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram, showing an increase of

1½c.
Quicksilver.—The New York quotation is unchanged at \$51 per flask for large lots; for small orders \$52.50@\$54 is asked. San Francisco quotations are \$51.50@\$52 for local deliveries, and \$46.50@\$47 for export.

The London price continues £9 10s. per flask, with the same figure quoted from second hands. Exports of quicksilver from all United States ports for the five months ending May 31st were 471,472 lbs., against 560,375 lbs. in 1899; showing a decrease of 88,903 lbs., or 15.9%, this year.

Minor Metals and Alloys.—Wholesale prices,

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

Aluminum. Per lb.	
No. 1,99% ingots33@37c.	Ferr
No. 2, 90% ingots 31@34c.	Ferr
Rolled sheets42c. up	Mag
Alumbronze 20@23c.	Man
	Man
Bismuth \$1.6	Man
Chromium (over 99%). 1.00	Moly
Copper, red oxide60c.	Phos
Ferro-Molyb'um (50%)\$1.05	Tun
Ferro-Titanium (10%) 90c.	

Per lb., ro-Titanium (20%). \$1.00 ro-Titanium (20%). \$1.00 ro-Tungsten (37%)...35c gresium ... \$2.75@\$\$ nganese (over 99%). \$1.05 ngan'e Cop. (20% Mn) 32c. ngan'e Cop. (30% Mn) 38c. lybdenum (Best) ... \$1.45 spphorus 45@47%60. ngsten (Best) 95c.

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

LATE NEWS.

The Atlantic Mining Company, of Michigan, reports for June an output of 299 tons copper, against 244 tons last year. For the six months ending June 30th the total was 1,645 tons, against 1,411 tons last year; an increase of 234 tons, or 16.7%.

16.7%.

The Baltic Mining Company reports a total output of 61½ tons copper in June. This company is doing prospecting work chiefly.

The Wolverine Mining Company produced 239 tons copper in June, against 279 tons last year. For the six months ending June 30th the output was 1,363 tons, which compares with 1,368 tons last year, the totals being almost the same in both years.

Leadville, Colorado.

(From Our Special Correspondent.)

Tarshish Mining Company.—This new shaft has reached the quartzite at 656 ft. and the sulphide contact is now to be developed. Development is also to be conducted at the 265-ft. level, where \$65 ore was encountered when the shaft was being sent down.

Silver Cord.—Through the Yels Type 145.

snart was being sent down.

Silver Cord.—Through the Yak Tunnel the new lessees of the Silver Cord, known as the Cooper Leasing Company, are shipping 100 tons of good iron ore per day from the old Cleora shaft. When all connections are made the different claims of the company will likely be logged and all will then be placed on the shipping list, being enabled to handle the immense low-grade o bodies that have long lain idle through the cheap method of transportation through the Yak Tunnel.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 820.)

New York.

Heavy Chemicals.—An improved business is noted in next fire high-test domestic alkali at quotations below, and for future delivery caustic soda at \$1.85@\$1.87½ per 100 lbs. f. o. b. works. The warmer weather brought more orders for sal soda. Domestic bicarb. soda in bulk sold at \$1 per 100 lbs., and a better demand is reported for home consumption, while on export account shipments are still limited owing to the high ocean freights. Bleaching powder is almost featureless, as the large consumers are well supplied for some time to come; hence prices are easy. Little doing in chlorate of potash, and prices are softer.

We quote per 100 lbs. as below:

	Dom	estic.	Foreign.			
Articles.	F.o.b. Works.	In New York	In New York.			
Alkali, 58%.	852090	95@\$1.00 \$1.00@\$1.05	85@90 1.02\@1.05			
Caustic Soda, high test powd. 60%	\$1.00@\$2 00	2.25@2.30 3.00@3.25	\$2.50@2.55			
70@74%. 98%.		3,25@3.50 3 50@4.00	3.75@4.00			
Sai Soda "cone.	70@80. 1.45@1.75	***** **** **	671/6@70 1.75			
Bicarb Soda extra Bleach Pdr	3.25@3.50		2.25			
Eng. prime			1.70@1.75 1.45@1.60			
Chi. Pot cryst		9.00@9.121/6	9.25@9.50 9.50@ 9.75			

Acids.—More inquiry for sulphuric acid, especially from soda water people who are on contract. In June sales of this acid were less than for several months past, but for the six months they show an improvement over 1899.

Blue vitriol and oxalic acid are easier in price, and new business is limited. Concerning wholesale prices in the West we understand that in Denver, Colo., sulphuric acid, 66°, is selling in carboys at \$1.25 per 100 lbs.; nitric, 38° at \$7.50, and muriatic, 22°, at \$2.50.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs unless otherwise specified. Acetic, No 8 in lbs...\$1.62½ Nitric, 38° \$3.87½ Nitric, 38° \$3.87½ Nitric, 38° \$4.12½ Aqua Fortis, 38° 3.87½ Nitric, 40° 4.57 Aqua Fortis, 40° 4.59 Nitric, 40° 4.59 Aqua Fortis, 40° 4.59 Nitric, 40° 4.59 Aqua Fortis, 40° 4.59 Nitric, 40° 4.59 Nitric, 40° 4.59 Muriatic, 16° 1.20 Sulphuric, 60° 1.05 Muriatic, 20° 1.35 Muriatic, 20° 1.55 Muriatic, 20° 1.50 Sulphuric, 60° 1.05 Sulphuric, 60° 1.05

Brimstone.—New York imports this week are 500 tons. Spot best unmixed seconds have sold at \$20.75@\$21 per ton, and shipments at \$20.50. Best thirds hold at \$2 less per ton. Abroad it is announced that the Sulphur Company of Bilboa, Spain, recently formed, will control the sale of the Hellin (Spain) sulphur, aggregating about 5,000 tons per year. These mines are being worked by the Mineral Industrial Society of Hellin and the product goes chiefly to England.

worked by the Mineral Industrial Society of Helin, and the product goes chiefly to England.

Pyrites.—Spanish pyrites are firm, as the laborers' strike in the Huelva District is likely to delay shipments to this country. Late reports state that many of the miners at the Rio Tinto have returned to work. These mines shipped last year 720,000 tons of copper pyrites, showing an increase of 75,000 tons as compared with 1898. These pyrites carried on an average 2.85% copper. Other shippers of pyrites in the Huelva District include the Tharsis Mines, shipping about 250,000 tons in 1899; the Tinto and Santa Rosa mines, 43,000 tons; while the Pena de Hierro expects to ship about 150,000 tons in 1900. There are also many smaller shippers, operated by European interests.

We understand that three or four new factories are being built by people who were formerly

We understand that three or four new factories are being built by people who were formerly distributers of fertilizers. They will make their own acid from pyrites. Just now there is also a good demand for high-grade acid for manufacturing powder.

We quote: Mineral City, Va., lump ore, \$4.75 per long ton (basis 42%), and fines, \$4.20. Charlemont, Mass., lump, \$5.50, and fines, \$5. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46%@51% of sulphur; American, 42%@44%.

Fertilizing Chemicals.—The demand for the

42%@44%.
Fertilizing Chemicals.—The demand for the leading ammoniates is improving. Sulphate of ammonia, gas liquor for shipment is held at \$2.72½@\$2.75 per 100 lbs., while spot is obtainable at \$2.82½@\$2.55 according to sellers. Other quotations are: High-grade tankage, \$1.85@\$1.90 per unit f. o. b. Chicago; high-grade blood, \$1.75@\$1.80 per unit f. o. b. Chicago, and \$2.05@\$2.07½, New York; azotine, \$1.90@\$2 per unit; fish scrap, dried, \$20@\$22½ per ton f. o. b. factory, and wet, \$11@\$11½; ground bone, domestic steamed, \$20@\$21.50 per ton; Calcutta bonemeal, \$25@\$28 per ton; bone black, spent, \$15@\$16 per ton.

Nitrate of Soda.—Firmer at \$1.70 per 100 lbs.

Nitrate of Soda.-Firmer at \$1.70 per 100 lbs.

for spot and \$1.67½ for shipment. Talk of combining the producing interests is strengthening, especially in England, where at least 26 of the companies are registered. The plan of centralizing control of sales is agitated, but it might be well first to consider the regulation of production before planning the disposal of the product. But here is the bone of contention, as some of the oficinas are opposed to the restriction of their output. In case the central selling agency or similar plan cannot be adopted, it is suggested that the English companies sell to the consumer direct, as has already been tried successfully, it is said, by several of the producers. In this way the opposition to a combination could be overridden, it is believed.

Messrs. Mortimer & Wisner in their monthly spot and \$1.671/2 for shipment. Talk of com-

Messrs. Mortimer & Wisner in their mon'bly statement of nitrate of soda dated New York, July 1st, give the following statistics:

	1900.	1899.	1898.
Imp. into Atlantic ports	Bags	Bags.	Pags
from West Coast S. A., from Jan. 1, 1900, to date Imp. from Jan. 1 from	528,634	339,716	402,101
Europe	2,963		55,171
	530,697	330.716	457,272
Stock in store and afloat July 1, 1900, in New York Boston Philadelphia	8,243 26,467	26,449	53,610
Faltimore Norfolk, Va	1,000	400	
To arrive, due Oct. 15, 1900	301,000	275,0 0	310,000
Vis. supply to Oct. 15, 1900	339,710	301,849	365,610
Stock on hand Jan. 1, 1909.	9,583	58,406	15,383
Deliveries in June	102,378	49,757	74,836
Deliveries since Jan. 1 to	504,573	362,273	416,045
Total yearly deliveries		975,592	967,525
Prices current, July 1, 1900	\$1.70	\$1.65	\$1.70

Phosphates.—In Florida it has been raining heavily of late, limiting the production of phosphate rock in June. Shipments continue, however, and are rapidly depleting stocks. Nevertheless miners do not anticipate much of an improvement in market prices until late this year. In August and September next contracts will be made for spring and summer delivery in 1901. It is expected that middlemen will again contract with the miners on an f. o. b. basis, and sell c. i. f. to buyers abroad six months in advance, as was done in 1899. Only in a few cases was the 1900 rock production sold by the miners direct to consumers. River pebble shipments from Punta Gorda in June were 7,739 tons domestic and 3,018 tons foreign; total, 10,757 tons, against 17,435 tons in May. In the 6 months of this year the shipments were 19,085 tons domestic and 9,107 tons foreign; total, 28,192 tons, as against 49,348 tons in 1899, showing a decrease of 21,156 tons, or 43%, owing chiefly to the heavy falling off in exports. These shipments were all made by the Peace River Phosphate Mining Company.

Tennessee mines report labor is more plentiful, and production is improving. At Gallatin the

Company.

Tennessee mines report labor is more plentiful, and production is improving. At Gallatin the Sumner and Gallatin phosphate mining companies are enlarging their operations. In the Mount Pleasant District sales are reported of 70@72% rock at \$2.25@\$2.50 per ton, f. o. b.; 75% at \$2.75@\$3; 78@80% at \$3.50@\$3.75, while a number of miners claim they are getting the quotations as below. Acid phosphate in bulk is quoted at \$9.50@\$10 per ton for 16%, f. o. b. Nashville, and \$9@\$9.50 for 14%.

Quotations on phosphate rock are as follows:

Quotations on phosphate rock are as follows:

DI	Per Ton	C i. f Un or No S	d Kingdom ea Ports.
Phosphates.	F. o. b.	Unit.	Long ton.
*Fla. hard rock (77 @ 80%) *Fla. land pebble (68 @ 73% *Fla.Pace River '58@65%) †Tenn. rock 78%, export. †Tenn75% †Tenn75% **Tenn75% **Tenn75% **Tenn75% **Tenn75% **So. Car. rock, crude †\$50. Car. rock, ground Algerian, rock(63 @76% Algerian, rock(53 \dash68) Christmas Isle(80@85%	4.35 3.00@3 50 4.00@4.25 3.50 2.75@3.00 2.50@2.65 3.00 5.00	734@8d 634d 634d 74@74d 634d 634d 634d	\$12.09@ 12.48 9.45 7.80 10.92@11.31 7.50 9 05 7.80 14.03

* Fernandina. † Mt. Pleasant. ‡ Fetteres: a.

Liverpool.

