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We hear with deep regret of the death of George Mercer Dawson, who was for 26 years prominently connected with the Geological Survey of Canada, and for six years past its director. His life work was in the Survey, and he rendered great service to the Dominion by his investigations in the Northwest, in the Rocky Mountain Region and in British Columbia, and by the attention which his work directed to the mineral resources of that section. His death at the comparatively early age of 52, when the best work might be expected from his matured powers and long experience, is a serious loss to Canada and to geological science everywhere.

We expect to publish a full obituary and portrait of Dr. Dawson in our "Canadian Supplement" next week.

The notice from the Consul-General of Nicaragua, which appears on another page, deserves attention from manufacturers. Commercial museums, such as it is proposed to establish in that country, are a good way of extending our acquaintance with possible customers. We ought to cultivate our trade with our Central American neighbors, which is certainly capable of much expansion; and to send contributions of samples, catalogues, descriptions of machinery and the like to the new museum at Managua, cannot fail to be of service in that direction. We hope that the invitation will be generally accepted. There is an opening for the introduction of mining machinery in Nicaragua, which deserves investigation by manufacturers.

London operators have started a story that American capitalists, having organized trusts to cover everything on this side of the water, are looking for new fields in which to invest their surplus. Accordingly they are—so the story runs—forming a gigantic syndicate to buy up all the Transvaal gold mines. They are therefore advising their clients to buy and hold these stocks, so that they can sell out at a large advance to the American millionaire. It is a very pretty story, lacking only the essential elements of truth and even probability. It may serve to stir up a little activity in the South African market in London, which is its rather too evident purpose. We doubt, however, whether the British investor will be deceived by such a report, dense as he sometimes shows himself to be.

Coal exports from the United States in January are reported by the Bureau of Statistics as below:

Table comparing coal exports in 1900 and 1901. Anthracite coal: 1900 (104,527), 1901 (194,759), Change (I. 90,232, 86.0). Bituminous coal: 1900 (492,207), 1901 (417,603), Change (D. 74,604, 17.3). Total coal: 1900 (596,734), 1901 (612,362), Change (I. 15,628, 2.6). Coke: 1900 (36,811), 1901 (34,299), Change (D. 2,512, 6.8). Totals: 1900 (633,545), 1901 (646,661), Change (I. 13,116, 2.1).

Over two-thirds of the coal exported this year—414,200 tons—went to Canada. The exports to Europe, which were 14,976 tons last year, increased to 23,859 tons, of which 11,300 tons went to France, and nearly all the rest to Russia and Italy. The exports to Canada showed a decrease this year, but there were increases in shipments to Mexico, the West Indies and South America.

The arguments on the application of certain stockholders of the American Smelting and Refining Company to enjoin that company from issuing additional stock for the purchase of the property owned by M. Guggenheim's Sons, were begun before Vice-Chancellor Stevens, of New Jersey, on March 2d, and continued through several days of the present week. These arguments, however, really developed nothing new, the lawyers on both sides simply enlarging upon the statements already made public. The case was closed on Tuesday, March 6th, when the Vice-Chancellor announced that he would reserve his decision, but promised that he would render it soon, using no more delay than the importance of the interests involved seemed to require.

It is not probable that the decision will be accepted as final when rendered. That the defeated party will appeal to a higher court is regarded as certain.

While the total exports of the United States in January amounted to \$133,372,180, and showed an increase of \$18,064,014 over January, 1900, the exports of manufacturers showed a decrease both in actual amount and in their proportion to the total. The value of these exports this year was \$32,654,035, being \$2,934,905 less than in 1900; and they formed 24.5 per cent. of the total, as compared with 30.9 per cent. last year. This decrease in amount was due in part to lower values, while that in proportion resulted from the very large exports of agricultural products this year.

The exports of iron and steel reached in January a total value of \$9,610,552, which was \$608,076 less than last year, and shows chiefly the lower range of prices now prevailing. These iron exports formed 29.4 per cent. of the total exports of manufacturers. In the iron exports

we find gains in quantity in nearly all the leading items, especially in pig iron, bars, steel rails and plates.

The latest report of the Philippine Commission mentions the activity in mining to which our special correspondent has already referred. The Commission states that some 1,200 Americans are now engaged in prospecting and mining in different parts of the islands. Gold has been found in many places. Copper ore of apparent value has been located on the island of Lepanto. Iron ore has been discovered in several places, while there is every indication of large deposits of coal or lignite in Bulucacao and on the island of Cebu. The great difficulty at present is the absence of proper mining laws, and the Commission recommends the immediate enactment of a proper code. Another difficulty is the existence of a number of old Spanish grants, which must be carefully examined and their validity determined before new mining rights are granted. If this is not done, endless trouble about titles may arise hereafter. Upon the whole, however, the prospects for the building up of a mining industry in the Philippines are very fair.

We hope that in making mining laws for our new colonies, the defects in our own will be avoided, and no opportunity left for a repetition of the extralateral rights tangle.

The shipments of anthracite coal from the Pennsylvania mines in 1900, as officially reported, show a decrease of 5.4 per cent. from those for 1899, but were larger than those of any other previous year except 1895. The statement is as follows, in long tons:

	—1899.—		—1900.—		Changes. Tons.
	Tons.	Per ct.	Tons.	Per ct.	
Philadelphia & Reading.....	9,683,503	20.3	9,338,516	20.7	D. 344,987
Lehigh Valley .....	7,588,932	15.9	6,909,442	15.3	D. 679,490
Central of New Jersey.....	5,392,550	11.1	5,309,856	11.8	D. 82,694
Delaware, Lacka. & West....	6,372,401	13.5	6,013,849	13.3	D. 358,552
Pennsylvania Coal Co.....	2,347,061	4.9	2,090,153	4.7	D. 256,908
Del. & Hud. and Lackawanna	6,430,050	13.6	6,228,770	13.8	D. 201,280
Other lines .....	9,850,706	20.7	9,216,898	20.4	D. 633,808
Total shipments .....	47,665,203	100.0	45,107,484	100.0	D. 2,557,719

The decrease was due largely to the strike in September and October, which almost entirely stopped shipments for nearly a month. The mine inspectors' reports giving the total coal mined are not yet completed, but if we add to the shipments a percentage for waste and coal used in operating the mines equal to the average for three years preceding 1900, it would give a total of 50,926,350 tons mined, against 54,034,224 tons in 1899. The heaviest comparative decrease last year was reported by the Lehigh Valley, and the lightest by the New Jersey Central Company.

The figures below give the estimated production of spelter, or metallic zinc in the year 1900. The statement of European production is from the circular of Messrs. Henry R. Merton & Company, of London, whose estimates are usually very close indeed; that for United States output is the total as reported for "The Mineral Industry," Volume IX. The comparisons are with the figures given in Volume VIII of the same work. The figures are all in metric tons:

	—1899.—		—1900.—		Changes. Tons.
	Tons.	Per ct.	Tons.	Per ct.	
Rhine, Belgium and Holland.....	192,994	39.4	189,301	39.6	D. 3,693
Silesia .....	100,167	20.4	102,316	21.4	I. 2,149
Great Britain .....	32,222	6.6	50,307	6.3	D. 1,915
France and Spain.....	33,482	6.8	31,110	6.5	D. 2,372
Austria and Italy.....	7,305	1.5	7,087	1.5	D. 218
Poland .....	6,325	1.3	5,969	1.3	D. 356
Total .....	372,495	76.0	366,090	76.6	D. 6,405
United States .....	117,644	24.0	111,795	23.4	D. 5,849
Totals .....	490,139	100.0	477,885	100.0	D. 12,254

There was a decline of 2.5 per cent. in the total production; but this was more marked in the United States, where the decrease was 5 per cent., while in Europe it was only 1.8 per cent. The only important district where there was no loss was Silesia, which increased its output slightly.

Although the production of pig iron in the United States was somewhat greater in 1900 than in 1899, the consumption was actually less, as appears from the statement of the American Iron and Steel Association. The consumption for the two years may be stated as follows, in long tons:

	1899.	1900.	Changes.
Domestic production .....	13,620,703	13,789,242	I. 168,539
Imported .....	40,393	52,565	I. 12,172
Stocks unsold, Jan. 1.....	415,333	68,309	D. 347,024
Total supplies .....	14,076,429	13,910,116	D. 166,313
Exports .....	228,678	286,815	I. 58,137
Stocks unsold, Dec. 31.....	68,309	446,020	I. 377,711
Total deductions .....	296,987	732,835	I. 435,848
Consumption .....	13,779,442	13,177,281	D. 602,161

It must further be remembered that besides the actual exports of pig iron, there was an increase in 1900 in exports of steel plates, rails

and other articles. This increase represented a total of about 300,000 tons of pig iron; and this would make the actual consumption of pig iron in this country last year about 900,000 tons less than in 1899. At present production is increasing, and the consumption is at a rate somewhat over that for 1899. The demand at home is much more active than in Europe.

THE CUMBERLAND COAL REGION.

The Cumberland coal region, as we have heretofore pointed out, is an exceptionally favored one in respect to the steady trade which it has held for many years. It is one of the oldest bituminous coal districts in the United States, its records of production dating back 60 years, and its coal has long had an established reputation. Its production has grown steadily, though moderately, with the industrial growth of the country, and has shown decreases only in such years of general business depression as 1894. In the year 1900, however, there was an unprecedented reduction, the total output having been only 3,368,464 tons, or less by 1,094,157 tons than that of 1900; a loss of 24.5 per cent.

This difference was wholly due to labor troubles, from which the region had been for many years freer than any other coal mining district in the country. The conditions in the district, indeed, are unusually favorable; the coal seams are thick and easily mined, and the number of miners is not excessive as in some other regions, so that steady work was the rule. The average number of days worked in the year has been higher than in any other region. The miners' unions had little foothold in the region, and last year's trouble was largely due to their increased activity. It was really a strike without justification, and was ended by the action of the miners themselves, who did not realize their mistake, however, until they had been four months idle.

The history of the strike was told in our news columns at the time of its occurrence, but a brief recapitulation is not out of place. In February the operators in the Georges Creek Region decided to increase the rate of mining wages from 45 cents to 55 cents per gross ton, with an advance to other labor. On February 22d the miners were notified that this increased rate, the highest paid in the region at any time during the previous 18 years, would take effect on April 1st. But, in the face of this voluntary advance, they suspended work on April 12th, alleging as their main reason for so doing that the 60-cent rate then obtaining in other regions, where small seams of coal prevail, ought to be paid in the Georges Creek Region. Believing, as the operators did, that the more favorable conditions attending the mining of coal in the Georges Creek warranted this differential, they decided not to grant the rate demanded.

The miners remained out until August 1st, almost four months, and then returned to work at the 55-cent rate originally offered by the operators. The plan adopted by the operators at the outset for the dealing with the situation was a policy of inactivity. No active measures were taken at any time during the strike for the purpose of bringing about a termination. The resumption of work was the voluntary act of the miners. The most important of the results of the strike is the demonstration that the 55-cent rate in the Georges Creek is a better wage than the 60-cent rate in other regions where mining conditions are not so favorable to the miner. During the strike, a large number of men went to these other regions and obtained work there, but upon the resumption of work in the Georges Creek mines they returned, leaving the 60-cent rate for the 55-cent rate. Another result was the loss of prestige by the unions which, for some time to come, will not be an important factor in the region.

THE UNITED STATES STEEL CORPORATION.

The official notice of the terms on which this company will purchase the various properties which will go to form the great consolidation, has been issued this week. In the general organization of the company the only changes made from the figures given in our columns last week are that the total stock issue will be \$850,000,000—instead of \$800,000,000—one-half being preferred and one-half common stock; and the amount of bonds to be issued \$304,000,000, or \$4,000,000 more than at first stated. The announcement in full will be found on our advertising pages 12 and 13, and it is not necessary to repeat its terms here.

The features of the organization are, briefly, that the bonds issued are used for the purchase of the Carnegie Company's properties, on terms which are not stated, while the stocks are issued in exchange for those of the other companies taken in. In the whole matter of the purchase and the issue of the stocks, the firm of J. P. Morgan & Company appears as the sole agent of the corporation, with absolute control over all the arrangements.