(Special Report of Joseph P. Brunner & Co.) There is only a limited business passing in heavy chemicals outside of soda ash and causSoda ash is in fair demand at varying prices, according to market. For therees values may be called about as follows: Leblanc ash, 48%, £4 15s.@£5; 58%, £5 5s.@£5 10s. per ton net cash. Ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s. @£4 15s. per ton net cash. Bags are 5s. per ton under prices for therees. Soda crystals are moving off steadily and £3 2s. 6d. per ton, less 5%, is generally quoted for barrels, or 7s. less for bags, with special quotations for certain favored markets. Caustic soda is well maintained, and markets. Caustic soda is well maintained, and although the demand is not active, a fair trade is being done in a quiet way. Values are firm as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.@£10 17s. 6d.; 76%, £11 5s.@£11 10s. per ton, net cash.

Bleaching powder is in limited request and hardwood is nominally quoted at about £6 10s.

hardwood is nominally quoted at about £6 10s. £6 15s. per ton, net cash. Chlorate of potash is very slow at nominally 4½@4½d. per lb. net cash, but holders are prepared to entertain counter-bids, while buyers are indifferent and hold aloof. Bicarb soda is quiet at £6 15s. per ton, less 2½%, for the finest quality in 1 cwt. kegs, with usual allowances for larger packages and also special quotations for particular export markets.

kets. Sulphate of ammonia is meeting with Little attention from buyers and is dull at about £11 5s.@£11 7s. 6d. per ton, less $2\frac{1}{2}\%$ for good gray, 24@25% in double bags f. o. b. here. Nitrate of soda is inactive and lower at about £8@£8 7s. 6d. per ton, less $2\frac{1}{2}\%$ for double bags f. o. b. here, as to quality.

MINING STOCKS.

Complete quotations will be found on pages 817 and 818 of mining stocks listed and dealt in at:

Boston Philadelphia. Montreal. Colo. Springs. Salt Lake. San Francisco. San Francisco. New York. Spokane. Toron.o. Paris.

July .

Warm weather and the Fourth of July have acted unfavorably on speculation. In the copper section Amalgamated sold at \$85, ex-dividend of \$2; Anaconda at \$40@339½; Tennessee at \$14; British Columbia, \$10@\$10%, and Union of North Carolina at \$2%@\$25%. Some inquiry is reported on curb for Gold Hill of North Carolina at \$5@\$5½. American Smelting and Refining common shares fluctuated between \$35¼ @\$36¼, while the preferred sold at \$86@\$87.

In the Colorado group the Cripple Creek shares received most attention. Isabella sold at \$1.25@\$1.26; Anaconda at 38c.; Work, 29c.; Alamo, 15½c.; Cripple Creek Consolidated, 15c., and Pharmacist at 13½c. A sale of Leadville was made at 6c.

Of the Comstock stocks, Ophir brought 75c., Best & Belcher 30c., and Yellow Jacket 16c.

The Crucible Steel Company of America will soon be incorporated in New Jersey with a capital stock of \$50,000,000, for which \$25,000,000 will be in common shares, and \$25,000,000 will be in common shares, and \$25,000,000 will be fine company, Singer, Nimick & Company, Incorporated, Howe, Brown & Company, Eumberland Steel And Iron Works, The Benjamin Atha & Illingworth Company, Spaulding & Jennings Company, Sanderson Bros. Steel Company, Beaver Falls Steel Works and Aliquippa Steel Company, These properties are to be purchased at a price not exceeding \$19,000,000, and \$6,000,000 in cash will be the working capital. The Crucible Steel Company, it is claimed, will control about 90% of the output of crucible steel in this country.

At a meeti

ble Steel Company, it is claimed, will control about 90% of the output of crucible steel in this country.

At a meeting of the stockholders of the Lackawanna Iron & Steel Company, June 29th, the proposition of the directorate to increase the number of directors from 9 to 15 and extend the charter rights to enable the company to carry on its business at Buffalo, was given unanimous approval. The new directors will be chosen at a future meeting from among the capitalists who have joined with the Lackawanna Company in the establishment of a plant at Buffalo.

The new board of directors of the United States Cast Iron Pipe and Foundry Company has elected the following officers: Samuel Thomas, president; A. F. Callahan and A. H. McNeal, vice-presidents, and B. F. Houghton, secretary and treasurer. The board is constituted as follows: Samuel Thomas, Colgate Hoyt, A. C. Overholt, George B. Hayes, (Frorg J. Long, A. H. McNeal, E. C. Fuller, John R. Walsh, A. N. Brady, B. F. Overholt, A. F. Caljahan, C. E. Burke and A. Howard Hinkle.

Boston. July 5.

(From Our Special Correspondent.) The holiday in the middle of the week and the hot weather have combined to make a very quiet week. Prices have fluctuated little, but are generally firm. The market has been a very narrow one, and looks as if it would stay so for a time.

Colorado Springs. June 30.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

The mining stock market has been lighter this week than for some time past. Trading, such as it has been, has been well handled along legitimate lines and the volume was governed entirely by the buying and selling element in the market. The prospect stocks are holding much stronger, relatively, than the listed mines. The reason is that there is at this time a great deal of new development work being done on the properties of companies whose stock is listed in the prospect department. The two sections of the Cripple Creek District engaging the attention of the mining man at this time are Gold Hill and Squaw Mountain. In this connection the strike on the Santa Rita Mine, which was corroborated this week, has had the effect of pushing Squaw Mountain to the front.

The shares of the Independence Town and Mining Company continue sensitive and are selling at 43%44°C. The Wilson Creek Company is persistent in its attacks against the defendant company for the ownership of the Hull City Placer.

The business transacted upon the old exchange

The business transacted upon the old exchange of the city for the week was 3,527,000 shares, of a cash value of \$466,000. The month's business was 14,742,753 shares, of a cash value of \$2,424,248.

Salt Lake City. June 30.

(From Our Special Correspondent.)

Lead's advance in New York has strengthened the lead-silvers and bought out a few buying orders. Daly-West was the first to put on a better front. The past week lead in ores was settled for on a basis of \$3.62½, and next week and thereafter \$4.12½ will be the price. In the gold list no change of moment has taken place. Daisy has bobbed up to 1 bid, on the representation of the receiver that the property can be made to pay its way out of debt. Dalton shows more strength. Dexter is stronger. Mr. Legg has resigned as manager, though he leaves the mine in better form.

Geyser-Marion is now assessment paid. There were but few shares delinquent. Mercur rules about unchanged. Northern Light softened when the mill was again placed in commission. Swansea to-day declared the regular July dividend.

San Francisco. June 30.

San Francisco.

(From Our Special Correspondent.)

(From Our Special Correspondent.)

Nothing new is to be reported. The market has been rather firm, but it is still a small inside market and the fractional changes are of importance chiefly to the class known on the Exchange as "chippers."

The persistent effort made to magnify the returns on some lots of low grade ore recently worked have failed to attract the general public, which cannot be brought to believe in any future for the Comstocks as producers.

Consolidated California & Virginia was quoted at \$1.55; Ophir, 69c.; Mexican, 21c.; Chollar, 19c.; Yellow Jacket, 19c.; Savage, 18c.

Business on the Oil Exchange was light, and few stocks were traded in. Home Oil was quoted at \$4.25; Twenty-eight at \$1.25.

London.

June 19.

London. June 19.

The mining market has been very dull all week. There has been very little news from the seat of war in South Africa and the intentions of the Boers are not known here at all. Consequently, though the Rand and Klerksdorp are now safe in the hands of the English, the date at which active mining and industrial operations generally can be recommenced seems still a long way off. By far the most serious element in the market at present is the Chinese question. It is preventing the recommencement of briskness that was expected at the end of the South African struggle. Not only will the East generally be affected, but there are fears that the European powers may quarrel among themselves over the question and land us in a far worse position than ever.

The West Australian market continues to show uneasiness with regard to the condition and management of the mines at Kelgoria. The means of the mines at Kelgoria.

The West Australian market continues to show uneasiness with regard to the condition and management of the mines at Kalgoolie. The recent convulsion in the Ivanhoe camp has caused much disgust among the general public, and the real truth of the affair is as great a mystery as ever. The Ivanhoe Company is really controlled by Mr. Whitaker Wright and other people whose names do not appear, and the directions of the strength of t

tors are only figureheads who attend to routine and are expected to do what they are told. The action of the board in dismissing the manager, and are expected to do what they are told. The action of the board in dismissing the manager, Mr. Hewitson, at a minute's notice and for no very apparent reason, may have been at their own initiative just to show in a childish sort of way that they had some power, or it may have been dictated by those behind the scenes. Mr. Hewitson's offense was to produce only 8,000 oz. of gold in May instead of 9,000 oz., as was expected, and to say that he thought the production for June might be slightly less. In the course of ordinary business the directors might have asked him to sample the reserves again, or even to get some independent valuation of these. There was really no reason for getting rid of his services in such a desperate hurry. It is only recently that the Lake View Consols, the companion company, got rid of its manager, Mr. Callahan, in the same way, and now the directors of Ivanhoe, who are practically identical with those of Lake View Consols, have followed the same policy. The management of the two companies is now in the hands of one man, Mr. Mackinnon. I mention all these circumstances at some length in order to show that there is a very valid reason for the public being tired of West Australians.

The British Columbian mines have been before the public again this week. Desperate endeavors have been made to ensure the success of the

west Australians.

The British Columbian mines have been before the public again this week. Desperate endeavors have been made to ensure the success of the flotation of Le Roi No. 2 Limited, to which I referred last week. I hear that the subscriptions from the public and from the shareholders in other Whitaker Wright companies have not been very grand, and the underwriters will have to peddle away their holdings gradually on the Stock Exchange. A more unfavorable opportunity could not have been selected for such a flotation. Le Roi, though floated 18 months ago with a promise of immediate large dividends, has not yet paid anything, and the collapse in the West Australians controlled by the group had ocurred only a few weeks before.

Another British Columbian mine that has been introduced to the English public lately is the Emily Edith, situated in the Slocan District, on the south slope of Silver Mountain, 2 miles from Silverton. The mine has been acquired by people in Yorkshire, who have for some three years been examining and trying properties in the Province. The local managers are Mr. Charles E. Hope and M. E. Rammelmeyer, while the mine has been reported on independently by Mr. J. D. Kendall. There appear to be several mineral veins on the properties. One of them is rich in silver and is similar in character to the well-known veins at Slocan, but as its width is small and variable, the directors prefer not to rely mainly on it. No. 2 vein is much more extensive and contains plenty of ore that will concentrate satisfactorily. The present flotation will provide the requisite capital for developing this vein and erecting the necessary concentrating machinery.

The Velvet Mine near Rossland has been before the public again this week asking for more

ing machinery.

The Velvet Mine near Rossland has been before the public again this week asking for more money for development purposes. This mine was originally acquired by the New Goldfields of British Columbia, Limited (the Tupper & Lowles promoting company) in 1898, and by them floated as a subsidiary company called the Velvet Mines, Limited. The capital was £100,000, of which \$92,500 in shares went to the vendors and £7,500 was subscribed in cash. After 2 years working the directors have sold the property to a new company called the Velvet (Rossland) Mine, Limited, which has a capital of £200,000. The old company will take £150,000 of the capital as purchase price in shares, and 50,000 shares are now offered for public subscription. If the whole £50,000 is obtained (which I very much doubt), it is intended to spend £30,000 on mining plant and building a tram road and £10,000 in paying off an old mortgage, while the use of the other £10,000 is not specified. The directors estimate, on the advice of Mr. James Morrish, their mining engineer, that there are 100,000 tons of ore in sight, averaging \$20 in gold and copper, and that they can ship 30,000 tons a year. There is no independent valuation of the property, so that English readers of the "Engineering and Mining Journal" would be interested in an opinion of the mine by a local correspondent. ing machinery.

The Velvet Mine near Rossland has been becorrespondent.

(From Our Special Correspondent.)

The approach of the mid-summer holidays does not find our Bourse in very good condition. The Exposition has failed to stimulate business, as it was expected to do; the iron and steel trade is not in a satisfactory state; and the coal supply question is a difficult one to deal with. Stocks are generally weak.

For two months to come a dull stock market may be expected. Moreover, the Chinese question has suddenly become threatening, and no one knows what may come out of it. Even our best posted authorities hesitate about giving any opinion, and there may be serious consequences to business.

Our friends in Berlin are in an industrial panic, the natural result of two or three years of over-expansion, and an indulgence in the unlimited formation of new manufacturing com-

panies. There is also the results of the industrial troubles in Russia, where much German money is invested, to be considered. The immediate cause of the present trouble is said to be the break in your iron market, and the fear that large quantities of American iron and steel will be thrown on the German market. Everything was ready for an explosion, however, and almost any cause would have started it. The Berlin Bourse is in a state of panic, and securities are falling rapidly in price. Of course those who had been speculating largely on borrowed money will have to go under.

Will the trouble extend to Paris? I think not, though the money markets are so closely connected now that we cannot help feeling some of the results. Paris, however, is in sounder condition than Berlin, and much less expanded.

At the last meeting of the Societe d'Economie Politique M. Raphael-Georges Levy spoke at some length of the advantages of an international clearing house, somewhat on the plan, which you have advocated since several years. His remarks were received with much approval.

DAVIDENDS.

NAME OF COMPANY.	Late	st Divi	dend.	Total 4a
NAME OF COMPANY.	Date	l'er share.	Total.	Total to date.
		8		8
†Amalgamated	July 30	2.00	1,500,000	6,000,000
Am. t ar & Fdry, com	Aug. 1	.50		
Am. Car & Fdry, pf	Aug. 1	1.75		
§Am. Cement	July 16	3.60		
Am. Cement, extra	July 16	1.60		
§Am. Coal, pf., Md	July 16	1.00	*** ***	
Am. Sm. & Ref. pf	July 10	1.75	568,725	2,401,425
†Am. Steel Hoop, pf	July 31	1.75		
tAm. Tin Plate, pf	July 31	175		
†Boston & Colo. Sm	July 2	.75	11,250	303,750
*Bunker Hill & Sull	July 5	.07	21,000	948 (00
tCloverdale Z. pf., Mo		.20	20,100	50,000
*Empire State, Ida	July 18	.30	29,554	£24,917
Empire Steel & I., pf	July 21	3.00		,
†Federal Steel, pf	July 20	1.50	932.067	5,725,587
Home, Colo	July 2	.50	25,000	100,000
†National Salt. com	Aug. 1	1,50	20,000	200,000
†Nat'l Tube, com	Aug. 15	1.50		
tNew Haven I. & St	July 16	.15		
†Parrot, Mont	July 30	1.50	344,775	4,049,050
Penna. Steel, pf	July 16	1.75	26,250	78,750
Quicksilver, pf., Cal	July 16		21.500	1,866,911
Susq Iron & Steel	July 16	3.00		
*swansea, U:ah	July 10	.10	10,000	246,500
Tenn. C , L, common		9.00	10,000	
tTenn. C., I. & RR , pf.	Aug. 1	2.01		
Texas & Pacific Coal .	July 26	1.50	********	*******
†United Zinc, pf., Mo.	July 16	.50	6,497	91 000
*Yellow Aster, Cal		.20	20,000	
I chow Aster, Cal	July 10	.20	20,000	419,416
****************	*******	******	*******	********
********				********

* Monthly, † Quarterly, § Scmi-annual,

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Da	le.	Place of Meeting.
Best & Belcher Centennial Golden Fleece Homestake . *Joe Bowers Ex. *Ophir San Antonio	Nev Mich Colo S Dak. Utah Utah Mexico.	July July July July July July July July	12. 13. 9 20. 18. 9. 19.	Colo. Springs, Colo. San Francisco, Cal. 60 State st., Boston, Colorado Springs. to uncil Bluffs, lowa San Francisco, Cal Salt Lake City, Utal 40 Wall St., N. Y. San Fra. cisco, Cal.

*Special meeting

ASSESSMENTS.

NAME OF COM- PANY.	Loca tion.	No	Delinq.	Sale.	Amt.
Alta	Nev.		July 10		.05
Arrastraville	Cal	5	June 11	July 11	.10
Bullion		56	June 20	July 10	.03
Cadmus			July 25		.10
Calfornia Borax		3	July 5	July 30	
Crown Point		70	July 18	Aug 8	.05
Eureka Con. Drift		25	June 30	July 21	.01
Eutonia		1	July 6	July 17	.0016
Father de Smet		3	July 9	Aug. 6	.25
Garibaldi		2	July 9	July 31	.04
Geyser-Marion			June 27	July 30	.03
Goleta Con		1	June 30	July 30	.06
Gould & Curry		90	July 10	July 31	.15
Joe Bowers, Ext		8	July 20	Aug. 7	.01
Mammoth Garfield			Aug. 4	Oct. 2	.1716
May Day		4	June 6	July 25	.10
Meicher			June 29	July 16	.01
Meteor			July 10	Aug. 14	.001/6
National Con			July 9	Aug. 1.	.65
Pacific			July 10	July 31	.001/2
Reward	Cal		July 23		.02
Ruby Hill	Utab		July 10	Aug. 10	400.
Seg. Belcher & Mide		25	June 20	July 10	
Silver State	Utah		July 2	July 20	
Spanish Con			July 16		.05
Star			June 26	July 16	
Tesora			July 12	July 28	
Tetro			June 30	July 21	.01
Texas			July 11		.10
Yellow Jacket	Nev.	4	July 26	Aug. 31	
******* ***** ******			*********		

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NAME OF COMPANY	Loca-	Par val.	June 29.	-	-	July 2	-	_		_			Baler	NAME OF	Par	No.	-	-	-	-	-	-	_	-			J
	Colo	-	H. L.		L.	1536	15	-	-	-	-	L.	4,5 0		-	shares	-	-	-	-	-	<u>L.</u>	-	-	-	-	B
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Argentum Jun	Ariz	25	15.10	15.00		13.00	: 15 0		****		is.co	12 00	1,00	m. Z. L. & S. Anaconda	25	750,000 60,00 1,20,00	1				13 88						
Best & Belcher Bill.Col.Copper	Nev	8	.0.63 10.5		10 50	10 75 9					io.75	10 2	30 8 0	Arnold, c	25	60,000			19.0	18 56	8:0		18.7				
Rrunswick Catalpa	'olo. Nev	10	25			.69		5		* * * *	.25 09			Atlantic, c	25 28	100,000	22.5	21				****	10.0		is 25 1	8 00	
Chrysolite	Colo.	100 100	.(8)4			.04	0	3		***	.18	***	*****	Boston a	10	300,000 100,100				3.0							
Creede & C. C.	Colo	23-	1.6.			1 45	1.4		****	***	1.6	14		Bos. & Mon. Tr R British Col	5	150,000	297	:33	291	.89 U.51	.89		16 89		.90 v.50	0 00	
Daly Deadw'd Terra	S.Dak	2:	5			1.00			****	****	1.00		*****	Cal. & Hecla, c	20	100,00	1 740		7:0	16.1	7.6		7:0	15 5	730	11.	
Findley Golden Age.	Colo.								***	***			1, 00	Cent'l-Eu-eka	25 25 25	91,000	0	7 9	24.0 5 1			8 50			9.94	9 0	
Golden Flerce	Nev . B. Dah	164	30			10	60.1		****	****	.10 50 CP		****	Copper Range.	10	157,00 110,00	14 (1		120	1 75					
Homestake Horn Silver Iron Silver	Ctah.	21 2	1 20			1 20 .	12	4			1 2	** *	63	do. pref	101	100,00	0 27 2		18 86	17.5	38.50	1	15	***			
Ja K Pet J stice	. 10		1.22	1 2									100	do pref	12	100,00	3 63 0	3) 5		1	1.	31.0				i2.1	
Lacresse Le dville	Colo.	16	.14				1 6						1,0)	Humb aldt	25	532,61 400,00	1: 14.5			2.			25.	4. 0	4 7*	4 0	
Little Chief a exican olite Gibson	Nev	1	.17		5	.17	. 1	7		**	.18	****		Mase Con	25	100 00	68	6 4	5 6.8				2 2	2.06	7 Ui		
Mt. R'sa	Utah		6 875			67	7.6		****			6.75		Michigan	1 23	100,00	0 4.0	U	142	40					2.0		
Phoenix	Aris	1	1836			133				****	(8	1	8.6 U 60	Old Colony .	5 2	5 10 0						****			***		
Plymou h Portland Potosi	Colo.	16	2 9			2 93	. 29		1		3.00			Osceola, c	1 2	93,00	0 60.0	0 9.5	0 e0 :	U 61 6		9 99	60 66	10 50	61.0	4).56	
do. pref Sav ge	Cal.	101	7 00				. 75			• •	7.50 7.5			Quincy. c	2	100,00	0		. 157	135	126		136	185	136		
Smal Hopes	Cclo	2	45	. 3		.:6	4		:		.27 45 3 50	.42	200	Santa Fc. g. c.	. 1	0 250,00 5 130,00	6						4 5	4 35	4.50		
Te n Copper. Union Con	Nev.	23	18.00 12 (3 00		. 66 4 0				13 25	11.00	20	Tccum eh	2	5 80. 1	3 0		7.2			: "	7.50		1 5		
Yellow Jacket	Nev.	5	1 4-1		1	.16	. .1	1 1		****	13	1.::	510	United States.	1 2	5 2 0,00 5 100,00		5	5.0	1 4 7			5.0		15 23	15 00	
Am. Sm. & Ref	1	100	5n 35%				36%	Na46	:]	33		6, 170	Victoria	1 2	200,00	25 0		25 U	124 5		1				25 25	
Am.8 & W Cor		10	31% St 70%	3074	3036	3.34 31 714 7	32 723s	314		***	3 % 7354		21,121	Washington	155	5 0	0									12.66	
Am. Tin Plate.	Colo	10	1996 194 7396 73 3214 314	7:96		334 31		8230]		9 34		4 105	Wolverine, c Wyandotte	25	60,00	35.5		36 0				36 0.		38.00		
Col. & H C.& I Federal Steel	,	10	32% 413 64% 64	313-6	31		36 614	319a 64			6'36		8 4 5 6,47)	+ Official quot	ation	as Bosto	n Sto	CK E	xchai	ge.	Total	sales	s, 20 36	š *	Holi i	ау.	
Fleming'n C &C lat'l Fump. National Lead.	W.Va	. 100	25 23 18 174 1946 9		23	25 28 19 17		17%		***	15%	1714	576			-	(1481)		1	-	IT Y			-		, Pa:	-
National Sa t.		10	37 35	87	35 60	33 36	38	36			93 38 67	35	3.0		_		-	-			Hor					-	
Nat'l Tube Press. St. Car			4"36 4134 445	65		1:24 45	11		:		45		1, 70 900	Buckeye		400,000 500,000	25	3.	5	.63	Joe	Bowe	era Ex	kt.	700,000	0 1	
Republic I & S		19r 19r	75 1094 1 9 54	1196	:314	00s 10 53%	36 103 534				11		1,4 11	Coloride Joint	rka	200,000	25	22.7	1 45	.10	Low	ver Ma	h	oth	150,000	0 5	
Slo's-Shef pf.		. 10	62 614		5 736	-	63	624	****		61	182	1,307	Dairon		500,000	5	.0	334		Nor	thern	Ligh	ht.	400,000 400,00	0 25	
Tenn.C.,I.&R.H Ut ion Cop	1	100	67% 659	6734	65%	1034 65	69%		٠.		6954		300	Daly West	****	150,000	20	17.7	18	:2	Ont	ario	d'An	***	150,00	0 100	
U.S. cast I.P&F	1	. 10	5 44 43 89		39	10 55	5 47	38 38			5 395	3530		Eagle & Blue B	iell.	250,00	1 1	8	5	.93	Silv	er Kii r Cons	ng. solida	it'd	150,00	0 20 6 1	
Total sales.	26 2 15.			Ex-oi	1 10		1001 0	1						Galena	****	300,00	10	-10	414	.17	Swa	shine		••	250,00	0 5	
			PHI June .8	LAD		HIA. F		lv 2	July	V 8.	(Jul	W 1 *	1	Grand Central Homestake		250,00	i			85	Uta Vale	h	attae		100,00	10	
NAME OF COMPANY.	L'ca- tion.	Par Val.	H. (L.	H.	L.		-	L	H.	L.	H.	L	Sales														
Am. Alkali pf.									2.25	2 13			560	NAME OF COMPANY.	6 68 -				-			-		_		_ -	B
Bethlehem Irn Bethlehem S'i Cambria Iron	Pa.	\$50 50	43.00	19 0	****	13 10 "	. 5 th		12.1	***	****	40.0	78 69	Ontario Golden Star			- -	-	-1	-	_	-	-	-			12
Cambria St'l. Susq. I & S. United Gas I.	**	50 10 50	3.25 112				4.0	U	15.75				'9n	Ham Reef	1 .	(9-a .C	16	S34	09	1936 163a	0354	093	4 .09	4			US
Total share	es sold liday.								Co., 8	U9 W	a!nut	st .		Big Three	1 .	1134 .1	3 .(1150	274	.2/34 01%	0234	.613	6 114	36			29
-						_	_							Crow's N C 2	5 3	86.0 89	0 35	0 3	89 2.00 3	.80	92 39 00	16 00	9 0				3
NAME OF	COMPAN	w.	Loca		Par alue.	June 28	June 29.			July 2			Jilr 4 *	Fairview	1 1	.06	956 .1	8	05 69 .01%	16	(:9)	17	.09	*			07
Belcher Best & Belcher				.	3 00 3 00 3 00	.17	27		.7	16 .26		.8		Jim Blaire.	1 1	24 3	5 .	236	.15	11	33	24	.32				2-3
Caledonia Challenge Con Chollar			46		8 00 3 00	.15	.15		16	.15		.17		Michelata. Moot Cristo	1	(3 0	i	1354	04	03%	°64	.03	6 64	4			03
Confidence	A Vir	inia.			8.00 2.50 3.00	1 55	118	1.	50 1	1.8		.09	******	N H ile con	1	95 10	3 9		.03	90	1 02	.91	1 04				9
Gould & Curry Hale & Norcro	85				8 00 3.00 2 00	.12	.12		12 25 66	.12		.34		harbler.	1	113 0	1 (13	0	u 3	114	1.1.35	6 .14				96
Justice Mexican Occidental Cor	n				3.00 3.00 3.00	.20	20		20	.10	1	11	*****	Rathmullen Republic	1 :	35 9	3 8	3 6	93	.95	.69	1.8	93				03
Potosi			4-		8.00 2.50	.19	1 15		18	.22		2)	**** * *	War Eagle.	1 1	61 .6	1 . 1	8	50	.44	1 5 1	1 45	1.43	1:		1.	61
Savage Sierra Nevada Standard Con Union Con			Cal.		8 00 10.00 2.50	4 01	4 1.6	4	20	4 00	4	0)	******	White Bear.	1												11
Vellow Jacket		*****			1.00	,13	114	1:	13	.13		.13		B C.G. Field.	1						07					1	.06
* H ·liday.			CALI	FORM	IIA O	IL ST	^CKS							Gold Hills	,		-	-			-1		1	1	1		_
Name of Company.	No.	Par	June 4	Ju	ne 15.	June	.6 J.	The color of the				=															
Blue Goose .	shares 6,00	8100	14.60	. 47	14.50	0	Mart Mart			70																	
Buckhorn Caribou	16,80 100,00 100,00	1 0	4.55 4	5C 47	4 6	4 60 4	26 4 5	4 2	4 40	1.2	12		1,625	Butte & Boston			.023	-		2 00	Mori	ing G	Horw		1.70	02	34
Homestake National	10,00	5.00	62 6	10 6.	1 11.50	2 25 .	6 1	0 11.00	6 20	11.10	1		1.0	Deer Trail No.	2	81	.04%	.06		2,000	Mou	ntain cess M	Lion.		0.10	.75	34
Petroleum Pan Joaquin . Shamrock	100,000	2 50	3.00 2	7	2 90	2.90	. 81	0	3.25	3 00	.81			Gold Ledge		1	.07	4 .08	*		Ram	bler (Carlb	20	0.25	20	M
	200,000	1.00				.04	.00 .6							Insurgent	****	0.16	.009	6 .O:	100		Bulli	van .				10	
West Lake	100,000	1 2 50	1.00	. 10						1 0	, 1 30	0, 0	11	Lone Pine	n C	n 1	.12	-18		3 000	Tom	Thun	ab		1	.17	