Some features of the consolidation have excited some surprise and have caused complaint among the stockholders of some of the companies. Chief among these is the high figure at which the stocks of the four so-



called Moore companies—the National Steel, the American Tin Plate, the American Steel Hoop and the American Sheet Steel—are exchanged. It is notorious that the stocks of these companies were largely inflated when they were formed; yet National Steel goes into the new company at 125 for both preferred and common; American Tin Plate at 125 for the preferred, 20 in new preferred and 125 in common stock for the old common; while the other two companies go in at par. This seems hardly fair to the stockholders of the Federal Steel, the American Steel and Wire and the National Tube Companies. Largely inflated as the capital stocks of these companies were, they had more valuable properties and much less actual water than the four first mentioned, and the apportionment does not seem altogether fair. The Carnegie stockholders can afford to disregard these disputes, since their interest payments are obligatory, and they will have a mortgage lien. Indeed it is altogether probable that even in the poorest year their interest can be earned and paid, though dividends on the stock may be entirely lacking. Outside of the Carnegie properties the new company is capitalized at several times the real value of what it will own, and the amounts of its dividends, except in an extremely prosperous year, is very problematical.

There have been few corporations organized in which such great powers are given to the directors. In the articles of incorporation, which were published in our columns last week, there is hardly any limitation to those powers. It is also a point to which especial attention should be called, that by those articles—which are the fundamental law of the corporation—the directors are empowered to withhold from stockholders any or all information about the affairs of the company, should they see fit to do so. This is a point of which investors should take especial note.

We cannot at present do more than give briefly the points of the organization of the company, leaving the discussion of its policy and the general question of industrial consolidations to a future time. One point may be briefly referred to, and that is that the practical removal of competition is likely to be unfavorable to metallurgical progress. The inducements to continue the operation of old plants and to avoid the expenditure of large sums for improvements will be very strong—too strong, we fear, to be always overcome. The result will be a conservatism to which we have not been accustomed, and which may have results not altogether creditable to the American iron and steel industry.

#### NEW PUBLICATIONS.

"South Australia. Report on the Gold Discovery at Tarcoola." By H. Y. L. Brown, Government Geologist. Adelaide, S. A.; Government Printer. Pages, 8; with map.

This is an interesting report on a new mining district in South Australia, where gold has been found, and the preliminary explorations, as far as they have gone, indicate the existence of veins which can be worked at a profit. Indications of copper also exist to a sufficient extent to warrant the undertaking of systematic work.

"Western Australian Year-book for 1899." By Malcolm A. C. Fraser, Registrar-General. Perth, W. A.; Government Printer. Pages, 340; with maps and illustrations.

This volume includes a brief history of Western Australia; a general description of the country; its government, population and public works. It has also a review of the progress made in various directions during 1898 and 1899. This is accompanied by statistics of population, industry and commerce. An interesting chapter describes the mineral discoveries which date back as far as 1853, when gold was first found; though mining did not assume great proportions until the sensational find at Bayley's Reward in the Coolgardie District was made in 1892.

"Geological and Natural History Survey of Minnesota. Final Report, Volume V. Structural and Petrographic Geology of the Taconic and Archaean." By N. H. Winchell, State Geologist. St. Paul, Minn.; published by the University of Minnesota. Pages, 1,028; illustrated.

This volume contains an immense amount of information about Minnesota rocks and shows the characteristic merits and defects of much of the work done by the Minnesota Survey. The book contains observations and suggestions of real value, mingled with wild hypotheses that show a fertile imagination rather than a strict limitation of theory by careful observation—that essential characteristic of an able field geologist. The State of Minnesota possesses the greatest iron mines yet developed and these offer unequalled facilities for determining the probable origin of the ores so that the State Survey has had every opportunity to make a permanent contribution to our knowledge of ore deposits, besides forming conclusions that would have been of the greatest value to prospectors and mining companies. In addition the Survey might have simplified the complex problems regarding the relative ages of the great rock formations about Lake Superior. It might, for instance, have connected the work done in Michigan and Wisconsin with what has been done by Canadian geologists and finally established the great rock horizons and the relative ages of many gabbro and granite eruptions.

If many of the reports already published by the Minnesota Survey seem of little value to men who have been connected with iron mining in the State, and if many of its theories and conclusions are doubted by other geologists who examine the same ground, the reason is not that the Survey has not labored diligently and sought persistently for the truth, but that there has been too little detailed study and mapping or

rock outcrops and too much work in the laboratory. In stratigraphical work the main question regarding any rock is, what are its field relations? To determine these, the outcrops should be carefully studied in the field, and exactly mapped. No observer who confuses cleavage planes and bedding, when these are clearly distinguishable, has any right to act as a field observer. In a region of great metamorphism, every care should be taken to separate apparently sedimentary rocks from those plainly igneous. A great mass of rock cutting sedimentary formations at right angles to the strike is not likely to be itself of sedimentary origin. Traveling by canoe is easier than trudging through swamps, and it is easier to knock a chunk of rock from a ledge, hastily recording the approximate location, than to study the outcrop carefully while insect pests harass the observer; by following section lines one can get over more ground in a season than by sub-dividing sections, but results hastily obtained will not do for detailed mapping.

There has been a great deal of this incomplete field work done by the Minnesota Survey with the result that it has not issued an accurate map of the great Vermilion Iron Range and has made no important deductions regarding the structural relations of the ore deposits. The Survey has had incomparably greater facilities than had Major Brooks in his work on the Marquette and Menominee ranges 30 years ago; yet the reports suffer in comparison with his, simply because Brooks made accurate maps and avoided hasty generalization. Of the present bulky volume 74 pages are given to structural geology, 936 pages to petrographic geology and 63 pages to mineralogy and petrology. That most of the book should deal with petrography is but natural since the stratigraphic relations of the old rock formations of the State were discussed at length in Volume V.

To review this book in detail is a thankless task; its merits and defects will be obvious to all students of Lake Superior geology. Some of the views expressed, however, show a singular inability to accept facts. Thus Spurr's work on the Mesabi, which showed that the ore deposits were probably local concentrations of iron oxide in what was originally a glauconitic green sand, are apparently set aside and the appendix to the present volume harks back to a volcanic origin for the ores with "explosive emissions" from volcanoes along a "Taconic ocean" with "precipitation of silica and probably of iron" from this hot ocean. Such hypotheses do not call for criticism. It is to be regretted that there is so little said of the stratigraphical relations of the Vermilion ores. Smyth and Finlay some years ago made a beginning by showing the relations of the Tower and Ely ore bodies to the country rock, but their work is apparently ignored and the present volume has nothing better to suggest in stratigraphy than the report of 1885. It is annoying, also, to read about the Stuntz Bay "conglomerate" and its stratigraphic importance.

Much of the laboratory work of the Survey, however, has been excellent, and partially atones for failures in field work. The metamorphic rocks of the old formations are a fascinating field of study, and it is to be regretted that in petrographic work, as in stratigraphic, the volume, instead of trying to simplify the classification of Lake Superior rocks, adds further complications. Thus we read of Taconic, Animikie, Keweenawan, Cabotian and Manitou—but there is nothing to show that these names represent a systematic study of the rocks' relations in the field, tracing each formation and mapping it on the spot. Lake Superior stratigraphy is overburdened with names already. The great need is accurate maps of areas that have been studied in detail. The most unfriendly critic is bound to admit, however, that the volume contains an enormous mass of detailed observations on and descriptions of rocks in Minnesota. The second part of the book covers the detailed study of some 3,000 sections from every part of the State, while occurrences are so numbered that descriptions can be referred to in the proper place in earlier reports. The great mass of the work relates to rocks of the gabbroid family and must be consulted by anyone attempting a general description of those rocks.

#### 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.

"A Statistical Account of the Seven Colonies of Australasia, 1899-1900."

By T. A. Coghlan, Government Statistician. Sydney, N. S. W.; Government Printer. Pages, 836.

"Die Hochofenbetriebe am Ende des XIX Jahrhunderts." By Dr. Ernest Friedrich Duerre. Berlin, Germany; W. & S. Loewenthal. Pages, 168; illustrated. Price (in New York), \$7.

"Annual Report of the Bureau of Industrial and Labor Statistics for the State of Maine." Samuel W. Matthews, Commissioner. Augusta, Me.; State Printer. Pages, 140; illustrated.

"A Preliminary Report on a Part of the Iron Ores of Georgia. Bulletin No. 10 A. Geological Survey of Georgia." By S. W. McCallie, Assistant State Geologist. Atlanta, Ga.; State Printer. Pages, 190; illustrated.

#### CORRESPONDENCE.

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

Letters should be addressed to the MANAGING EDITOR. We do not hold ourselves responsible for the opinions expressed by correspondents.

Very Bad Form, Indeed.

Sir: The "Canadian Mining Review," of February 28th, 1901, contains, under the head of "Very Bad Form," the following article, which I quote entire:

"Last summer it will be remembered that the American Institute of Mining Engineers visited Canada on the invitation and as the guests of the Canadian Mining Institute and the Mining Society of Nova Sco-

tia. The executive of each of these bodies went to much trouble in arranging and carrying out the details of an elaborate programme of excursions extending from the Province of Quebec through Nova Scotia, and as far as the Island of Newfoundland.

"The whole programme, from start to finish, was arranged and carried out under the entire direction and control of the Canadian Societies, and the heavy expenses incurred, somewhere in the neighborhood of \$10,000, were provided by the members of the Canadian organizations, supplemented by grants from the Dominion and Provincial Governments, and special concessions from Canadian railways. In the light of these facts it is, to put it mildly, somewhat surprising to find the following untruthful paragraph in the recently published transactions of the American Institute: "This, like the similar result of the trans-continental trip of 1899, was due to the vigilant and skillful management of Mr. Theodore Dwight, assistant treasurer of the Institute, who in both cases, outside of his regular work, undertook the arduous task of managing the Institute excursion. This mention is made not only as a well-deserved acknowledgment of Mr. Dwight's services, but also as an indication to members that in future excursions under the same efficient management they may feel assured of perfect arrangements for their comfort, and of the safety with which they may rely upon preliminary estimates of expense, as at least sufficient to cover the actual cost."

"We understand that the attention of Dr. Raymond, secretary of the Institute, has been called to the offensive character of this impertinent puff by Mr. Theodore Dwight on behalf of Mr. Theodore Dwight."

With regard to this article, I beg to say:

1. As every member of the Institute knows, and everybody else, one would think, ought by this time to know, the official papers of the

express purpose of obtaining from them correction of errors in details, before final official publication in the "Transactions." Perhaps I ought not to expect of the editor of the "Canadian Mining Review," who is not a member of the Institute, a knowledge of what constitutes "good form" with regard to any error discovered in this preliminary and provisional edition; and I do not, in fact, blame him for ignorance on that point. Still, it may be an advantage to him in the future to learn now that, in such a case, it is considered the best form to write to the secretary, calling attention to the error, and not to attack anybody, justly or unjustly, on the basis of a publication avowedly subject to correction.

4. The article quoted declares an "understanding" that my attention has been called to the impropriety alleged. No doubt this "understanding" was sincere; but it is not the very best form to act upon such an impression without some confirmation. As a matter of fact, I never heard of this complaint until it was mentioned to me in conversation by a Canadian member of the Institute, during the late Richmond meeting. Neither my personal friend, the editor of the "Canadian Mining Review," nor any officer of the Canadian Mining Institute or the Mining Society of Nova Scotia, nor any member of either society or of the American Institute of Mining Engineers, nor any other person in the world, has ever addressed to me a line on the subject. To the verbal communication, received during the Richmond meeting, I replied at once that, while I could do nothing then and there, under the instant and constant pressure of other duties, I would be glad to make, after my return, correction in any provisional account of the Canadian Proceedings, of any errors which might be pointed out to me. But before I reached New

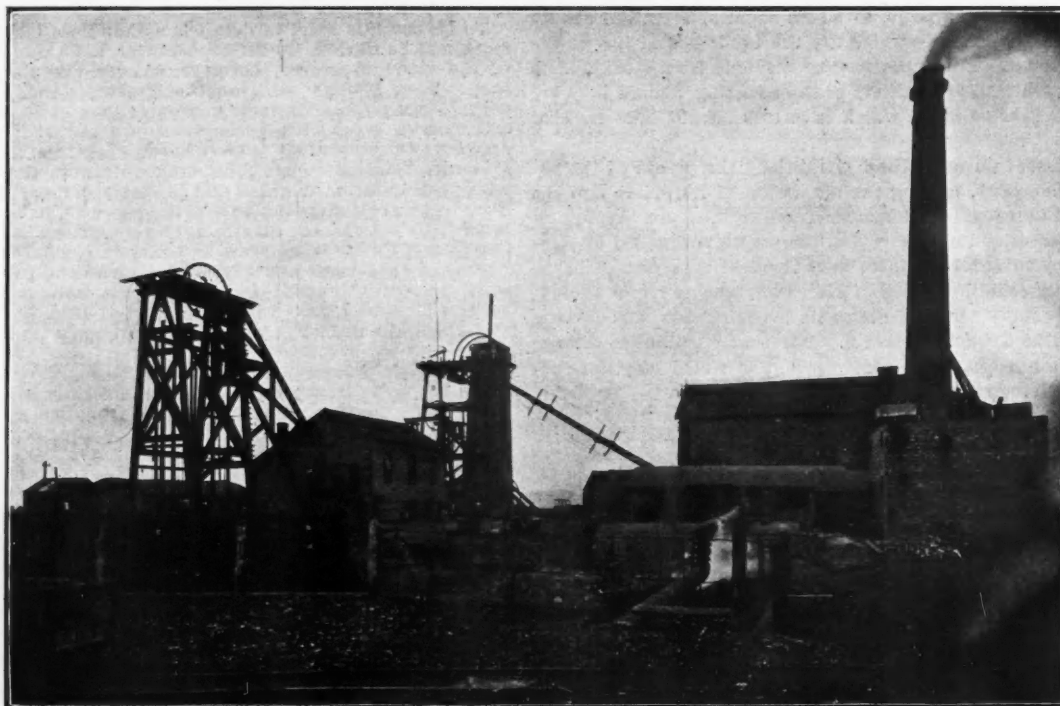


FIG. 1.—SNEYD COLLIERY, ENGLAND. PIT MOUTH AND POWER HOUSE.