STOCK QUOTATIONS.

	D	Jun		OLO		June		June		Jur.	9 29.	1 2122	ne 80.	1
COMPANY.	Bar	B.	A.	B.	[A.	B.	A	B.	A.	B.	[_A.	B.	_A.	Sale
cacla	BI			.335%	.84%	.31	.3414	34	.314	.34	.3134	.84	.3154	8,0
lamo	1	.13	.14	13	.14	.18%	1430	.14	.15	15%	.16	.15%		12,0
m. Con	1	31	.39%	.344	.47	3114	.3914			.34	89	*****	*****	2,0
ne or	1	.0334	0334	.0234	.0314	0234	.0334	.6234	.0336	.0.34	.03	.81	****	10,0
nchorlaL.	1	.02%	.0314	6236	.0316	.83	.03	80 0:36	.63	.80	.0334	.1234	.03	1 4
ntelope	1	0.24	.061/6	.0534	.0614	05%	.0634		.06	.051	.06	- capp		1.0
diam	1	.04%	05		.05	.04%	-08	.18%		.04%	.05			2,6
rg'ntum J	1	.17	.0136	.17 .038a	.20	.1856	.1916	.0388	194	1358	.04	.0334	.64	8,5
anner.	1	.9300		10300	.29	29	.2916	.0000	2936	.29	2950	.29	.2954	9,0
n Hur	1	.07	.0 1	.07	.0:16	.07	.0746	07	1134	.07	.17%			1,0
ack Bell.	1	10	1 %	.10%	.1134	094	.1116	10	.11%	.10	.12		**	*****
ue Bell b Lee .	1	.0516	.0596	15%	U59s	.0:96	.0536	(516	.0'54	0546	0546			8.5
ickhorn.	Ī	.0533	06	.1616	.06%	.06	.0534	.05%	.06	.05% .05%	106			6,0
diliac	1	.02	.024	1234	.024	.07	.02:4	.0/3/8	024	1,214	0236			7,0
ntral C'n	1	064	.0636	.0694	074	.0736	.07%		.07%	.0736	.0×46	1		85,0
danla	1	-0276	.03	.0236	0334	.03		.0274	.031£	.0744	.03	****		2.0
K.&N	1	.0296	.0244	.(246)	92 kg	.02%	.0.44	0.48	() 44		.0234	***	**	8,0
K &N C.Col'bia C G Ext C. & Man	1	.09	.09% .09%	.09 .109á	.1194	09 10	1916	.08% 19%	.09	.(89 _R	.10	10%	1036	18.0
C & Man	1	.10%	104	1036	100	.1186		.1 %	:0%	034	.11.36	.10%	.10%	7.0
nner Mt	1	.8456	0134	.0454	.01%	.0456	.045%	04 >4	.0450	.0436	.6434	.0495	.043s	70 14,5
rede&CC	1	1346	.15	.14	.15	14	- 15	.1336	.14	.14	14		15	1,00
C. Con.	1	.13%	.13%	.14	** **	.1314	.14%	.13%	.1394	.18	.1396	* *	**	16,0
s Moines	î	0.7		.C6	0636	U634	.07			.16	.07			
linge	1	.09	.09%	M890.		.08360	.09	08%	.1.9	.C9	.694			4,0
Page G.	1	1.2756	1 26	1.27%	1.2756	1.26	1.17	1.2636	1.26%	1 27	1 2846	1.2	1.24	4,0
terprise.	1	2 46	.22	.21	· #078	.23	.41	.40		.40	.94		*4075	
Rawlings	1	.32		30	82		****	*** *		.25		.29		2,0
vorite	1	1430	1416	42.4	1812	.15	1612	.15	11:36	* *	****	XX1:	***	
ndley . orf. Con	1	1970	.16	.15	.151/4	.40	.1516	. LO	.1.28	****	16	* **		19,14
Mden KI	1				** *						40	**.	1	
ld Hill ld.Sov'n.	1	.0316	0 196	.0356	.10%	.0316	0390	.03 4	.0316	.03%	.6350	.03%	0.36	63,0
ydan	1	10%	.10%	.1050	.02	.10 M 0136	.1016	.0 34	.02	.10% 01%	11.36	0134	1120	11,5
May	1	20	.8116	.3036	3094	31194	.31	9114	.82	.33	.85%	.85	.3:4	89.7
dep'ndce	1	.41	.43	.4554	.50	.43	.44	425g .1934	214	.46	.47	.41%	-45	89,7
g. Con	36		1916	.1950	19%	194	21	.1936	1 21%	19	1:3	.20	2.34	8,8
ck Pot	1	1.21%	1.24	1.22	.59	1.2150	1.28	1.215	.58	55	53	****		1,3
aenhine	1	.0 1/6	0 34	.0236	.0236	.0234	0236	.0236	0.36	.0216	02%			2.00
y West	1	.0346		.035	.(356	.0350	.04	.0316	.0356	(3 0			****	8,0
agnet R	1	.16%	03%	.174	17%	03%	.17%	.16%	. 63	1734	.01	033	.0336	9,00
argaret	1	025	.124	.02	.02%	0.5%	. Uoyg	.03%	.04	.6230	· Lista		.0078	6.00
argery	1	04	.1416	. 4	04 %	19	.61%		11414		37			2. (
toa.	1	.34	.85	33	.34%	.34 6	.35	.3536	0636	.26 %		.87	.3.14	41,20
J T	1	C4	0456	05%	.014	0436	.01%	.04	344	14		**		2.0
bile	î	0344	.03%	.0 34	.11394	0314	0330	.03%	0:36	1.0	0334			6,14
II.Dwyer	1	.063%		0 44	.05%	.0:96	0334	.0596	.05%	.0506	.0344	.0636	.0656	141,00
ollie Gib.	1	.23	24	.23	.2446 .0 9k	.23 .0d56	.24	23%	.25	. 223/6	.06%	.083	180	2,0
ntreal.	1	.0079	.0336	.181	0894		.08%	.03%	.1894	118 4	.68%	.00%	1076	
oon-A'c'r	1	57	60	57	68	.57	6)	.57		.57	-			10
orning 8	1	.034		.0316	.6324	.033%	1336	.03%		.08	.03%	*** **		10,00
n.Beauty	1	. 11936	1934	.6950	09%	.1.970	199a		1	.19%	.09%	** ***		1,00
tional	1	.144	1136	1336	1356	.1336	1.96	1:36	13	13%	.13%	.1316	.1394	2(8,9
IIIe V	1	.1236	1356	.124	.1244	.12	.1256	12	.12%	.12	. 24			4,0
w Haven veB'nch.	1	08%	.01-9×	0854	.183%	.US)m	08%	0 %	0556	.061/4	01-36 L7	08,4	.08%	1.00
lule	1	.05	05%	.05	0.34	.05	15%	03	.0530	.05%	.0534	*****		2,6
phan	1		.1850	18			.19 -	.18	.19	.18	.19			1. 0
lican.	1	02%	.03	.1234	.024		0294	.024	03		.60.	104	* 100	4,0
armacist	1	.1.2	134	.12 .1.3 _a	1234	.1236	1336	.13%	13%	.1234	13	12%	.1234	45,00
nacie	1	.18%	15%	.19	19%	i	.20	.19	.1974		.20		.10%	6,6
rtland	1	1.10	3.12	8.05	3 Uei	3 00	3.02	3.00	3.03 1	3.04	3 06% 04%		***	6,6
nce Alb.	1	.04	06	1456	04%	.04	044	.0 %	.6416	.04	0134	****	***	5,0
ncess	1	.0534	.064	.1534	.6 06%	.05%	0636	.0 %	0634	.U5%	.0634	.0614	.05%	10,0
thias	1	.0 5m	.05%	.05%	.0 94	05%	0194	.0.50	.U 9%	.0536	0594			13,9
97-63-Y3	1											*****		
public b'tBurns	1	.06	.01%	0636	66%	06 M	06%	.1614	.0616	.0634	.06%		** **	1,0
se Maud.	1	.01%	6944	69 ha	.0996	U9	.04% 19%	.09%	.0954	.6914	-39	1956	1034	340
se Nicol	î	.13	.1316	.18	13%	13	.13%	.13	.18%	.13	134	.13	1359	2,0
ver Gold.	1	.0134	.0:34	.0134		0114	****	.6154		.01	.013%			1,0
rnado	1	** **											***	
uraine	1	*** *	*	- 9.4.0 -	***						*** *	****	*****	*****
achyte	1	.07%	0730	734	674	.03%	.07%		.0736		.0:34		***	3,0
cle Sam	1	041/6	.(4 4		14%	.(414	.01×	.041%		.013%			-	3,0
dicator.	1	1.45	1.51	1 45	1.50	1 45	1 50	.41	1.51	43	1 10	*****	4 - A	3,0
ork	1	3146	.3034	3036	3394	30%	9 8 .	.3 34	.90%	3.36	.33%	.30%	.3030	23,0
nobla		15	200	15	.15%	16	15%	15	1584	15		1 1000 100		

MONTREAL CANADA.

	Par	We	ek. Ju	ine 9.	1	Par	We	ek, Ju	ne 29.
NAME OF COMPANY.	Val	H	L.	Sales	NAME OF COMPANY.	Val	H.	L	Sales
Big Three Cai(forni) Can Gold Fields Decca Deer Trail Con. Giont Golde Star Gold Bills Dev Knob Hill Majestle	\$1 J.10 1 1	.0236 .11 .08 .06 .06 .06	.0114 06 66 0414 0434 .12 02 3.	6, 00 5,5ct	Monte Christo Montreal G. F. Montreal-London Oregon Payne Rambler-Cariboo Republis on Slocan-Sovereign Virtue War Wagle	\$1 0.24 1 1	.04% .(5 .29 .37 1.01 25 93 .28 87	.03% 113 24 .17% 94 117% .87 .8	3,00 6,90 12,70 1,00 5,50

* Montreal Stock Exchange. Total sales, 67, 37 shares

EXICO	J

			N	EXI	co.			June	21.	
NAME OF COMPANY.	No. of	Last	Pric	366.	NAME OF COMPANY	No of	Last	Prices		
NAME OF COMPANY,	shares.		Op'g	Cl'g.	NAME OF COMPANY.	shares.	div'd	Op'g	Cl'g.	
Durango:					Hidalgo:					
Barradon y Cab			\$40	\$30	Real del Monte	2,554	10 Ou			
Candelaria de Pan.				20	San Francisco He		3.00	171	145	
Capuzaya Guan	2,400	******	15	20 12 20	Boledad	96)	7 5		28	
Restauradora	10,000	******	10	20	Union Hacienda	960	5.00			
Quanajuato:	0 400	* 00				2,000	3.00	210	28.	
Angustias	2,400	5.00 15.00	145	153	Mexico:	500		-	-	
Cinco Senores y An	2,000		34	331			10.00	75	75	
Guadalupe Hacie'a	10,000	2.00	205	200	Esperanza y An	8,000	10.00	1 250	1,280	
Trinidad, aviadora.		*	15	6	Michoacan.	4 000				
do. aviada	400	*** ***	15	16	Luz de Borda ava	4,000	188.	18	12	
Zona Minera de Pos	2,400	*****	6	8	8. Luis Potosi:	0 400			1,00	
Hidalgo:	0.000	0.49	-		Concep. y An	2,430		361	275	
Amistad y Concord.	9,600	1.47	20	18	Zacatecas:	3 800				
Arevalo	720		20	200 70	Asturiana y An	2,500	10.0	17	175	
Bartolome de Med.	2,000	2.00	65	70	Cabeson	2,400		15	15	
Carmen	1,100	7.75	250	200	C'delar, de Pinos	2,500		23	240	
Lus Ca Maravillas.	800	******	130	100	Palma de Somb	2,400		5.	40	
Pabellon	850	27.89	30	20						

DENVER, COLO.

NAME OF	Par	Jun	e 25	Jun	e 26	Jui	18 27.	Jur	10 28.	Jui	ne 29.	Jus	e 911	1
COMPANY.	val.	B.	A.	В	A	B	A.	B	A.	B.	A	R	A.	dales.
Alamo	1					.18		12.		.15	.16	*****		1,00
Anaconda	5			***		.3134	33	.39	STREET.	.55	.16%			1,6(0
Aola	1							0534			****			1,0:0
Arg. J	1	1		**		1		.16%	. 9%	143 11			****	160
C K & N.	1	.0236	.02%	*****		.11244	_		*:	.02%	.0234			1,000
Dictstor	1	.025e	.0296			0.2%	03	.0334	033	.0316	(131/4			69,010
Elston	1									1.27	1.2834		**	
Find ey	1		7			.15	15%	15	. 15%					1,003
Gold S v'n.	1	.16%	.10%				.1630	-1034	.1156	.10%	.1136	2.4		8,000
Golden Age	1				44.									
Indepen'ce	1	41%	42	** **	*****	455	43	43	.45		.46	**.		2,000
I on Clad	1	.11574	.1636	****	****	0534		. 12		.16				500
Icabella .	1	1.22		****	× .		1.24	1 21%	121	22		AAK!		5,21-0
Magnet R'k	1	.0356	. 884	****	***	.03%	.44	.034	.03%	1384	0334		. **	2,000
National	1	**	4.6			-	4.5	1234	. 214	.1034				4,000
New Haven	1	(3)4	.0836			091/4	.1830	(IR4 ₆	0836	.11836	.0836			1,003
New Zeal'd	-1		×	****		.58%	70	.60	**	.58%			***	
Old Gol1	1	.0 36	05		***	0136		.0 36	***	.014	.0136			
Omega	1	00536	01.630			.00534	007		****	00534			**	
Ophir	1	4 -		****			***					***		
Peritan	1	.01	.0134		*****	0136		.0136	0:36	.(134	.0134	***		
Union	1	****	.45	- 4.4										
Vindicator.	1					164			**					
Wh.of Fort.	1	.0134	0 %			0134	0136		*	,01h	.0136			15,000

PARIS.

June 14.

NAME OF COMPANY.	Country.	Product.	Capital	Par	Latest	Pric	306.
			Stock.	value.	divs.	Op'ning	Closing.
			France.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfra.	27,090,000	2,000	75.00	1,909.0	1.890 00
" " Firminy	86	66 66	3,000,000	500	125.00	3,54 1,00	3.500 CO
" Fives-Lille	04	60 06	12,000,000	500	85.00	525 00	528 00
" Huta Bank.	Russia	Iron & steel		500		4.575.0	4,580.00
" la Marine	France	Steel mfrs	20.000.00	500	*0.00	1.675.0	1.695 00
Ansin	68	Coal			220,00	6.85 1,00	6. 00.00
Boleo	Lower Cal.	Cupper		500	176.CU	2,930.04	2,740.00
Briansk	Russia	Coal & Iron		500	*******	942.00	1.000.00
Coamp d'Or	8. Africa	Gold	3,375,000	25	3.75	41 50	40.50
Courrieres	France	Coal		800	70.00	3.010.00	2 870.00
Dombrowa	Russia	Coal		500	12.50	1,000 00	990 66
Donets	84	Steel			14.00	1, 15.00	931.00
Dynamite Centrale	France	Explosives		500	20.00	435.00	485.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,272.00	1.28100
Fraser River	Brit. Col'mb	Gold	250.0 0	25	00.00	9.25	9.56
Huanchaca	Bo ivia	Silver	40,000,000	125	5.00	160.00	147 50
Laurium	Greece	Zinc & lead.	16,300,000	500	80.00	590.00	585,00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,210,00	1,210.00
Metaux, Cle. Fran. de	France	Metal d'lers.		500	30.00	485.00	49 .00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1.205.00	1.195.00
Napthe Baku	Russia	Petroleum.	Totos etoco	500	40.00	824.00	835 00
Napthe, Le	64					1.800.00	1,300.00
Napthe Nobel	44	68		*******		696,00	695.00
" " parts		- 84		*******		13.7: 0.00	13,900.60
Nickel	N. Caled'nia	Nickel	000,000,01	250	10.00	478 OL	470.50
Penarroys	Spain		10200200	500	95.00	2,757.0	2 760 00
Rebecca	Colo'do, U.S.		5,000,000	25	2,400	4.00	8 75
Salines de l'Est	France	Salt	5,000,000	500	6.50	258. 0	265.00
Salines du Midi	France	" etc		500	25.00	1, 55,00	
Vielie Montagne	Belgium	Zinc		80	36.00	762,00	

		LC	NDON	8					Ju	ne	22.
	NAME OF COMPANY.	Country.	Authorized		Par	1	dividend.	Q	uot	ati	ons.
	NAME OF COMPANY		capital.	V	alue.	Amt	Date.	Buy	era	8e	ller
1		41	6000 000		s. d	s.d.		£ s.	d.		8. d
1	Maska Goldfields	Alaska	£300,000	1	0 1	0 4.8	Mar., 1899				0 0
1	laska-Mexican, F		1,000,000		0 0		May, 1900		6		5 6
ľ	naconda, c., s	Montana	6,000,000	5	0 0				6	8	7 6
li	De Lamar, g., 8	Idaho	400,000	1	0 0	6	May. 1900	3	U		4 0
li	De Lamar, g., s Elkhorn Priority (New),	Colorado	400,000 87,500 80,000	1	0 0		Apr., 1900 May, 1900 June, 1898	1			3 9
1	Joiden Gate, g	California	80,000	1	0 0	*****		- 3			2 0
1	Frand Central, g., s	Mexico	300,000	1	0 0	20	Jan., 1900	13			16 3
H	Hall Mines, C., S Le Roi, g	Mexico	1,000,000	5	0 0	5 0	Jan., 1900 May, 1899 Nov., 1899 Apr., 1909 Apr., 1899	6 1	8	6	3 9
١i	Lillie,g	Colorado	250,000	ĭ	0 0	216	Apr., 1900	7	6		2 6
Ιi	Montana, g., 8	Montana	660,000	1	0 0	6	Apr., 1899	8			4 0
13	Mountain Copper	Cal forma	1,250,000	5	0 0	77 0	Apr., 1900	3 4		5	7 6
1	Newfoundland, c	Newfoundland.	250,000	1	0 0			2	6		7 6
	Palmarejo & Mexican g.,	Mexico Colorado	700,000	1	0 0		Tana 2010	211	1		1 6
H	Stratton's Independence.	Chile	1,100,000 200,000	2	0 0		July, 1900	3 17		2	3 9
H	Copiapo, c	Colombia	140,000		0 0		Oct. 1899	1 12			
1.1	st. John del Key, g.,	Brasil	606,000	1	0 0		Jone, 190	1 8			
U	UtahCon.g(Highl'ndBoy	Utah	300,000	1	0 0		Mar., 1898	4 15	1	5	5 0
1	Velvet, g	BritishCol'mbia	100,000	1	0 0			1 0	0		2 6
	Ymir, g		200,000	1	0 0		Nov., 1899	1 8			11 3
	British Am. Corp	Snatn	1,500,000	3	0 0	15 0	Mar., 1900	9 0			3 3
1	Linares, I	Spain	420,000			10 0	Mar., 1910 May, 1900				0 0 2 6
11	Rio Tinto, C	Spain	1,625,000	5		45 0	May, 1900	51 5	W	51 1	
Г	Tharsis, c	45	1,625,000 1,625,000 1,250,000	5	0 0	26	1 1903	6 2	6	6	5 0
L	Tharsis, C		1,250,000	2		15 0	A Thr. 19(1)	7 12	6		7 6
1	Assoc. Gold Mines	W. Australia.	500,000	1	0 0	1 6	Jan., 1906 Apr., 1900	3 5	8	3	7 0
Ľ	Broken Hill Prop., s	N.S. Wales W. Australia	384,000 175,000		8 0	10	Apr., 1900	1 10	6	2	7 6
13	Hannan's Brownhill, g	44	140,000	2	0 0	7.6	Apr., 1900 May, 1900			8 1	5 0
H	vanhoe Gold Corp	00	1,000,000			5 0	May. 19 K	9 7	6	9 1	
Į į	Kalgurlie, g	40 0000	120,000	1	0 0	rte	Oct , 1899	5 13	9	5 1	6 8
11	Kalgurlie, g Lake View Consols, g		250,000	1		10 0	May, 1944	11 16	2	11 1	8 9
11	Mt. Ly911 M. & R., I., C	Tasmania	900,000		0 0	5.0	July, 190	7 15	U		0 0
H	Mt Morgan, g	Queensland New Zealand,	320,000		0 0	26	June, 190	9 16		4 1	
1	Waihi, g. Champion Reef, g	Colar Fields	220,000		10 0	4 0	May, 1900	5 18	9		0 0
Li	Mysore Gold, g	40 0000	250,000		10 0	4 0	July, 1950	6 5	U		7 6
li	Nundydroog, g	61	242,000	1	0 0	20	July, 1900	3 6	5		8 9
1	Opregum, 2	66 ****	145,000	1	0 0	3 6	mg., 1900	8 15	U	8 1	
	" Dref. K	9000	120,000	1	0 0	3 6	190"	4 15	11		0 0
IJ	British S. Af., chartered.	So. Africa	5,000,000 600,000	1	0 0	rts.	May, 1899	5 11	9	3	
	Cape Copper, cpref	44	150,000	2	0 0	30	July, 1900	5 5	0	51	
1	City & Suburban (New), g	Transvaal	1,360,000	4	0 0	80	Aug , 1899	3 7		5 1	
1	on Deep Level, g	**	200,000	1	0 0	x all	June, 1898.	1 5	U	1 1	
0	Prown Reef, g		120,000	1	0 (18 0	Nov., 1899	15 0		15 1	1 0
I	De Beers Con., d	Cape Colony	8,950,000	5	0 0	21	Sept , 1999	27 2			7 6
1	rerreira, g	Transvaal	90,000 850,000	1	0 0	8 0	Aug., 1899 Aug., 1899	9 10			0 0
	eldenbuis Est., g		200,000	î	0 0		Aug., 1899	5 10	6	6 1	5 0
6	lenry Nourse, g	46	125,000	î		10 0	Aug., 1899	8 2			7 6
1	agersfontein, d	Orange Fr. St	1,000,000	5	0 0	60	Apr., 1900	16 0		6 1	
- 7	channeshurg Con Invat	So. Africa	2,750,000	1	0 0	20	NOT . 1899:	5 0			2 6
j	ubilee, g	Transvaal	50,000	1	0 0	50	Aug. 1899	5 15		6	5 0
L	angiaagte Katate, g	61 *****	470,000	1	0 0	80	achr., 1933	8 2			7 6
3	ubilee, g		100,000	i	0 0	80	Aug., 1899 July, 1899	4 17		4 1	
2	amaqua, c	Cape Colony	200,000	2	0 0	80	July, 1899 June, 1899	4 12		4 1	
F	rimrose (New), g	Transvaal	300,000	i	0 0	6.0	Aug., 1899	3 17			0 0
Ŀ	and Mines, g	So. Africa	490,000	1	0 0	15 0	Aug., 1899 Aug., 1899 Aug., 1899 July, 1898 July, 1899 Feb., 1899	39 15	0	89 1	7 6
B	obinson, g	Transvaal	2,750.000	5	0 0	80	Aug., 1899	8 12	6	8 1	7 6
35	heba, g lm. & Jack Prop., g	40 41010	1,100,000	1	0 (0 6	July, 1898	1 2			9
20	Im. & Jack Prop., g		5,000,000	5	0 0	20	Feb 1899	5 17	6		0 0
	Volhuter, g		860,000	4	0 0	40	LOD" 1033	4 7	6	4 1	2 6