American Institute of Mining Engineers are written by the secretary, and not by the assistant treasurer, whose hands are quite full of business belonging to his own department.

2. For the paragraph to which the above article objects the undersigned is alone responsible. At the time of its publication Mr. Dwight was in Mexico, making arrangements for the Mexican meeting of next November. In fact, he has read to-day for the first time, the preliminary pamphlet edition of the Canadian "Proceedings," issued by me "subject to revision," during his absence. Moreover, the paragraph quoted for condemnation in the above article, began with a sentence (omitted—I trust not by deliberate intention—in this quotation), stating two things which seem to me somewhat pertinent: First, that the secretary made the following statement; and, secondly, that the estimate of expense prepared for members of the Institute by the assistant treasurer was not only not exceeded, but permitted a refund. The quotation in the "Canadian Mining Review" commences with the words, "This was due," etc., without giving any hint of the fact to which "This" referred; and denounces the rest of the paragraph as the work of the assistant treasurer, utterly (but, I feel sure, accidentally and unintentionally) overlooking the secretary's distinct assumption of responsibility, immediately preceding the portion of the passage quoted. I offer no criticism of the good faith of the "Canadian Mining Review," whose editor has long been my personal friend; but I feel warranted by longer experience in journalism to advise him that it is not "good form," because it is not fair play, to base a journalistic criticism upon a fragmentary quotation, beginning with "This," and omit the answer to the natural question "What?" which was contained in the immediately preceding lines of the same paragraph. Nor is it "good form" to cut out from a quotation one man's explicit assumption of responsible authorship, and then charge the said authorship upon another man—especially when that man, if he had been the author, would have been guilty of contemptible self-praise.

3. The paragraph thus treated by the "Canadian Mining Review" occurs in a pamphlet marked "Subject to Revision," and not technically "published" at all, but distributed to members of the Institute for the

York, on my return from Virginia, the "Canadian Mining Review" had been issued, containing the article above quoted. Was that "good form?" Would it not have been a trifle more classic in that respect, to wait until the secretary had had a chance to make privately the explanation which is now, of necessity, made publicly?

5. But I am not greatly interested in questions of "form"; nor does my duty, as secretary of the Institute, permit me to haggle over points of etiquette or courtesy, which may hinder the realization of my supreme desire, as well as duty, to make the "Transactions" of the Institute correct, not only in accordance with my view of the facts, but also beyond any reasonable misunderstanding of others. What I expect (with a confidence born of my personal knowledge of him) of the editor of the "Canadian Mining Review," is a prompt disclaimer of his imputation upon Mr. Dwight—a totally innocent and ignorant third party. After that, I shall hope to receive from somebody a correction of any error which I have made, upon which I shall proceed to correct it with much satisfaction—as I have done a hundred times before, without the superfluous interjection of a newspaper attack. It certainly does seem a little hard on the humble and hard-worked secretary that when he issues a first draft, for the express purpose of receiving correction of its errors, the desired corrections should come in the shape of punishment. But that is, after all, merely a matter of "form"; and, in this particular case the secretary is heartily willing to let form go, if he can only get fact.

New York, March 6, 1901.

R. W. Raymond.

IMPORTS OF PRECIOUS STONES.—The New York Custom House reports the value of precious stones imported in February as follows: Cut, \$1,171,313; rough, \$604,760; total, \$1,776,073. This shows a large increase over the amount passed for the same time last year, when the total for the month of February amounted to \$578,000. The total amount for January and February, 1901, was \$3,870,359, and for the same months in 1900, \$1,195,541.



THE ELECTRICAL PLANT AT THE SNEYD COLLIERIES,  
ENGLAND.

The economy resulting from the application of electricity to mining operations has become generally realized by owners, managers and engineers. The past few years have had marked effect in developing the belief that the best economy is found in applying electric transmission of power to mining operations both below and above ground wherever a large supply of energy is required. We present herewith several illustrations of the Sneyd Coal Mines at Burslem, Staffordshire,

The distance from the engine room to the mine shaft is 150 ft., and the depth of the shaft is 1,900 ft. The cable is laid in a wooden trench up to the shaft, and is supported down the shaft at intervals of 25 ft. by wooden cleats. The cable is Callender's three-core concentric; it is insulated with bitumenized fiber, taped and sheathed with vulcanized bitumen, taped, wound with yarn, and armored with lock coil steel wire, braided and compounded. This cable is designed for carrying much larger currents than those now employed. A junction box is placed at the bottom of the shaft, and from this branch cables lead off to two Westinghouse 20-H.-P. induction motors. These cables have

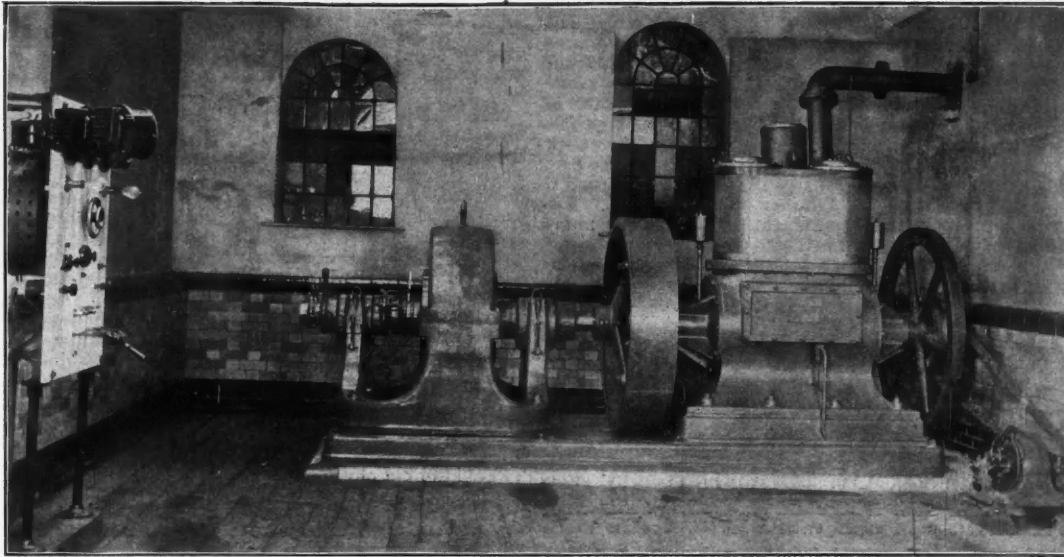


FIG. 2.—SNEYD COLLIERY. WESTINGHOUSE ENGINE AND GENERATOR.

England. Dr. J. A. Fleming acted as consulting engineer, and the plant was designed and constructed in accordance with his specifications. The British Westinghouse Electric and Manufacturing Company received the contract for installing the electrical and steam plant, and Messrs. Callender installed the main cables.

Fig. 1 shows the colliery, with coal tipples and shaft head gear. The generating plant shown in Fig. 2 is located in one of the buildings shown in the general view. The generating unit is a Westinghouse standard engine operating at 300 revolutions per minute, supplied with steam at 75 lbs. per square inch, and direct-connected to a Westinghouse 50-kilowatt three-phase alternator mounted upon the engine bed-plate. The alternator carries a small transformer located within the spider of the armature, and through the primaries of this a part of the armature current flows. Its secondary is connected up to a commutator, and

a sectional area of 0.08 in. for each phase, are insulated with vulcanized bitumen and armored with galvanized wire. About 1,000 ft. of this wire is used. These motors are used for operating the main and tail and endless hauling gears, the former operating a rope upon 4-ft. drums connected to the motor through a train of gearing and a friction clutch. This motor is of the standard Westinghouse three-phase type and operates at 720 revolutions per minute. The endless hauling gear is operated by a similar motor, which moves the rope at a somewhat slower speed. Both motors are provided with double-throw switches for reversing. The hauling gears were supplied by the Uskside Engineering and Rivet Company.

The pumping plant consists of a 30-H.-P. Westinghouse three-phase induction motor geared to a single-acting ram pump, which has a capacity of 62 gallons per minute against a vertical head of 780 ft.

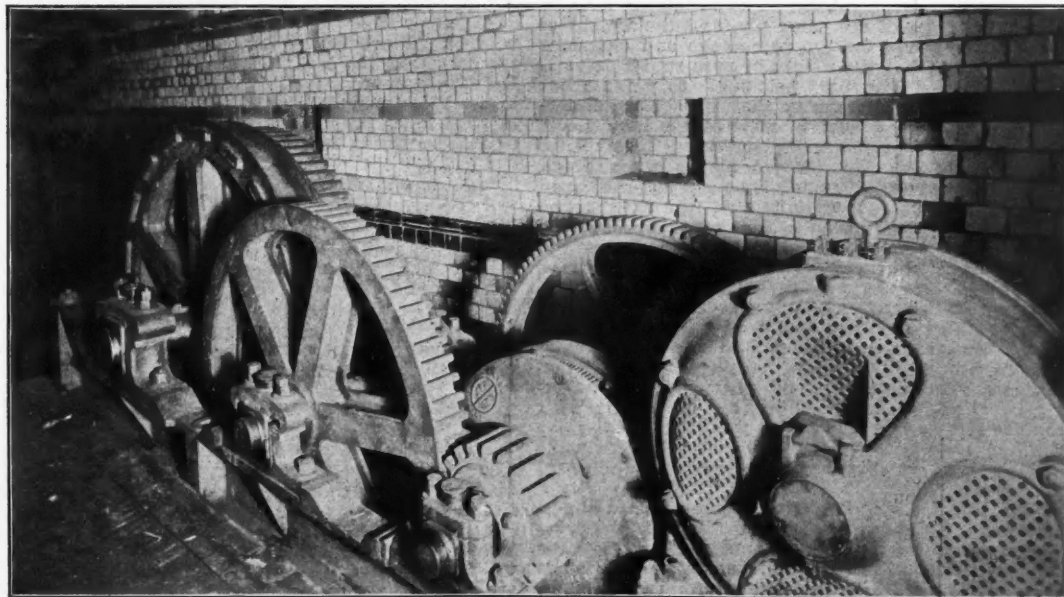


FIG. 3.—SNEYD COLLIERY. WESTINGHOUSE TYPE C MOTOR, OPERATING HAULAGE GEAR.

the output is applied to exciting the field magnets of the alternator. This excitation is also in part supplied by a 2-H.-P. exciter driven from the engine shaft by a link belt. The alternator is of the familiar standard Westinghouse type.

Current leaves the alternator at 440 volts, 3,000 alternations per minute. The switchboard consists of a single marble panel carrying a three-pole main switch, field plugs, ammeters and a combination rheostat. Alternating and direct-current voltmeters are carried on a swinging arm.

The simplicity of this installation cannot fail to strike those who appreciate the advantages of electric driving. When compared with other systems of transmission, such as steam and compressed air, its superiority is seen to be very great.