DIVIDEND-PAYING MINES.

Name and Location of Company.		Author- ized Dividends.								Nama and Landing	ized	SharesIssu'd		Dividends.										
Company.	Capital	No.	Par	Paid, 1900.	Total to Date.	-	atest.									Name and Location of Company.		No. Par Paid,			Total	-	Latest.	
	Stock.		Val	1900.	to Date.	Da	te. I	Amt.		1	Stock.		vai	1900.	to Date.	Da	te.							
Acacia, g Colo.	\$1,500,000			\$15,000	\$15,000 225,000	June.	1900	.01	122	Hidden Treasure, g Cal	\$500,000 500,000	360,000	\$1	000	\$3,600	July	1899							
Alabama Coal & Iron,pf Ala	2,500,000	25,000	100	30,000 87,500	87,500	May	1900 1	.75	124	Holy Terror, g 8. D Home, g Colo	50,000	50,000	1	\$5,000 75,000	75,000	Jan June.	1900							
Alaska-Mexican, g Alas Alaska-Treadwell, g Alas		180,000 200,000		36,000 150,000	465,031 4,370,000	April.	1900		$\frac{125}{126}$	Homestake, g S. D Horn-Silver, g. s. c. sp.l Utah.	21,000,006 10,000,000	210,000 400,000		630,000 20,000	8,773,750 5,279,000									
lice, g. s Mont	10,000,000	400,000	25		1,075,000 81,500	April.	11898	.05	127	Idaho, g Idaho	1,000,000	1,000,000		8,188	8,188	April.	1900							
lliance, g	500,000 75,000,000	750,000		4,500,000	6,000,000	July.	1900 2	.00	129	Idaho, s. l	1,250,000	1,250,000	1		292,000	June.	1900							
manda, g Colo.	1,000,000		1	10,000 102,000	10,000 121,882	June. May	1900	.10	130	International, z Mo Iowa, g. s. l Colo	1,000,000	1,000,000	1	26,427 39,334	26,427	July June.	1900							
merican Coal Md	1,500,000	60,000		195,000	000 000	June	1900 2	.00	132	Iron Mountain, g. s. I. i. Mont.	5,000,000	500,000	10		507,500	April.	1898							
merican Gold, g. s. c. l Colo. mer. Sm & Ref., pref U. S.	3,000,000			1,832,650	446,000 2,401,425	July	TMM/I	. 60	134	Iron Silver, s l Colo Isabella, g Colo	10,000,000 2,250,000	2,250,000	20	135,000	2,500,000 675,000	April. June.	1889 1900							
m. Steel & Wire, pf U. S.	40,000,000 50,000,000	400,000	100	2,100,000 1,750,000	4,900,000 1,750,000	July	THOUT	. 40	135	Jack Pot, g	1,250,000 3,900,000	1,250,000 390,000	1		75,000	Dec April.	1899							
m. Steel & Wire, com. U. S. m. Zinc, Lead & Sm Mo	2,500,000	60,000	25	60,000	180,000	Jan	1900 1	.00	137	Keystone, g Colo	1,500,000	1,500,000	1	********	35,000	Mar	1894							
naconda Copper Mont nchoria-Leland, g Colo.	30,000,000 600,000	1,200,000	25	2,400,000	14,550,000 198,000	April.	1899	.03	138	Klondike Bonanza, Ltd. Klond Lake Superior Iron Mich.	750,000 2,100,000	52,750 84,000			2,132,000	Aug								
nglo-Mexican, g Mex.	2,001,625	400,230	5		1.825,048 210,000	Dec	1899	.24	140	Last Chance, s. l B.Col Last Dollar, g Colo	500,000 1,500,000		1	********	45,000	Apr	1899							
pollo Con., g Alasi ppie Ellen, g Colo.	600,000	600,000	10	70,000	25,000	Aug.	1898	.01	142	Le Roi, g B.Col	5,000,000	200,000	5	60,000	1,305,000	July Nov								
pril Fool, g Nev. gentum-Juniata, g Colo.	1,300,000	500,000 650,000	1 2		16,000 156,000	Oct	1895	.01	$\frac{143}{144}$	Lexington, g Colo Lillie, g Colo	1,500,000 1,250,000	1,500,000 $250,000$	5	45,117	349,300	April.	1900							
rgonaut, g Cal.	2,000,000	200,000	10	70,000	490,000 1,331,905	May	1900	.05	145	Lillie, g	500,000	500,000	1	15,000	47,500	Feb.	1900							
rizona Copper \ \riz sociated, g \ ('olo.)	3,190,550 1,250,000	1,250,000	1	443,486	84 000	Feb.	1899	.01	147	Marion Con., g Colo	5,000,000	500,000	25 10	120,000	1,730,000	May.	1899							
lantic, c Mich	1,000,000 250,000	40,000 250,000	25	80,000	860,000 769,648	Feb	1899	.00	148	Mary McKinney, g Colo Maryland Coal, pf Md	1,000,000 1,885,005	1,000,000 18,850	100	90,000 37,700	120,000 584,319	April.	1900							
nkok Cora Belle, s Colo.	600,000	600,000			107,510	July	1896	.01	150	Matoa, g Colo	1,000,000	1,000,000	1		25,000	Dec.	1898							
g Seven, g Colo.	2,500,000 100,000				6,000	April	1898	.03	152	Missouri Zinc Fields, pf., Mo Modoc, g. s Colo	400,000 500,000		25	16,573 30,000	31,885 175,000	April.	1900							
g Six, g. 8 Colo.	500,000 800,000	500,000 32,000	1		15,000 66,160	May		.001/2	153	Mollie Gibson, s. 1 Colo Monarch, g Colo	5,000,000	1,000,000	5		4,080,000	Jan	1895							
ston-Aurora, pref Mo ston & California Cal	600,000	600,000	25	37,120	72,000	June.	1899	.06	155	Montana Coal & Coke Mont.	5,000,000	200.000	25	60,000	120,000 60,000	April.	1900							
ston & Colo, Smelting Colo, ston Duenweg, z Mo	1,000,000	15,000 40,000		33,750 24,000	303,750 56,900	June	1900	.75	157	Montana Ore Purchas'g. Mont.	3,300,000 2,500,000				453,700 1,520,000	April.	1899							
ston Get There, z Mo	250,000	22,500	10	9,000	20,250 87,500	April.	1900	.10	158	Montreal, g Colo Monument, g Colo	1,000,000	1,000,000	1	********	7,500	Nov	1898							
ston-Little Circle, z Mo-K ston & Mont. Con Mont	1,000,000 3,750,000	100,000 150,000	10 25	12,500 2,700,000	17.200.000	May	1900/10	0.00 H	160	Moon-Anchor Con., g Colo	1,750,000	600,000			261,000	Nov	1899							
ston Providence, z., pf Mo	1,000,000	15,000	10 10	4,500 10,000	15,742 20,000	Jan.	1900	.05	161 162	Moose, g	600,000 240,000	600,000 2,400		*********	186,006 847,200	Feb.	1896							
ston Springfield, z Mo	500,000	20,000	25	15,000	15,000	June.	1900	.25	163	Morse, g	1,250,000	1,250,000	1	********	215,650	May	1899							
eece, 1	150,000 5,000,000	15,000 200,000	10 . 25	10,000	80,000	Oct Feb	1900	.05	165	Mountain Copper Cal	6,250,000		25	660,000	1,833,750	April.	1900							
ffalo Hump, g Idaho Ilion-Beck & Champ Utah	3,000,000 1,000,000	300,000	10	155,000 60,000	155,000 2,498,000	July June.	1900	.10	166	Mt. Rosa, g	1,000,000 100,000	1,000,000 20,000	1 5		75,000	Dec May	1899							
nker Hill & Sullivan Idaho	3,000,000	300,000	10	147,000	948,000	July	1900	.07	168	Moulton, g Ment.	2,000,000	400,000		********	500,000	Oct	189.)							
lumet & Hecla, c Mich. mbria Steel Pa	2,500,000 16,000,000	100,000 320,000	25 50	3,000,000 230,000	69,850,000 1,440,000	May	1900	.50	170	Napa Con., q	700,000	100,000 149,054	100	50,000 149,054	1,090,000 1,341,486	July	1900							
riboo-McKinney, g B.Co	800,000 5,000,000	800,000 100,000	25	117,700	311,965 2,267,700	June.	1899	.0116	171	National Lead, pf U. S. New Central Coal Md	15,000,000 1,000,000	149,040 50,000	100		10,057,640	June.	1900							
nten I-Eureka, g.s.l.c Utah nter Creek, l. z Mo	1,000,000	100,000	10	10,000	10,000	Feb	1900	.10	173	New Idria, q Cal	500,000	100,000	5	60,000	490,000 230,000	July	1900							
ntral Lead, l Mo ampion, g. s Cal	1,000,000 340,000	10,000 34,000		30,000	172,000 321,700			.50	174	N. J. & Mo., z Mo New York, Zinc Mo	250,000 700,000	2,500 28,000	100	6,000		May Oct								
arleston, p. r S. C.	1,000,000	10,000	100 -		200,000 50,000	June.	1899 2	.00	176	N.Y.& Hon Rosario, s.g. C. A North Star Mines Cal	1,500,000 5,000,000	150,000	10	90,000	1,252,000	June.	1900							
overdale, z Mo Ionial, I Mo	1,000,000			50,000	10,000	Aug.	1899	.01	178	Nugget, g Colo	625,000	1.250 000	1/2	*********	35,000	Nov	1898							