For work of this character two distinct types of electric apparatus have been used, namely the direct-current and polyphase systems. Both have their peculiar advantages, the latter being especially valuable for use in all cases where the current has to be transmitted over long distances, and wherever the motor must, of necessity be installed in

places where the more delicate direct-current apparatus might be liable to injury. The induction motor possesses almost ideal simplicity of construction, it has no moving contacts, very little insulation upon the armature, and it will stand very severe overloads. It is practically indestructible, and requires no special knowledge or training for its successful operation.

#### GOLD PRODUCTION OF THE WITWATERSRAND MINES DURING THE WAR.

Special Correspondence of the Engineering and Mining Journal.

After the seizure, by the South African Republic, of gold in transit and in the banks at the beginning of October, 1899, the mines ceased production. As, at the time, preparations were being made by the Government officials to work the richer mines, two or three managements came to an agreement with the Government to continue working, deeming it better to retain some control of the operations, even at a loss of profit. They considered it an advantage to be able to prevent the richer rock from being worked in undue proportion.

Government officials gradually assumed control of different mines until on October 20th it was reported that eight mines were working. Returns are reported from only seven for the month, however. The number was increased to 12 later, as shown by the following table of production, which is compiled from a full statement prepared by Mr. E. Boucher, returns being in ounces of fine gold:

Name of Mine.	Oct.	Nov.	Dec.	Jan.	Feb.	Mch.	Apr.	May.	Tot'ls.
Robinson	4,069	14,745	15,751	19,103	12,824	20,398	15,349	17,087	119,326
Ferreira Deep	5,020	7,243	7,243	11,156	10,210	10,786	9,796	3,957	58,168
Rose Reef	533	6,438	9,493	6,096	8,462	5,718	8,187	44,927	100,000
Bonanza	1,290	7,183	7,842	10,361	9,857	8,531	7,892	6,489	59,445
Crown Reef	.....	.....	.....	4,388	.....	9,485	.....	.....	13,873
Village Main Reef	5,415	9,002	9,248	9,190	8,266	6,997	.....	5,081	53,209
Ferreira	7,016	9,855	10,975	6,894	5,083	7,915	4,984	9,199	61,921
Wemmer	7,041	6,629	7,262	6,681	6,339	6,148	5,228	7,232	52,610
Geldenhuis Estate	.....	.....	.....	.....	2,403	2,718	3,157	3,799	12,077
Langlaagte Deep	.....	.....	1,370	2,379	2,248	1,873	1,420	1,430	10,720
Worcester	833	1,300	1,231	1,140	1,032	1,233	1,228	1,778	9,885
Pioneer	1,190	1,674	1,105	.....	.....	.....	.....	.....	3,969
Totals	26,904	55,941	68,525	80,785	64,408	84,546	54,772	64,249	500,130

The 500,130 oz. of fine gold was derived from: Amalgamation (from plates only), 339,346 oz.; concentrates (treated by chlorination and by cyanide process), 35,553 oz.; tailings (sands), 115,974 oz.; slimes, 8,079 oz.; by-products (slags from melting zinc slimes, etc.), 1,178 oz.; all being included in the monthly totals given above. The quantity milled amounted to 684,051 tons, and the yield per ton is therefore 0.73 oz., or \$15.09.

On the entry of the British troops production was suspended, and from that time to date no work other than pumping and necessary repairs has been allowed in the mines. The total production of the mines for the year 1900 was, therefore, 348,760 oz. fine gold, or \$7,208,869.

#### NOTES ON RUBBER AND THE WEIGHT OF RUBBER BELTING.

Written for the Engineering and Mining Journal.

Data as to the weight of rubber belting are seldom to be found in the catalogues of belt manufacturers, chiefly because it is so variable, depending upon the different conditions of manufacture. Belting consists of two parts, the duck and the rubber. The former is used in different weights in making belts of the same ply, and the weight of the rubber part is not only affected by the percentage and character of the adulterants that are used, but the weight of pure rubber is variable. Speaking generally, a good 8-in. 4-ply belt ought to weigh about 1 lb. per linear foot. Probably all the rubber that is used is adulterated to some extent, now more than ever in view of the high prices which have been established by the greatly increased demand for rubber and the diminishing supply. This has led, among other things, to an active business in the recovery of rubber from old material, gum shoes and the like. Even the South American and African natives who supply the crude material have their tricks in the trade, one of which used to be to incorporate a stone or two in each cake of the crude; but the buyers circumvented that by cutting open the cakes upon purchase. Para rubber is the standard. Rubber dealers have learned, however, to mix other rubbers in such ways and proportions as to produce an article which closely resembles the Para and would probably deceive anyone but an expert. The adulterants commonly used in the manufacture of rubber goods are chalk, gypsum, calcined magnesia, asphaltum, barytes, litharge, talc, lampblack, and zinc white. Manufacturers are naturally reticent as to which of these they use and in what proportions. In a recent law case in England it was elicited from one of the witnesses that the material of which carriage tires were made was composed of 48.5 per cent. pure rubber, 5.4 per cent. sulphur, 6.7 per cent. barytes, 7.6 per cent. litharge, 20.7 per cent. chalk, 9.1 per cent. steatite (talc) and 2 per cent. lampblack. From this analysis commercial rubber appears to be more of a mineral substance than it is a vegetable. The sulphur shown by the analysis is of course residual from the process of vulcanizing and is not properly to be considered as an adulterant. Zinc white is largely used as an adulterant for rubber. The recent large increase in the consumption of that substance in the United States is said to be due to the rubber manufacturers rather than to the paint trade. It is claimed by some manufacturers that the quality of rubber is improved for certain purposes by the introduction of some of the above-mentioned mineral substances, its durability being in some way increased, and there appears to be more or less truth in their claims. Elastic bands are one of the purest forms in which rubber is used and everyone knows how rapidly they lose their strength and break. Incidentally it may be remarked that an adulterant has recently been found that can be used to an important percentage in rubber for elastic bands without apparently affecting their elasticity. Some specifications for belting call for a tenor in pure rubber of 45 to 55 per cent. However, the tensile strength of a good rubber belt is

very much in excess of any pull to which it is likely to be subjected, though in this connection it should be noted that the weakest part is at the lacing, where the material must be strong enough to prevent the lacing from tearing through the relatively short distance between the holes and the ends. Although the mineral adulterants may not injure and may really improve the rubber employed in the manufacture of belting, their effect on rubber to be used for chemical and perhaps other purposes may be deleterious and should be well investigated. This may be done by incineration of a sample and chemical analysis of the ash.

**IMPORTS OF IRON ORE.**—The imports of iron ore into the United States in January were 33,353 long tons; which compares with 89,715 tons in 1900. This shows a decrease of 56,362 tons, or 62.7 per cent., this year.

**OLD TIN OIL CANS IN THE EAST.**—According to the "Petroleum Review," the tin oil cans in which oil is shipped to Eastern countries, when their contents have been consumed, form quite an article of commerce. There is scarcely a dwelling, that is within reach of oil being distributed to it, that does not possess at least one old kerosene oil tin. They are used for almost as many purposes as the ubiquitous bamboo, except that you can even use young bamboo shoots as food and you cannot exactly emulate the ostrich by an internal consumption of oil tins. Short of this, they can be and are used for a hundred different purposes. In a perfect condition, they may be used to fetch water from the well or rivers; in a leaky condition, the solder can be run off the edges, the sides flattened out and used as roofing for houses. No Malay, Javanese or other inhabitant of Malaya, no Chinaman particularly, and no Japanese or Korean despises an old kerosene tin, any more than he does an empty beer bottle. What he can use it for, or convert it into would astonish one if a list was compiled.

**THERMOMETERS FOR HIGH TEMPERATURES.**—The modern tendency toward the control of industrial operations by thermometric measurements when the range of temperature is within the capacity of the readily available instruments is noteworthy. Many steam plants which are managed with a view to all economies are to be found with thermometers arranged in the main flue to the chimney in order to show the heat which is being lost through the latter, and in many operations, like drying and handling hot gases, reliance is placed upon thermometers for their proper regulation. The metallic dial thermometer is commonly used for these purposes; although it is seldom strictly accurate, it is sufficiently so for most technical uses and has the advantage of being not only read from a distance, but also of being understood by workmen who are unskilled in the reading of more delicate instruments. These thermometers are not made, however, to read higher than 260° C. (500° F.), while mercurial thermometers registering up to 550° C. (1022° F.) are obtainable. The latter are made in the United States by a concern at Rochester, N. Y., and are also imported from Germany. The imported thermometers with graduations every 5° from 100° C. (212° F.) to 550° C. (1022° F.) cost \$9.50 (list price); with graduations in single degrees from 180° to 550° C., the list price is \$10. For the same thermometers tested by the German Government the cost is about \$3.50 additional. These thermometers are of the ordinary shape. They are made of Jena glass, which does not soften below a temperature of 600° C. (1112° F.), and are filled with carbon dioxide or nitrogen at a pressure of 20 atmospheres, which is, of course, necessary, inasmuch as the temperatures for which they may be used are far above the boiling point of mercury. It may be remarked that 550° C. is approximately the temperature corresponding to dull red heat. When supplied for factory use these thermometers are inclosed in steel tubes for protection against breakage, at an extra cost of \$10 to \$15, according to size.

**FIFTY-TON WOODEN ORE CARS.**—The "Railroad Gazette" says that the Chicago, Milwaukee & St. Paul has been running 250 wooden ore cars of 100,000 lbs. capacity since the middle of last summer, and these have given such good service that this design will be continued. These cars were built in the West Milwaukee shops and some idea of their strength and stiffness is got from the fact that there is practically no deflection of the sills under a load of 112,000 lbs. As said, the rated capacity is 100,000 lbs., and the capacity of the hopper level full is 568 cu. ft. The actual light weight of the car is 29,300 lbs., or about the same as recent all-steel ore cars. This makes 51.6 lbs. of dead weight per cubic foot of carrying capacity to the top of the sides. The ore hauled varies in weight from 140 to 300 lbs. per cubic foot.

The length inside at the top is 18 ft. 11 in. and the width is 7 ft. 11½ in., while the over all dimensions are 22 ft. 2¼ in. and 9 ft., respectively. The top of the sides is 9 ft. 1 in. above the rail and the hopper is 6 ft. 11 in. deep. The long sills and the siding are yellow pine and the rest of the timber used is white oak. There are two side sills, 4½ by 10 in., placed 3 in. apart, and two 1½ in. truss rods are used on each side of the center. These rods engage a deep malleable iron post at the middle of the car which also forms a support for the hopper sides. Stub sills, 4½ by 10 in., are used at the center. These are framed into a heavy oak cross beam, 7 by 12 in., connecting the side sills at the rear of the bolster. This end framing is reinforced by diagonal oak braces, 5 by 8 in., by heavy tie rods and corner irons. The ends of the hopper are carried on cross-beams, which, in turn, are supported by posts framed into the sills, the sides being held by outside oak stakes. The sides are tied together at the top by cross timbers and rods. The winding shaft by which the doors are worked is protected by a piece of I-beam. It will be seen that by this construction the sides of the hopper are unbroken and slope to a clear opening at the center which is 4 ft. 8 in. long and 3 ft. 1 in. wide. The doors when hanging open clear the rail by about 3 in. Dayton double spring draft rigging is used. The body bolsters are trusses with top and bottom plates ¾ in. thick and 12 in. wide. Barber diamond frame trucks are used with inside hung brakes.



THE ASPHALT DEPOSITS OF VENEZUELA.

A great deal has been said in the despatches and the daily press about the dispute over the ownership of the asphalt deposits of Venezuela, but very little definite information has been published about them. For the accompanying map of the asphalt region, and for the following description we are indebted to the courtesy of the "New York Times." The map and plans were made from official surveys, and may be relied upon as correct, except for the error of an engraver which makes the Warner-Quinlan concession read "Warner-Quentain."

The settlement of Guanoco, the headquarters of the New York & Bermudez Company and the seat of the asphalt war, is a little over 100 miles to the westward of Port of Spain, on the Island of Trinidad, and lies on the west bank of a small creek emptying into the River San Juan, which has a depth varying from 30 to 45 ft., with steep banks at which a vessel may lie in perfect safety.

The river flows through an almost impassable mangrove swamp, without a rock or stone to be seen anywhere along its banks. A few miles from the bar the Colorado empties into the San Juan. This leads up to Maturin, the capital of the district. After passing the mouth of the Colorado, next comes the Francis. Continuing a few miles up the San Juan River and on the northerly side, is a small, narrow, but deep creek named Guanoco (misprinted on the map Guanoro), at the mouth of which is a custom house erected especially to watch the New York & Bermudez Company's shipping operations. Some two miles from the mouth of this creek, on the westerly bank, is a modern pile wharf about 350 ft. long. This marks the shipping point of the New York & Bermudez Company.

Near the wharf are a blacksmith and machine shop, a car shed, and some minor sheds. Next comes a foreman's cottage, then three or four native structures, then the company's headquarters and store, built of concrete, with 12-in. walls, and intended as a fortress in case of an invasion. A few hundred yards further north is a wooden structure used to house the artisans employed on the place. The administrative build-

often 6 ft. or 8 ft. high, and when it takes fire, as it often does, owing to the Indians being careless with their campfires, the grass will burn for days at a time, and when burned over leaves no mark save crusting the asphalt for perhaps an inch in thickness.

Very few white men have ever visited this asphalt district. It is not a region which anyone would be likely to visit unless drawn there by business, and the parties interested have always kept matters as quiet as possible, discouraging any attempts of travelers or others to explore the region.

Although located in a swamp and only some 4 or 5 ft. above sea level, it has proved to have been a healthy locality. The sick list seldom exceeds 4 per cent., and comprises for the most part mild intermittent fevers, easily cared for with mild cathartics and quinine. The natives are quick to learn and are good, faithful workers. They are not inclined to be quarrelsome, and with a kindly disposed superintendent no trouble is ever experienced in working them in large gangs.

The average Venezuelan will dig and load into a dump car 2½ to 3 tons of asphalt in an 8-hour working day as a task, and it is on record that some of the more hardy ones have loaded as much as 8 tons in 10 hours. They receive 50c. per day for their labor and one ration averaging in cost from 16 to 19c. per day. They are fond of new rum, but it is very rarely that they drink to excess. The laborers at the Bermudez plant usually are one-half native Venezuelans, the other half being West Indian negroes, with a sprinkling occasionally of coolies from Trinidad, who have completed their seven years' labor contracts and do not care to return to the East Indies. There are rarely ever more than five or six American citizens at one time on the company's premises, all of them being superior officers charged with administrative affairs. A few scattering Indians now and then camp about the lake, but they seem adverse to coming in contact with their more civilized brethren.

At present the New York & Bermudez Company has two chartered steamers under foreign flags to bring up asphalt to their refinery at South Amboy. It is expected that the owners of La Felicidad will soon begin work to establish their plant, which involves the construction of

CARIBBEAN SEA



MAP OF VENEZUELA ASPHALT REGION.

ing has a few unimportant outbuildings, and these make up the town of Guanoco.

A narrow-gauge railroad, with 22-lb. rails, connects the settlement of Guanoco with the asphalt lake, 6 miles north, crossing the creek twice on pile bridges. This railway, dignified by the name of the Guanoco & La Brea Railway, passes through a virgin forest which has grown up on the top of an unfathomable morass or swamp, and is constantly being rebalasted to keep the rails in sight above the mud. Arriving at the lake, there are a few native huts and the ordinary plant for asphalt mining. The lake stretches out for a distance of about 5 miles, and 3 miles in width; but is divided by a narrow ridge of dry land with a few stunted trees on it. North and east of this marked natural division lies the mine known as La Felicidad and owned by the Warner-Quinlan syndicate. Its outlet to a shipping port is the town and port of Guayriqui-en, about 6 miles to the northward and eastward, and through the Guayriqui-en Creek, some 9 miles in length, vessels pass out into the Gulf of Paria through the Dragon's Mouth and into the Caribbean Sea. The port will be reached by a narrow-gauge railway, and at the terminus a substantial wharf and storehouses will be erected.

The mine known as La Venezuela is owned by native Venezuelans and lies to the northward of the Bermudez Mine, and to the westward of La Felicidad, and covers about 200 acres. As yet no plans for its development have been made, its owners awaiting the results of the controversy now going on between the owners of Bermudez and La Felicidad Mines.

The asphalt from the lake, it is claimed, is very nearly pure, cargoes having been shipped to New York which contained only from 2 to 4 per cent. of impurities. The refining of this class of asphalt is simply heating it until the water is evaporated, for there is no scum, dirt nor foreign matter in it. The supply is practically inexhaustible. At certain seasons of the year this vast deposit is covered with a tall grass

a wharf at Guayriqui-en and a railway some 6 miles in length to their asphalt deposits, so that before the end of the year the shipments from this locality will be greater than ever recorded.

**COAL IN NATAL.**—Most of the coal mines of Natal have resumed work and the output for December last was 42,933 tons, some 7,000 tons in excess of that for the previous month. Large contracts have been entered into with the Cape railways for supplying their coal requirements, and the Natal Agent-General in London is now engaged in making inquiries into the most approved methods of shipping cargo coal, in view of the largely increased bunker and export trade in coal.

**CALCIUM CARBIDE INDUSTRY IN SWITZERLAND.**—The "Electro-Chemist and Metallurgist" says that the total power used in the Swiss carbide industry amounts to 18,000 or 19,000 H.P. Of this the Neuhausen works use 2,000 to 2,500 H.P., partly in the form of direct current and partly two-phase alternating current. The Voltaworks Venier at Geneva consume 7,000 H.P., supplied from the generating station at Chevres on the Rhone; thirteen furnaces are working, twelve of 500 H.P. and one of 1,000 H.P. At the Lonzaer works the 7,500 H.P. used is derived from two falls of the River Lonza, giving respectively 2,500 H.P. and 5,000 H.P. The 2,500 H.P. is used directly, but the 5,000 H.P. has to be transmitted and transformed. The works at Vernayaz were laid down for 4,500 H.P., but up to the present moment only 900 H.P. has been used. Carbide has been produced at Lauterbach since 1896. At first the power was derived from the Aar-Emme Canal, but now it is got from the station at Wynau. At Thuisis 6,000 H.P. is available, of which 3,000 H.P. is at present used in carbide-making and 500 H.P. for lighting; 12 furnaces are used, each of 250 H.P. At Nidau the works are supplied with power from Hagneck, a distance of 8 km., and at Fiume 3,000 H.P. is worked.

## HOISTING FROM DEEP SHAFTS.\*

By Leon Poussigues.

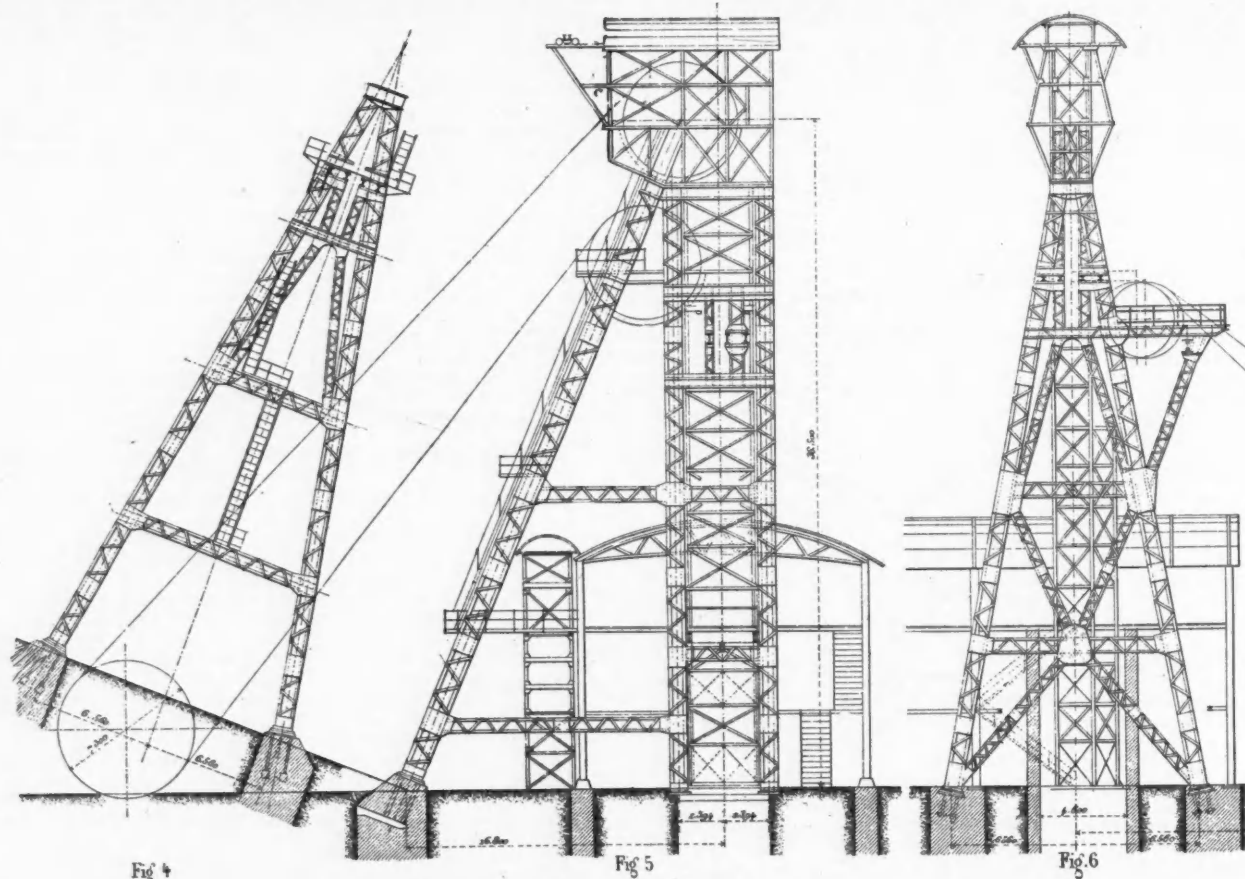
The hoisting engine for a deep shaft has to bring up a heavy load from a great depth within a very short space of time; for this reason it must be very strong and trustworthy in action, though at the same time simple and easy to work. This motor has been gradually enlarged and improved as greater depths were attained. For the single-cylinder engine with steam of low pressure, and which sometimes could not be started when on the dead point, coupled engines, vertical or horizontal, according to circumstances, were substituted; and expansion was afterward adopted, under the control of the engineman. Automatic expansion was then brought about; and among the methods which appear to give the best results is expansion variable by the governor. When once the governor is properly regulated, expansion is produced independently of the engineman, while not interfering with his operations for moving the cage a little at the start or arrival.

The steam pressure has also increased progressively; and while formerly pressures of 4 to 5 kgs. per square centimeter (64 lbs. per square inch) were rarely exceeded, they now attain 8, 10 and 12 kgs. Of course steam of such pressure is not economical in single cylinders, so that compound engines came into use, the piston of each cylinder working on to one end of the drum shaft; and compound winding engines constituted a great step in advance as regards fuel consumption. The com-

whenever the cage reaches a certain height above the bank. It is also advisable that at such a moment, or even a little sooner, the steam be shut off automatically. The author considers that such a measure is to be recommended, if only to guard against forgetfulness by the engineman if he should lose his head in the event of overwinding.

To resume, that which appears best suited for hoisting from great depths is the compound engine, or better still, two coupled engines of two cylinders each, arranged tandem, and making, together, four cylinders, two high and two low pressure, with expansion variable by the governor, and with means for admitting steam at boiler pressure into the low-pressure cylinder; having steam, hand and self-acting brakes; automatic closing of the admission at the end of the stroke; condensation by a central engine, and drums placed one behind the other while loose on their shafts.

The question is often raised, where should the engineman take his stand? Should he be placed so as to see all that passes at the shaft mouth, or should he only be able to watch the indicating instruments and his engine? It is certain that with hemp or Manila ropes the engineman should be able to see the bank, because near its end the rope bears marks that are very apparent, and which, when they come opposite a mark made on the headgear, afford a valuable indication. If it be necessary to shift the cage a little for the loading operations, it is also just as well that the engineman should see what he is doing, although it may be objected that the men moving to and fro at the bank may distract his attention.



HEADGEAR AT EWALD COLLIERY, GERMANY.

compound engine has, however, some disadvantages, the chief of which is irregularity of effort on the ends of the drum shaft; and the result is a rather spasmodic working that is felt by those traveling in the cage. Such irregular working may exert an injurious influence as regards preservation of the ropes; and the author considers it better to employ an engine with four cylinders arranged tandem. No hoisting engine of this type has yet been used; but such an engine, with the drums placed one before the other, is being made for the Ronchamp Company's shaft 1,000 m. deep, and is to be started at the end of 1901.