lorado Smelting Mont lumbia, l Mo	1,000,000	100,000 48,500		14,550	1,945,000 14.550	Jan June .	1899 1. 1900 .	10	179	Okanogan, g Wash Old Colony Zine & Sm Mo	62,500 1,100,000	1,250,000 $68,329$	5 10		3,125	Oct April.	1899							
mmodore, g Colo.	1,200,000	1,200,000	1 .	30,000	432,000 50,000	Jan	1899 .	.04	181	Omega, g	1,500,000 15,000,000	1,212,550	1	18,188	18,188	June.	1900							
mmonwealth, z., pref. Mo., nsolidated Gold Mines Colo.	500,000 1,000,000	1 000 000	5	50,000	60,000	June.	1900 .	.0:	183	Orphan Belle, g Colo.,	1,000,000	1,000,000		90,000	13.662.500 197,899	April. Dec	1899							
onsolidation Coal Md on. Mercer Gold Mines. Utah	5,000,000		100	205,000 75,000	5,921,650 1,441,000				184 185	Original Empire, g Cal Osceola, e Mich.	5,000,000 2,500,000	50,000 93,000		279,000	530,000 3,359,500									
ns. Zinc & Lead, pf Mo	400,000	400,000	1	8,000		Jan		20	186	Parrot, c Mont.	2,300,000	229,850	10	1,034,325	4,049,050	July	1900							
ordell, z. 1	1,500,000 300,000	60,000	10 .	18,000	21,000			.05	188	Pennsylvania Coal Pa Pennsylvania Con, g Cal	5,000,000 5,150,000	51,500	100	25,750	4,050,000 161,325	May	1899							
ipple Creek Con., g Colo.	2,000,000 1,000,000		1 5	160,000 45,600	160,000 93,100					Pennsylvania Steel, pf. Pa Petro, g	1,500,000 1,000,000	15,000 200,000		52,500	78,750	July Oct	1900							
owned King, g. s. L Ariz	6,000,000	600,000	10 .		242,760 87,500	May	1899	.02	191	Pharmacist Con., g Colo	1,500,000	1,500,000	1		84,000	Jan	1893							
dton & Lark, g. s. l Utah dy, g Utah	2,500,000 3,000,000	150,000	20		2,925,000			.25	193	Pinnacle, g	2,000,000 1,000,000	100,000		*********	62,500	Mar.	1899							
ly West, g Utah	3,000,000 2,000,000		100	262,500	382,500	June.	1900			Pittsburg Coal, pf Pa Plumas Eureka, g Cal	32,000,000 1,406,250		100	1,078,000 84,375	1.078,000	April.	1900							
mon, g	9,000,000	200,000	25		1,350,000	May	1898	.15	196	Portland, g Colo	3,000,000	3,000,000	1	390,000	2,947,080	June.	1900							
er Trail Con., g Wash Lamar, g. s idaho	2,000,000	400,000	5	48,000	55,000 2,394,000	May .	1900	12	198	Princess, g	3,000,000	1,000,000 3,000,000	1		45,000	May .	1896							
lla S., g	1.000,000	1,000,000	1	5,370	60,000	Jan June .	1897	.01	199	Queen Bess Propr., s. l., B.Col Quicksilver, pref Cal	500,000 4,300,000	100,000 43,000	5		25,000 1,866,911	July	1899							
nver & Cripple C'k, g. Colo.,	1,000,000	1,000,000	1	10,625	10.625	June.	1900	.0156119	201	Quincy, c Mich.	2,500,000	100,000	25	500,000	11,570,000	Feb.	1900							
sloge Con., f	1,000,000 125,000	125,000	1	20,000	70,000 10,000	April.	1900	.02	203	Rambler & Cariboo, s. I. B.Col Reco, s. 1 B.Col	1,250,000 1,000,000	1.000,000	1	33,750	105,000 297,500	Mar	1900							
e Run, 1	500,000 374,000	5,000 7,480	100	15,000	105,060 95,744	June.	1900	60	204	Republic Con., g Wash Republic Iron & Steel, pf U. S	3,500,000 25,000,000	3.500,000	1	105,000	382.500 1,587,989	Mar.	1900							
cktown (founder) Tenn.	1,000	200	5 .	********	41,160	Dec	1899 10	:2.00 II:	206	Reward, g	1,000,000	100,000	10		20,000	Aug .	1899							
tch, g	1,500,000 1,000,000	130,000 100,000		********	39,000 10,000	July	1899	.10	208	Sacramento, g Utah.	250,000 5,000,000	1,000,000	5	*********	15,000 138,000	Oct	1859							
lorado, g	437,500 3,000,000	87.500		158,750	1,325,000 873,961	June.	1898	.48	209	St. Joseph, L Mo Seventy-Six, g. s Colo	3,000,000 1,000,000		10	75,000	2,972,000	June. Mar.	1900							
Paso, g. s Colo	900,000	900,000	il.		12,393	Jan	1898	.01	211	Santa Rosalia, g.s Cal	100,000	100,000	1	480 000	135,000	Sept	1899							
ipire State-Idaho Idaho terprise, s. 1 Colo	500,000	98,514 500,000		206,879	524 917 900,000	Sept	1898	.05	213	Silver King, g. s. l Utah. Small Hopes, s Colo	300,000 5,000 000	250,000	20	450,000	3,325,000	June. Feb.	1900							
nny Rawlings, g. s Colo vorite, g Colo	1,000,000	1,000,000	1.	48,000	20,600 48,000	Aug	1899	.01	$\frac{214}{215}$	Smuggler, s. l. z Colo., South Eureka, g Cal	1,000,000	1,000,000	1		1,515,000	June. May	1900							
deral Steel, pf U.S	100000,000	532,610		4,127,727	5,725,587	July	1900 1.	.75	216	South Swansea, s. l Utah.	150,000	150,000	1	********	165,000	Oct	1899							
deral Steel, com U. S rn, g B.Col	200,000	200,000		1,743,161	1,743,161 10,000 5,000	Jan	1898	.05	218	Specimen, g Colo,. Squaw Mountain, g Colo	2,000,000	1,200,000 2,000,000	1		10.000	Nov	1890							
rris-Haggarty, e.g.s Wyo.	1,000,000 2,500,000	1,000,000		22,000	5,000 252,000	Feb	1899	.0016	219	Standard Con., g. s Cal	2,000,000 500,000	200,000	10-	40,000	3,939.226 1,745,000	May	1900							
sco Con., l. s Idaho	2,500,000	500,000	5 .		920,000	Nov.	1899	.25	221	Standard, g Idaho Stratton's Independ'ce Colo	5,500,000	1.000,000	5	960,000	1.920.000	June	1900							
lena. s. l. g Utah. rfield Con., g Colo	1,000,000		1.	*******	71,000 34,006	May	1899	.01	223	Strong, g		100,000			1,000,000	June.	1900							
yser-Marion, g Utah. ld Coin of Victor, g Colo	1,500,000 1,000,000	300,000		120,000	96,000 480,000	Sept	1898	.02	224	Tamarack, c Mich. Tomboy, g Colo	1,500,000		95	300,000	241,500 6,570,000 884,000	June.	1900							
ld Deposit, g Colo.,	500,000	500,000	1	10,000	10,000	Mar	1900	.02	226	Touraine, g Colo	1,250,000	1,250,000	1	87,500	87,500	April.	1900							
ld & Globe, g Colo . ld King, g Colo	750,000 1,000,000		1.	90,000	51,625 180,000		1900	.03	2:28	Union Leasing Colo	1,250,000 1,000,000	1,000,000	1		82,744 336,000	June.	1896							
old Sovereign, g Colo.,	3,000,000		1.	60,000	318,500				229	Union, z. l	500,000 6,000,000	500,000	1	5,000	5,000	June	1900							
olden Cycle, g Colo. Olden Eagle, g Colo.	1,000,000 500,000	500,000	1	5,000	25,000	June.	1900	.01	231	United Verde, c Ariz	3,000,000	300,000	25 10		1,837,500	April. June.	1900							
olden Fleece, g. s Colo. olden Reward, g S. D.	1,000,000	600,000 100,000	10		569,480 $155,000$	Feb	1898	.01	232	Utah, g Utah. Victor, g Colo	1,000,000	100,000 200,000	10		179,000 1,155,000	Jan	1899							
olden Star, g Ont	1,200,000	1,200,000	1 .		45,500	July	1899	.001611	234	Vindicator, Con., g Colo.,	1,500,000	1,065,000	1	106,500	411,000	April.	1900							
rafton, g Colo. rand Central, g Utah	1,000,000 250,000	250,000		******	10,000 666,250	Sept	1899	.24	236	War Eagle Con., g. s. c., B.C., What Cheer, z., Mo.,	225,000	1,750,000 22,500	10	9,000	545,250	Feb May	1900							
rand GulchAriz. rass Valley ExplCal	250,000 100,000		1 9	9,600 37,500	9,600 67,500	April.	1900	.01	237	Wolverine, c Mich.	1,500,000		25	120,000	390,000	April.	1900							
reater Gold Belt, g Col., win, g Cal. all Mines, Ltd B. Co	5,000,900	3,800,000	1	76,000	76,000	June.	1900	.02	239	Work, g	1.000,000	100,000	10	100,000	419,416	July	1900							
	1,000,000	100,000 250,000		5,000	91,500 120,000	May	15000		141	Ymir, g B.Col Zenobia, g Colo		125,000 1,000,000		*********	30,000	Nov Feb	1899							

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. L., Iron. This tanie is corrected up to July 2d. Correspondents are requested to forward changes or additions.