Some makers have tried to apply condensation to hoisting engines, but the attempts have not been successful when the condenser was directly connected with the engine. There are too many irregularities in the work of a hoisting engine for the air pumps to give good results; and a condenser cannot operate while the cage is being moved at landings. An attempt has been made to use the exhaust steam for feeding the boiler, but if the boiler pressure exceeds 5 or 6 kgs. per square centimeter (80 lbs. per square inch) the injectors must be supplied with live steam, and the working is not satisfactory. For large engines of recent construction the condenser has been rendered independent of the engine itself, and a central condensation plant receives the exhaust steam of all the engines. The use of high-pressure steam requires special precautions for preventing loss by cooling. The cylinders must have steam jackets, and the steam pipes must be lagged as effectively as possible.

Owing to the great speed attained in the shaft, the engineman should have at his disposal powerful brakes that he can put on instantaneously by steam or gradually by hand, and which come into action automatically

With wire ropes and conical drums, when the engine is at a considerable distance from the shaft, the engineman can only have a glimpse of the bank, and in no case could he see marks made on a round rope of small diameter; but on the contrary, an index near the drums can give a precise indication and suffice to guide him independently of other instruments. In this case, therefore, it is preferable that the bank be shut off from the engineman's view, so that he can concentrate his whole attention on the indicating instruments; and moreover, moving the cage at landings should be reduced to a minimum, if not indeed entirely suppressed, the engineman having, therefore, only to concern himself with the arrival of the cage at the surface, which greatly simplifies his task.

The use of round wire ropes for great depths, and even that of flat Manila ropes to the limits which they can practically attain, requires a very large radius of winding up at the end of a lift, and it follows that the speed of a rising cage is always very great toward the end of the lift. Inattention on the part of the engineman, or simply a moment of hesitation, or even a false movement, may lead to the cage being drawn up to the pulleys if the height of the headgear be not sufficient for the engineman to repair his mistake, or if there be no special arrangements for preventing this. It is therefore logical to provide deep shafts with high headgear, and with safety appliances for reducing to a minimum the damage that might be caused by a drawing up to the pulleys. It is evident that the height of the headgear cannot be determined mathematically, and it would not appear too much to leave the engineman a length corresponding with the drum's circumference from the time the cage comes to bank. If this rule be admitted, it follows that the distance from the pulleys to the ground level should be about this length.

\*Abstract from report presented to the International Congress of Mining and Metallurgy at Paris, 1900.

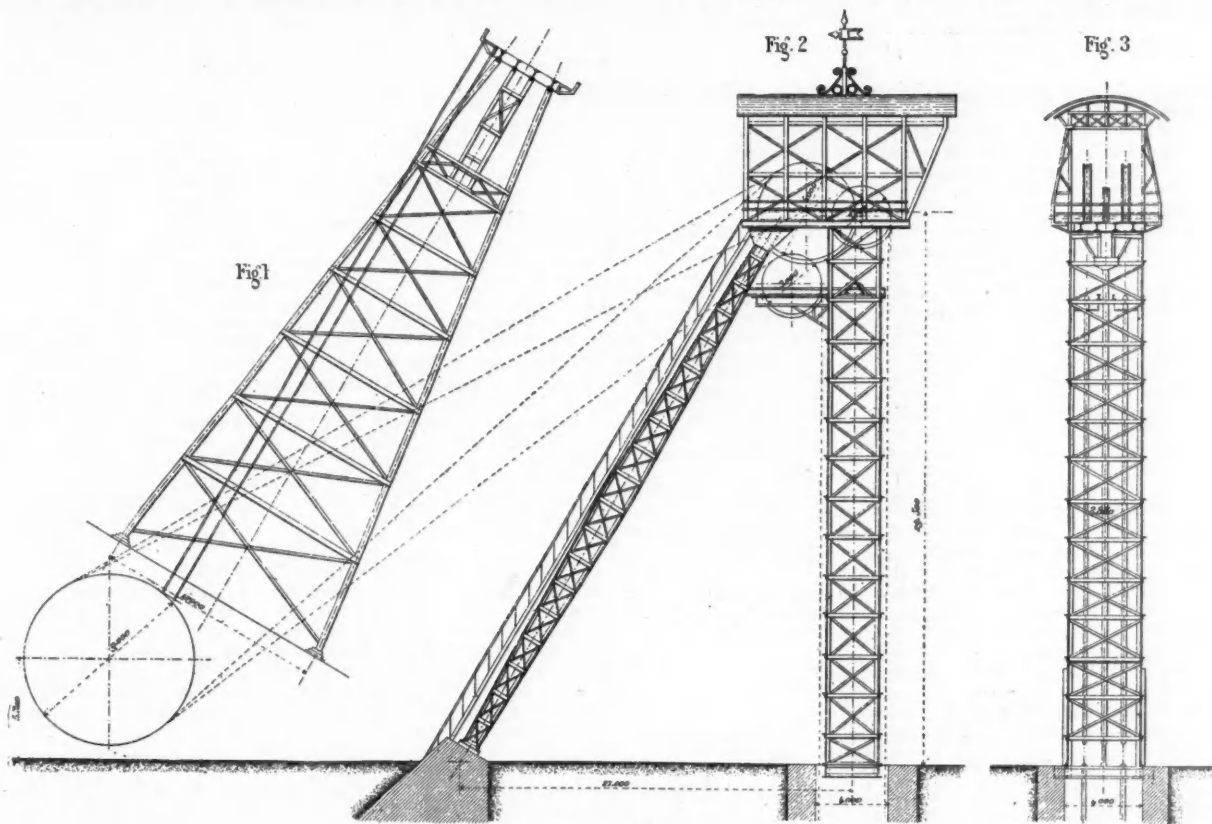


In the case of round ropes with conical drums the final radius of winding up may be 5 m. and even 6 m., and application of the above rule would lead to heights of 30 to 35 m. for the headgear. Such heights are also justified by the fact that owing to the great width of the drums the engines must be placed far from the pulleys; or headgear not high enough would require a considerable distance between the latter and the drums, which would cause increased sagging of the rope owing to the great length between the drum and the shaft, and to the slight angle made by the rope with the horizon. Such heights exclude the use of timber; and the material of which the headgear is made should be economized as far as possible by a due study of the strains in the various parts, and a judicious disposition of the metal. In the author's opinion a very light form of headgear without ties connecting the struts with the vertical members is not to be recommended, as it is not very stable, and, although theoretically possessing all the desirable conditions of resistance, it is liable to vibration. Headgears like those of Monopol or Ewald, in Westphalia, shown in the illustrations, are heavy and stable.

There is one point to which sufficient importance is not attached, but on which depends a thorough supervision of the pulleys, and consequently their proper working, as well as preservation of the ropes—the means by which the upper platform is reached. There is generally a simple straight ladder, fastened as best it may be, along the uprights. With very high headgear the official charged with the duty, makes his inspections at the longest possible intervals apart, and the more so as he knows that very little check is kept upon him. The bearings are not sufficiently lubricated, and the rough edges that sometimes form

Decize, where it originated. Among the several forms of this safety apparatus, that one should be selected the working of which causes least damage to the guides, etc., and which is most easily kept in order. The friction parachute fulfills these conditions, but to ensure its being always in working order, constant supervision, regular inspections, proper lubrication of the points, and periodical bringing into action are necessary. At the Decize collieries, as at many others, such working is effected regularly every week. When steel or iron guides are employed, the choice of a parachute becomes more difficult, but few of those for iron guides being quite satisfactory; and at several mines where the guides consist of rails, supplementary timber guides have been put in solely for the safety catches to act upon. There are, however, certain parachutes that are efficient with rail guides, as, for instance, the Hypersiel, and also those used at the Lens and Noeux collieries.

An intensive output may be obtained by increasing the engine speed or by diminishing the duration of the caging operations. Cages are now generally made with several decks; and there may be, both at the surface and at the underground landings, as many floors as there are decks to the cage, so that all the cars may be drawn off at the same time and without shifting the cage. The chief disadvantage of this arrangement is that it requires a great many men and very long cages, while it also encumbers the space around the shaft mouth. With the object of avoiding these disadvantages automatic caging has been introduced by which both time and labor are saved. Sometimes the cars run off the cage of themselves, so soon as the catches that hold them fast are released, the cage floors being inclined; and sometimes the full cars are



HEADGEAR AT MONOPOL COLLIERY, GERMANY.

on the pulley rim and damage the ropes escape notice. It is therefore necessary to render access to the pulley platform as easy and as little dangerous as possible, so as to permit ready inspection of this important part of the plant.

The headgear is generally completed by a detaching hook or other arrangement that prevents the cages from being drawn up to the pulleys. With Manila-fiber ropes and timber guides the latter are generally brought gradually nearer together, so that the cage can become jammed between them. Then, after the jamming, the engine stops and things remain as they were, or the rope breaks and the cage is held between the guides. In many arrangements, at the same time that the guides are brought nearer together, safety lugs are fitted to the headgear, to be raised by the passing cage, and then fall back through their own weight, so that, if the jamming is not sufficient to hold up the cage after the rope is broken, the cage can come down on the lugs. In any case the rope will receive a violent shock which may exert an injurious influence on its life, especially in the case of a wire rope; and the cage and the headgear are also injured by the shock. The most rational method consists in fitting the headgear with safety catches while inserting a detaching hook between the rope and the cage. There are plenty of detaching hooks to choose from, and the great point is to adopt one of positive working, and that is not liable to act when not required.

The parachute is to a certain extent the necessary complement of the detaching hook, and of many types existing several are good. The best, however, is that which is the most looked after; and this is so true that, notwithstanding the modifications and improvements introduced, there is no parachute more effective than the one first invented—that of Machecourt, employed at the Creusot collieries, and especially those of

pushed off by the empties, which are pushed on to the cage by a plunger acting through hydraulic pressure or compressed air. At other times the cage floor is hinged at one side, and is made to assume a slope when the cage comes down upon the catches. The cars leaving the cage are received directly in balance elevators, which raise them to the level of the main landing and also move the empties. At the shaft bottom similar methods may be employed.

Under some circumstances it is necessary to introduce modifications, and this is what the author has done in designing the equipment of the 1,000-m. shaft at the Ronchamp Colliery. Owing to the comparatively small quantity of coal to be raised by that shaft, especially at first, the cages have only two decks, and the balance lifts have been suppressed on the side of the empties, while a platform has been arranged at the height of 2 m. corresponding with the distance between the decks of the cage. The empties are brought over the platform, which does duty as a second landing, by a small mechanical haulage plant. On the side of the full cars there are two balance lifts, the hydraulic cylinders of which are in communication with the water service. These lifts are exactly 2 m. high, and the roof of each corresponding with the second deck of the cage is provided with channel irons that serve as rails. When the plungers are at the bottom of their stroke the lift cages are entirely underground, their roof forming a continuation of the landing, the space around the shaft being quite clear. The lower floor of the lift cage is sharply inclined, so that, when the empties are pushed on, the full cars do not stop but continue to travel toward the tippie; and during the next lift there is nothing to do but receive the cars on the upper deck. It will be seen that this method is very simple, while the caging operations are reduced to a minimum; and but little labor is required, although the caging is effected by hand, one man and two boys

being allowed for an output of 700 tons. This plant has been so designed as to permit the use of three-decked cages later on when the output attains 1,100 tons daily; and in that case another man will have to be put on.

For hoisting from great depths the surface and also the underground landings will be laid out so as to realize, with great saving in labor, a minimum duration of the loading operations, in order to obtain the maximum output with an engine of given speed, so that automatic caging is to be recommended. For a given number of cars to be hoisted per lift, the cages should have the fewest decks possible, and every care taken to secure a good system of guiding, while all the necessary safety appliances will be employed.

The steel headgear, having a height at least equal to one turn of the rope round the drum, will carry pulleys of large diameter, their grooves being lined with wood segments, readily renewed, in order to avoid rough edges to the grooves and therefore wear of the rope. The round steel-wire ropes, of decreasing section and great strength, must be very carefully watched; and they will be wound up on conical or cylindro-conical drums, loose on their shafts, each one being fitted with a brake put on by steam or by hand, and also going on automatically if the cage should be drawn up beyond a given height. These drums will by preference be arranged one behind the other, to diminish the length of shaft between bearings and the angle made by the rope with the vertical plane of the pulley.

The hoisting engine will receive high-pressure steam, which will be expanded twice at least; and in this case an engine with four cylinders, horizontal by preference, will be adopted. The expansion will be variable by the governor; and the steam will be condensed if there be a central condensation plant.

#### AMERICAN EXHIBITS IN NICARAGUA.

Mr. A. D. Straus, Consul General for Nicaragua in New York, has received information from the Nicaraguan Minister in Washington of the establishment of the National Museum of Nicaragua, devoted to the development of industry, commerce and science, with a section devoted to foreign commerce and industry. In order to establish better commercial relations between Europe, America and Nicaragua, a large hall has been provided in Managua, the capital of Nicaragua, for the public display of the products of foreign lands. The director of this Museum invites the Nicaraguan consuls in Europe and America to solicit from the manufacturers and producers within their consulates, samples (not too large) of goods and articles of their manufacture; only such as will be of interest and of commercial value to that country being desired.

Articles of this description are to be exhibited at all times free of cost, and it is anticipated that a permanent exhibition of this kind will inure to the benefit of both exhibitors and visitors. Where a manufacturer's products are bulky, such as machinery, heavy farming or mining implements, etc., it is requested that only small working models or a set of representative photographs be submitted.

Mr. Straus extends an invitation to the merchants and manufacturers of New York to send him samples suitable for the purpose, such as are suggested by the director of this Central American museum. He also requests that all exhibits be accompanied by a lucid description or by instructions how to operate them, their advantages, their technical or commercial names, together with catalogues, price lists, terms, commissions allowed to agents, and especially the style of packing for export. This latter point is of great importance to the Nicaraguans, as the custom duties of that country are based on the gross weights. All consignments should be packed as lightly as is consistent with safety.

#### ABSTRACTS OF OFFICIAL REPORTS.

##### Monogahela River Consolidated Coal Company.

This company makes the following statement of its financial condition at the close of its last fiscal year, October 31st, 1900:

Investments in property .....	\$38,151,309	
Stocks of other companies .....	262,050	
Supplies, furniture, etc. ....	337,415	
Coal on hand .....	1,576,406	
Accounts and bills receivable ..	1,442,743	
Cash on hand .....	269,235	
<b>Total assets .....</b>		<b>\$42,039,158</b>
Preferred stock .....	\$9,915,000	
Common stock .....	20,000,000	
Bonds .....	9,479,000	
Current debt .....	2,149,471	
		<b>41,543,471</b>
Balance, undivided profits .....		<b>\$495,687</b>

The company is the consolidation which includes all the mines in the Pittsburgh District known as the "river mines"; that is, the mines which ship their coal by the Monogahela and Ohio rivers. No statement of coal mined or of earnings is given.

##### Tamarack Mining Company, Michigan.

This company's report for the year ending December 31st, 1900, shows total receipts from sales of copper, interest and other income, \$3,299,077. The total costs of all kinds were \$2,099,936, leaving a net balance of \$1,199,141. From this two dividends, amounting together to \$17—or 68 per cent. on the par value—per share were paid, amounting to \$1,020,000. The balance of \$179,141, added to \$1,034,228 brought forward from preceding year, left a balance of \$1,213,369 at the close of the year. Included in expenses was the sum of \$252,870 paid for new construction.

The assets at close of the year were: Cash and accounts receivable, \$725,702; supplies at mine, \$273,116; wood lands, \$269,350; Hancock & Calumet Railroad bonds and stock, \$124,000; Lake Superior Smelting Company stock, \$132,000; total, \$1,524,168. Bills and accounts payable amounted to \$310,799, leaving a balance of assets of \$1,213,369, as above.

The superintendent's report shows rock mined for the year 766,058

tons; rock stamped, 625,422 tons; mineral obtained, 31,738,405 lbs.; cost of stamping per ton of rock, 31.479c. The quantity of fine copper recovered is not stated.

Total sinking for the year amounted to 1,008 ft.; total drifting on the conglomerate, 4,115 ft.; drifting on the Osceola amygdaloid tributary to No. 1 shaft, 1,473 ft.; total cross-cutting, 2,477 ft.; total opening work in all classifications, 10,610 ft. The depth of the several shafts at the close of the year was: No. 1, 3,240 ft.; No. 2, 4,143 ft.; No. 3, 4,713 ft.; No. 4, 4,450 ft.; No. 5, 4,680 ft.

Superintendent Parnall says: "The fact that the lode has not continued to flatten out at great depth in the No. 5 shaft is good evidence that we are still a great distance from the bottom of any basin formation, which has frequently been predicted as likely to develop in our mining operations, and argues well for the continuity of the lode, and the favorable conditions for its mineralization throughout our entire territory lying west of our present area of operations. At the point of intersection the lode was found mineralized to a degree which fully realized our expectations.

"We have not been able to do any drifting in the lode yet, nor will we be for some time, as the plat at the point of intersection, which is about half completed, must be finished and another plat, 82 ft. above this point must be cut before we can resume the shaft or drifting in the lode. The drifting will necessarily be limited while sinking is being done, because of the difficulty of handling the rock, and as the plan of going deep enough to open three levels below the point of intersection before stopping sinking operations will be adhered to, no openings in the lode of any consequence can be made for several months.

"Last year 90,954 tons of rock from the Osceola Consolidated Mines were stamped in our mills, while this year, owing to the building of the new Osceola Mill, the amount was only 13,062 tons. The supply of rock from our own mine was 5,668 tons less than last year, making a total decrease of 83,560 tons stamped without a corresponding decrease in labor or supplies because of extensive repair work. This accounts for the 31.479c. per ton of rock charged to stamping on the cost sheet. Of the rock stamped a little over 9 per cent. was from the Osceola lode tributary to No. 1 shaft."

The directors' report says: "The most important work ever undertaken by this company was the sinking of No. 5 Shaft, the total cost of which, including equipment to December 31st, 1900, has been \$663,508. The work on this shaft was begun August 7th, 1895, and all payments since December 31st, 1896, have been charged to operating account. The lode was cut December 20th, 1900, at a depth of 4,662 ft., and was found as rich as we expected it to be. This fact has an important bearing on the future prospects of the company.

"It will be noted that the construction account for 1900 has been \$147,782 less than for 1899, and estimates for work to be done in 1901 indicate that the construction account may show some reduction from 1900. We expect No. 5 Shaft to add during the latter half of the year to the product of the company.

"While the actual cost of mining and treating a ton of rock was no less than in 1899, the decrease in cost of construction, an increase of 0.062 per cent. of fine copper in the rock stamped, and the steady price of copper during the entire year enabled us to raise the dividends from \$10 to \$17 per share, and carry to surplus account \$179,141 in 1900, as against \$140,511 in 1899."

**THE STUDY OF COMMERCIAL TREES.**—The report of Mr. Gifford Pinchot, forester of the Department of Agriculture, for the fiscal year 1900 says: "The work commenced in 1899 upon the Redwood and Red Fir of the Pacific Coast was resumed before the end of the fiscal year 1900, and a study of the Western Hemlock was begun. Co-operation with the Redwood lumbermen continued as before, and the field work was made to include a thorough study of the possibilities of Redwood second growth. A study of the Southern Longleaf Pine was begun and one of the Adirondack Balsam Fir. The latter is particularly timely because, with the decrease in the supply of Spruce, the Balsam is used more and more largely in the manufacture of paper. The data collected in the field for Adirondack hardwoods has been worked up into tables intended particularly to assist the private owner in managing his hardwood lands. The studies of the Western Yellow Pine, the Southern Loblolly Pine, the White Oak, the Yellow Poplar, and the Black and Shellbark hickories were continued or begun."

**GAS FOR MOTIVE POWER IN GREAT BRITAIN.**—Schemes appear to be on the increase in various parts of the kingdom for supplying motive power from central stations, says the London "Engineer." Electricity is the power chiefly favored, but gas has also its adherents, and one of the latest projects of this kind appears to be a proposal to distribute Mond producer gas in a wholesale fashion among the iron and steel makers, engineers and general metallurgical manufacturers of South Staffordshire. A bill has been prepared to obtain the necessary parliamentary powers for the laying of mains. The matter generally, although at present only in an initial stage, has aroused interest among the engineering and allied trades of that part of the country, who are hoping thereby to reduce their power costs. It has been referred to favorably by the chairman of the South Staffordshire Mines Drainage Commissioners, and has also been under discussion by the Staffordshire Iron and Steel Institute, and efforts are being made to obtain the assistance likewise of other public bodies connected with the trade and commerce of the Midlands. There are hundreds of thousands of tons of slack, or coal dust, at present lying absolutely idle upon the pit banks of Staffordshire and of some of the adjoining counties, which by some such central power-supply scheme as this might be serviceably utilized. Most of our readers are aware that a plant for the manufacture of this gas, with recovery of the sulphate, has been in use for some years at the works of Brunner, Mond & Company, Winnington, Cheshire, gasifying on an average 200 tons of slack per day, the gas made being used in the furnaces, and for the production of power in gas engines. Up to the present time this plant has gasified over 600,000 tons of slack.



THE NEW ALLIS SHOPS IN MILWAUKEE.

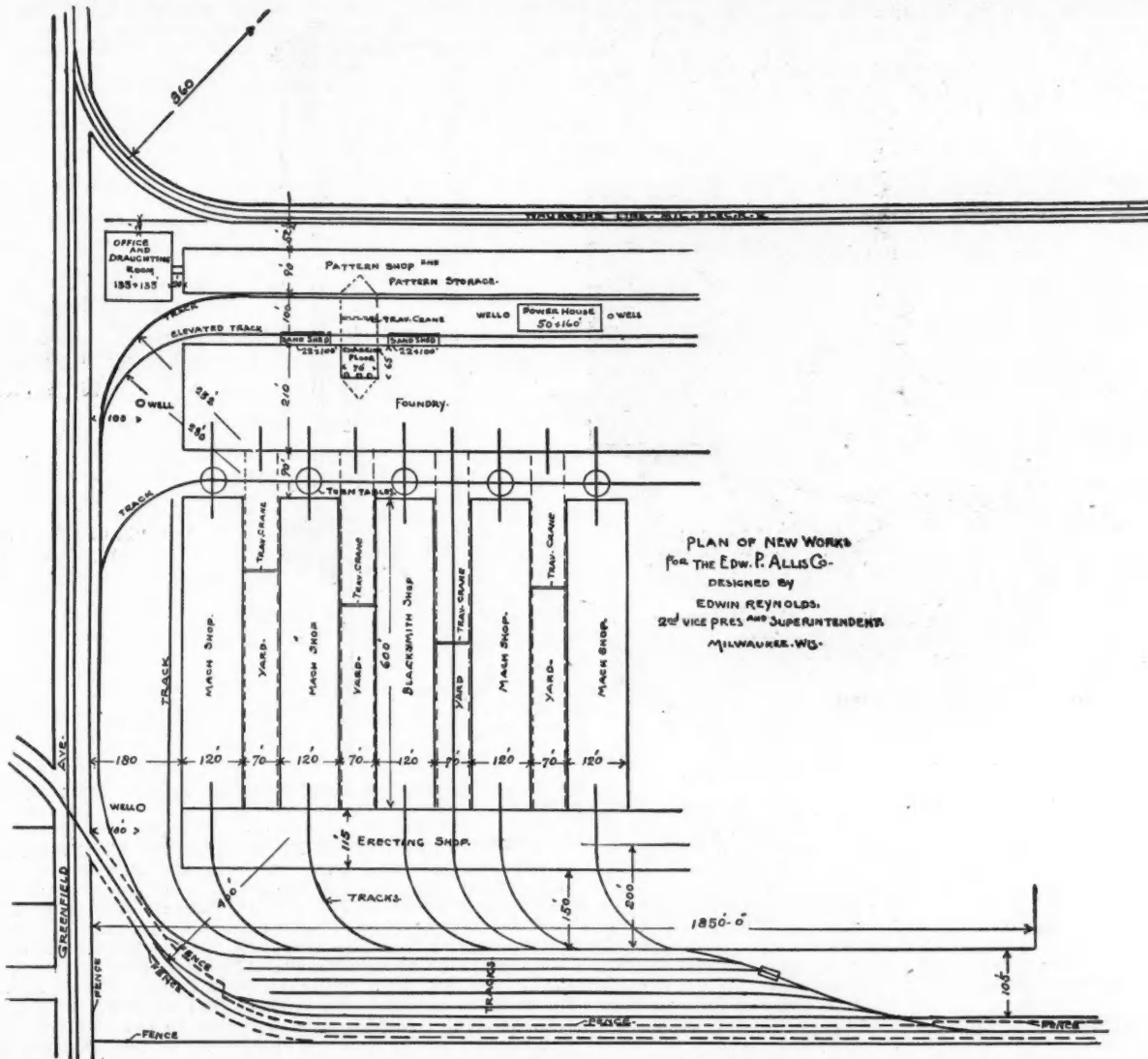
The new shops of the Edward P. Allis Company, of Milwaukee, are notable for the exceptional facilities for economical production, and for the provision made for their extension. They have been designed by Edwin Reynolds, second vice-president and general superintendent of the company, and from an engineering standpoint are a noteworthy advance in plant for manufacturing purposes. The tract of land selected by the Allis Company comprises 100 acres near the Soldiers' Home on the line of the Milwaukee Electric Railway, and about 30 minutes' ride from the business center of the city.