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

011							
Abrasives— Cust. Mea	as, Price.	Cust. Meas		Magnesium—Carb. Cust. Mea	s. Price.	Salt-	s. Price.
Carborundum, f.o.b. Niagara Falls, Powd.,	00.40	Bromine -Bulk "	.0714@.0714	Blockslb.	.0134	N.Y come finesh. ton	\$2.00 1.50
F. FF. FFF lb. Minute No. 1 "	\$0.10	Acetate, pure white100 lbs.	1.40 1.00	Nitrate	.60	N. Y. agricultural "Saltpeter—Crude100 lbs.	3.50
No. 15 " Corundum, N. C "	.07@.10	Sulphate	2.00@2.50 1.55	Manganese-Crude-pow'd	.01@.011/4	Refined	10 00@ 11.00
Chester, Mass	.041/2@.05	Carbide, ton lots, f. o. b.	1.05	73@75% binoxide " Crude.pow'd	.011/4@.011/2	Ground quartz, ordsh. ton Best	6,00@8,00 12,00@13.00
Crushed Steel, f. o. b. Pittsburg	.051/2	Niagara Falls, N. Y sh. ton	75.00	75@85% binoxide "	.011/2@.021/2	Lump quartz	2.50@4.00
Emery, Turkish flour, in kegs	.03	Carbonate, ppt lb. Chloride, com'l100 lbs.	.05	90@95% binoxide "	.021/2@.031/4	Glass sand	2.75 .65
Grains, in kegs "	.0416@.05	Best	1.00	Carbonate	.16@.20	Nitrate	.85@1.10
Grains, in kegs 46	.03	Sulphite lb. Cement –		Ore, 50%, Foreign unit	.29	Oxide	7.50@8.75
Chester flour, in kegs. "Grains, in kegs"	.041/2@.05	Portland, Am., 400 lbs., bbl. Belgium	1.50@2.00 1.95@2.20	Marble-Floursh. ton	5.50@6.00	Ground, red and olive. " Sodium—Acetate, com'l. lb.	20.00
Peekskill flour,in kegs "	.013/4	English	2.45@2.55 2.30@2.70	Mercury-Bichloride lb. Mica-N. Y. gr'nd, coarse "	.04@.05	Bichromate	.061/2
Crude, ex-ship, N. Y.;	.021/2	"Rosendale," 300 lbs	.95	Fine	.05@.06	Hyposulphite, Am.,100 lbs.	1.70@1.80
Kuluk (Turkey)lg. ton Abbott (Turkey)	22.00@24.00 26.50@30.00	Sand cement, 400 lbs " Slag cement, imported. "	1.55@1.95 1.65	3x3 m	,30 ,80	German	2.10@2.20 .08
Naxos (Greek) h. gr. "	32.00	Ceresine-		3x4 in " 4x4 in "	1.50 2.00	Peroxide	.021/2
Pumice Stone, Am. powd. lb. Italian, powdered "	.013@.02	Orange and Yellow lb.	.111/6	6x6 in "	8.00	Prussiate	.1414
Lump, per quality " Rottenstone, ground "	.021/4@.03	Chalk-Lump, bulksh. ton	.041/4@.061/2	Scrap, f.o.b., Dillsboro, N. Csh. ton.	25.00	Silicate, conc	.021/4
Lump, per quality "	.05@.14	Chlorine-Liquid "	.28	Mineral Wooi— Slag, ordinarysh. ton		Sulphate, gran., puri'd. " Sulphide	.0134
Rouge, per quality " Steel Emery, f.o.b. Pitts-	.10@.30	Chrome Ore-		Selected "	25.00	Sulphite " Tungstate, com'l "	.021/2
Acids-Acetic, 30% pure 100 lbs	. 07 8.50	(50% chrome) ex shiplg. ton Sand	23.00 35.00	Selected	32,00 40,00	Pure	.35
30% ch. pure	6.00 7.50	Bricks, f.o.b., Pittsburg, M	175.00	Monazite—92% " Nickel—Oxide, No. 1 lb.	140.00 1.00	Strontium-Nitrate " Sulphur-Roll100 lbs.	.09 1.75
80% pure oz.	.121/2	Clay, China—Am. com., ex-dock, N. Y lg ton	8.00	No. 2 "	.60	Flour	1.85
German	.46 .11	Am. best,ex-dock, N. Y. " English, common "	9.00 12 00	Sulphate	.20@.21	Flowers, sublimed " Talc-N. C , 1st gradesh. ton	2.05 13.75
Powdered "	.111/2	Best grade	17 00	25@30 cold test gal.	.0934@.1014	N. Y., Fibrous " French, best100 lbs.	8.00@9.00
Carbolic, crude, 60% gal. Cryst, 37%, drums lb. Liquid, 95% gal.	.35	Fire Clay, ordsh. ton Best	4.00 5.75	15, cold test	.1134@.1234	Italian, best "	1.75
Liquid, 95% gal. Carbonic, liquid gas lb.	.1216	Slip Clay " Coal Tar Pitch gal.	4.00	Summer	.09¼@.09¾ .08¾@.10¼	Tin—Bichloride	.091/2@.10
Chromic, crude "	.20	Cobalt—Carbonate lb. Nitrate	1.75 1.50	Dark filtered " Light filtered"	.1134@.1614 .1434@.1734	520	.09
Hydrochloric, ch. pure. "	.07	OxideBlack	2.26@2.36	Extra cold test "	.2134@.2634	Oxide, white, ch. pure "	.41
Hydrofluorie, 36%	.03	Smalt, blue ordinary "	2.28@ 2.40 .25	Gasolene, 86°@90° " Naphtha, crude 68@72°	.16@ .21 9.55	Zinc – Metallic, ch. pure	2.25@3.00 071/4@.091/8
Best	.25	Copperas100 lbs.	.30 721/2	"Stove"	.65@.67	Carbonate	.15
Sulphuric, chem. pure "	.07	Copper-Carbonate lb.	.18	Boiled "	.69	Dust "	.071/4
Sulphurous.liquid anhy. "Tartaric, cryst "	.08	Chloride " Nitrate, crystals "	.25	Calcula, law	.76	Sulphate "	.02@.021/
Powder	.321 <u>6</u> 2.37	Oxide, com'l	.19	Graphite, lubricating, Am. dry lb In oil	.10	THE RARE ELEME	NTS.
Alcohol — Grain gal. Refined wood, 95@97%	.75@.80	Granulated	.221/2	Axle grease	.081/2@.10	Prices given are at makers' we	
Purified	1.20 1.75	Powdered " Cryolite "	.231.5	Ozokerite-Foreign	.05@.06	many, unless otherwise noted. Cust. Mea	s. Price.
Ground "	1.85 3.00	Explosives— Blasting powder, A. 25 lb. keg	2.50	Paints and Colors— Benzine, Sumatra	.35	Barium-Amalgam grm.	\$1.19
Powdered	2.75@3 00	Blasting powder, B "	1.25	Marbled	. 27	Electrol " Beryllium-Powder "	5.71 5.95
Aluminum—Nitrate lb. Oxide, com'l, common "	1.50 .061 ₆	"Rackarock," A lb. "Rackarock," B	.25	Chrome green, common "Extra"	.12@.15	Crystals oz.	9.04 2.00
Best	.80	Judson R.R. powder " Dynamite (20% nitro-	.10	Best "Yellow, common "	.37	Boron-Amorphous, pure grm.	.19
Pure	2.60	glycerine)	.13	Best "	.25	Nitrate (N. Y.) lb.	1.43
Sulphate, pure	1.50@1.75 1.15@1.39	(30% nitro-glycerine) " (40% nitro-glycerine) "	.14	Silica Graphite, thick " Thinned gal.	.12 1.15	Cadmiumkg.	1.90 4.28@5.95
Ammonia—Aqua, 16° lb.	.03	(50% nitro-glycerine) "	.161/6	Lampblack, com'l lb. Refined	.03	Calciumgrm. Cerium—Fusedgrm. Nitrate (N. Y.)lb.	1.02
90°	.033/4	(75% nitro-glycerine) "	.21	Calcined "	.12@.20	Chromium—Fused, Elect. Kg.	17.00 5.95
Ammonium—	.051/2	Glycerine for nitro (32 2-10°Be.)	.131/4		20@.35	Pure powder 95% " Chem. pure cryst grm.	1.79
Bromide, pure " Carbonate lump "	.52@.53	Feldspar-Groundsh. ton Fluorspar-In bulk.	8.00@9.00	Litharge, Am. powd " English flake" Glassmakers, Foreign	.001/2	Cobalt - (98@ 99%) kg.	6.31@7.85
Powdered "	.0914@.0914	Am. lump, 1st grade "	12.40	Metallic, brownsh. ton	19.00	Pure Didymium—Nitrate (N.Y.) oz.	30.94 3.00
Muriate, gran	.061/4	2d grade	11.90 11.40	Ocher, Am. common "	9.25@10.00	Nitrate (N. V.)	3.09 3.00
Nitrate, witte, pure (30%)	.1016	2d grade	10.90	Best	21.25@25.00	Germanium-Powder grm.	83.32
Chem. pure	.12	Foreign, lump	8.00@12.00	French, washed "	.014@.0212	Glucinum-Powder "	35.70 5.95
Needle, lump	.05120.06	Fuller's Earth-Lump.100 lbs.	11.50@14.00	Orange mineral, Am " Foreign, as to make "	.0814@.0816	Nitrate (N. Y.) oz.	9.04 2.75
Powdered, ordinary "Best"	.0534	Refined lump	.85 1.25	Paris green, pure, bulk. " Red lead, American "	.061/2	Indium grm Iridium	4.05
Oxide, com'l white, 95%. "	.091/2	Graphite-	1,40	Foreign	.0814	Lanthanum-Powder "	1.43 4.28
Com'l gray	.07	Am. lump, f. c. b. Providence, R. Ish, ton	8.00	Native	.28	Electrol, in globules " Nitrate (N Y.) oz.	9.04 2.75
Sulphuret, com'l " Arsenic-White "	.16	Am. pulv., f. o. b. Providence, R. I	30.00	Native	.46@.461/2	Lithiumgrm. Nitrate (N. Y.)oz. Magnesium—In bars kg.	2.38
Red	.071/4@.073/4	German, lump lb.	.011/6	Vermilion, Amer. lead., "	.10@.11	Magnesium-In bars kg.	.60 6.19
Asphaltum — Ventura, Calsh ton	32.00	Pulverized	.0134@.02	Chinese	.72 .85	In wire	9.99 5.71@6.90
	.0116@.0316	Pulverized" Italian, pulv"	.05@.08	English, imported " English, domestic "	.80	Molybdenum-Fusedgrm.	.20
Trinidad, refined lg. ton	30.00@35.00	Gypsum-Groundsh. ton	8.00@8.50	White lead, Am., dry	.0534	Powder, 95% kg. Niobium grm.	
San Valentino	15.00 21.00	Rocklg. ton	7.00 4.00	In oil	.061/2@ .083/4	Osmium	.95
Gilsonite, Utah, ordinary lb.	.0334	English and French '* Infusorial Earth-Ground.	14.00@16 00	Whiting, common100 lbs Gilders	40	Sponge "	71
Barium-Carbonate.		American, best "	20.60	Zinc white, Am., ex.dry lb.	.0434@.0514	Potassium—In balls kg. Rhodium grm.	17.85 2.62
Lump, 80@90%sh. ton 92@98%	25.00@27.50 26.00@29.00	French	37.50 40.00	American, red seal " Green seal"	.0734@.08	Rubidium -Pure " Ruthenium-Powder "	4.76 2.38
Powdered, 80@90% lb. Chloride, com'l	.0134@02	Iodine-Crude100 lbs.	2.45	Foreign, red seal, dry "Green seal, dry"	.0614@.0814 .0634@.0858	Rutile-Crude kg. Selenium-Com'l powder "	.43
Chem. pure cryst "	.05	Nitrate, com'l lb.	.05	Foreign, in oil "	.1016@.1134	Sublimed powder "	33.32 42.84
Nitrate, powdered " Oxide, com'l, hyd.cryst "	.06	Oxide, pure copperas col "	.031/6	Potash—Caustic, ord	.041/2@05	Sticks	35.70 28.56
Hydrated, pure cryst, "	.25	Purple-brown "	.02	Potassium-		Pure crystals "	59,50
Pure, powd	.01	Venetian red	.01@.011.0	Powdered or gran "	.0734	Strontium—Electrol grm.	.65 6.19
Barytes-Am. Cr., No. 1. sh.ton Crude, No. 2	9.00 8.00	Kaolin-(See Clay, China). Kryolith-(See Cryolite,)		Scotch	.081/6	Tantalium—Pure " Tellurium—Ch. p.sticks. kg.	3.57 119.00
Crude, No. 3	7.75	Lead-Acetate, white lb.	.07	Carbonate, hydrated "	.041/4	Powder	95.20
Am. Floated	14,50@17.50 14.50	Com'l, broken	.0536	Chromate	.04	Thorium-Metallicgrm.	26.18 7.85
Snow white " Bauxite—Ga. mines: 1st	17.50	Nitrate, com'l	.0616	Cyanide (98@99%)	.28@.29 2.30	Nitrate 49@50% (N. Y.) lb. Titanium kg	5.00 47.60
gradelg. ton	5.00@5.10		.60	Permanganate, pure cr. "	.14	Uranium	190.40
Ala., f.o.b., 1st grade	4.25@4.50 5.00	Finishing	.70	Red	.181/2@.19	Nitrate (N. Y.) oz. Vanadium—Fusedgrm.	.25 1.19
Second grade " Bismuth—Oxide, hydr., lb	3.85 2.25@2.30	Crude, lump (95%) Greece Ig. ton Calcined (Greece)sh, ton	7.00@7.50 17.50	Silicate	.06 .10	Wolfram—Fused, elect kg. Powder, 95@98%	238.00 1.67
Subnitrate	1.30@1.35	Bricks (Greece) M.	170.00	Quartz-(See Silica).		Purest, powder	6.43
A	.031/2	Bricks, Am., f.o.b Pitts- burg	175.00	Com. strained (280 lbs.)bbl.	1.55	Yttrium grm. Nitrate (N. Y.) oz.	3.33 3.00
"A" and "B"" Bone Ash	023/4@.031/6	Magnesium-	.0334	Best strained	3.00 1.75	Zirconium-Com'l kg.	119.00 9.00
	2,00,00	our commend manny mic put to.	.00/4		1.10	1	20,00

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 June 9. Readers of the Erginerring and Mining Journal are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.