The tract is rectangular in form, 1,500 ft. wide and 2,700 ft. long, this size being chosen to conform to the general plan as outlined by Mr. Reynolds. The land lies between the Chicago, Milwaukee & St. Paul and the Chicago & Northwestern railroads, and each company will have a side track for incoming and outgoing freight, extending along one of the longer sides of the property, and adjoining these will be the extensive private yards of the Allis Company. From these yards spur tracks run to the foundry and power-house on one side and the erecting shops on the other, thus bringing all the raw material in the car to the exact point where it is to be used, and bringing the car again into the shop alongside the finished product when the latter is ready for shipment. Indeed, from these tracks a car can be shipped by means

nally will be carried by the same agency directly from the machine shop into the great erecting shop where all the parts are assembled and the machine is finally erected. Into the side of this erecting shop spur tracks are to run from the yards at regular intervals, thus allowing the cars to be run into the shop alongside of the product which is ready for shipment. In every step of their progress through the shops, the materials will be handled exclusively by cranes driven by electricity generated in the company's own power-house, some 40 or more of these cranes being used in the shops, and covering the 75-ft. storage spaces between the shops.

A unique feature of the plan is the facility with which extensions may be made. The first shop to be built will be a machine shop along the National avenue end of the property, and a section of the erecting shop and foundry, running at right angles to the avenue. These may be put in operation, and thereafter as business demands, the foundry and erecting shop may be extended and additional machine shops may be erected connecting the two, all without the slightest interference with the regular work of manufacturing already going on in the section of shop first installed. Such perfect provision for shop extension has probably never before been worked out, and it is in itself an engineering triumph of no mean order.

The offices and drafting rooms will be located in the southwest corner of the property, and the pattern shop and pattern storage ware-



of a compact system of spur tracks and turn-tables, to any shop in the whole system, and its load transferred from the car to the point at which it is to be used. The accompanying illustration shows the general plan of the works.

Broadly, the plan outlined is for a foundry 210 ft. wide which may be extended for the entire length of the tract, a distance of nearly 2,700 ft. On the opposite side, parallel to the foundry, and adjoining the yards will be an erecting shop 115 ft. wide, which may be of the same length as the foundry. Between these two and at right angles to them, are a series of machine shops, each 120 ft. wide and 600 ft. long, opening at one end into the side of the erecting shop, and the other end extending to within 90 ft. of the side of the foundry, this space being occupied by a simple but effective system of railway tracks, turn-tables and electric cranes, by means of which a casting may be taken from any part of the foundry, and with practically but one handling, be carried either to any tool in any shop, stored in the yards between the machine shops or placed at once on the car in which it is to be shipped if no machine work is required.

It will thus be evident that the raw material, the iron, coke, sand, etc., will be brought on the cars direct to that part of the foundry where they are to be used, and from the opposite side of the foundry the rough casting will pass directly to that shop in which it is to be machined. Here it will be passed by electric cranes from machine to machine, and fi-

house will extend along the west side of the property parallel with the foundry, with provision for extension as the foundry is extended. The power house is located on the railroad and between the foundry and the wood-working shops, in order that the refuse from the latter may be readily available for fuel. The blacksmith shop will be placed between two machine shops, in which will be located the machinery especially designed for working the rough forgings into their finished shape. The power used will be electric throughout, and it will probably be one of the most complete and carefully worked out examples of electric distribution of power for a shop ever attempted.

It is the intention of the Edward P. Allis Company to continue work in their present shops, which cover about 25 acres, in the city of Milwaukee, which will be known as the East Shops; the new shops, which will be known as the West Shops, will be strictly an addition to their present facilities, and will be equipped throughout with new tools, many of them of large size and of special design, giving employment to over 2,500 men additional to the present working force. The extensive foundries located on South Bay Street, known as the South Shops, will be retained, but on the expiration of their present lease the Buffalo shops will be discontinued and the tools and such of the Buffalo working force as wish to come will be transferred to the new West Shops. The general offices of the company will remain at the East Shops, on Clinton Street, in Milwaukee.

## THE ATLAS MINE CAR.

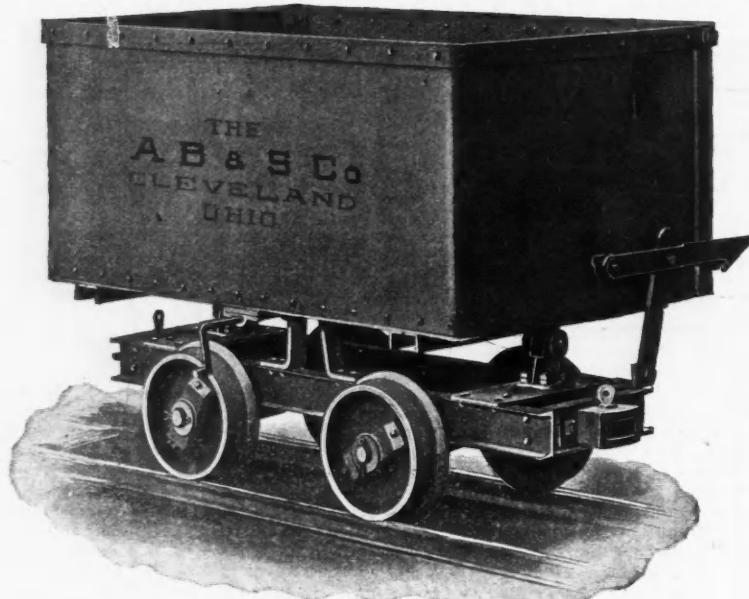
The accompanying illustration shows a very convenient and useful type of mine car built by the Atlas Bolt and Screw Company, of Cleveland, O. This car is of a very strong pattern and has a clean and easy dump, both excellent qualities in a mine car. The framework is of steel channel bars and angles, covered with steel plate. The trunnions are of cast iron, resting on channel bars across the bottom of the frame. The draw-bar runs the entire length of the frame, thus carrying the whole strain and putting none upon the frame when the cars are run in trains. The door is released by throwing the lever forward, and at the same time the body is also released. The wheels are of chilled steel, pressed on the axles. The axles run in self-oiling boxes and brasses. When desired, self-oiling wheels are also furnished. The car dumps at an angle of 45°, or more if wanted, the angle being regulated by a lever. Where the cars are intended to be run in trains, wooden bumpers are furnished.

These cars are built by the makers in several sizes. A medium size built for 2-ft. gauge, has a capacity of 24 cu. ft., and weighs 1,125 lbs.; its length over all is 51 in., width 40 in.; extreme height above rail, 42 in. The wheels used are generally 12 in. in diameter.

## THE "P. B. H." QUICK-CLOSING WATER GAUGE.

Water gauge glasses have the faculty of breaking at all sorts of inopportune moments, and many an engineer has nursed scalds and burns received while trying to close the cocks. Even the protection of a fire shovel, hastily picked up and improvised as a shield, does not lessen the danger of burns and scalds from the escaping water and steam. The water gauge here illustrated, it is claimed, effectually prevents any such harm, and closes the valves at once.

As will be seen from the illustrations, the gauge itself does not differ



THE ATLAS BOLT AND SCREW COMPANY'S ORE CAR.

from those ordinarily in use on boilers. But instead of valves at the upper and lower ends, there are two cocks, each consisting of a single stem, threaded near its middle and connected outside to a double crank. The opposite end forms the valve, fitting into the gauge connection when closed, and thus preventing the escape of steam or water.

The thread on the valve stem, it will be seen, is of a high pitch, so that it requires only a comparatively slight rotation of the stem to close the cock. This rotation is accomplished by means of a chain attached to the crank on the stem, the chain hanging at such a distance from the floor as to be within easy reach of the firemen. When a glass breaks, all that is necessary is to pull the right-hand chain, and both connections to the gauge glass are closed, and the glass may be quickly replaced.

The tubes used in the "P. B. H." glasses are carefully selected; the body and connections are of the best steam metal, and they are provided with extra large nuts to allow the use of extra large rubber washers. Each gauge is supplied with enough brass chain to allow it to be operated 10 ft. from the floor. The manufacturer is Paul B. Huyette, of Philadelphia.

## RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

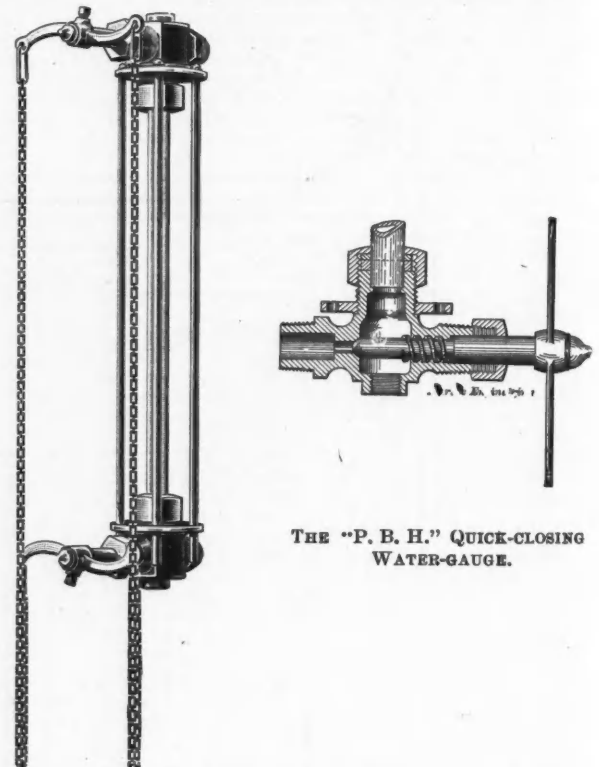
Specially Reported for the Engineering and Mining Journal.

**WHEN LESSOR IS NOT ENTITLED TO ROYALTY ON SCREENINGS.**—A mining lease stipulating for the payment to the lessor of a royalty of 5c. per ton of 2,200 lbs. of all lump coal mined, and 5c. per ton of 3,600 lbs. on all "mine-run" coal mined, does not entitle the lessor to a royalty on screenings, consisting of nut and slack coal left after the lump coal is separated from same, as the words "mine-run" coal mean the coal as it comes from the mines.—Hardin vs. Thompson (57 Southwestern Reporter, 12); Supreme Court of Kentucky.

**EVIDENCE OF COMPETENCY OF MINER TO INSPECT ROOFS.**—Where a miner whose duty it is to inspect the roof of a mine to deter-

mine its safety, and to remove loose earth or rock from same, testified that he had worked in other mines, and in one other 19 years, and another miner, charged with the same duties, testifies that he had been in the defendant company's employ 14 months before the killing of the miner for whose death damages were sought, such evidence is sufficient to establish the competency of the miners to make such inspections, there being no substantial evidence of incompetency.—Fisher vs. Central Lead Company (56 Southwestern Reporter, 1107); Supreme Court of Missouri.

**ACCIDENT INCIDENT TO SERVICE.**—An employee had worked in a mine for some time as a bottom digger, but when rock fell from the roof of the mine he would be called upon to help clean it up, and occasionally when there was loose rock overhead he would be required to help pick it off. On the occasion of the accident a track layer in the mine directed such employee to take down a rock in the roof of the mine in a different place from that in which he was employed, and in doing so he received the injury complained of. It was not shown that such track layer was a superintendent with power to direct other employees in the mine, nor that the mine operator was negligent in failing to employ necessary machinery and appliances. The court held that such employee was not entitled to recover, as such accident was one incident to the service in which he was engaged.—Coal Valley Mining Company



THE "P. B. H." QUICK-CLOSING WATER-GAUGE.

vs. Nelson (87 Illinois Appellate Court Reports, 180); Appellate Court of Illinois.

**DEVELOPMENT WORK BY OWNER OF ADJOINING CLAIMS.**—Certain parties located a mining claim, and afterward another entered on the land, claiming it as vacant mineral land, on the ground that the first parties had failed to do the amount of work required by law for five years previous. First parties were also the owners of a claim that overlapped the claim in dispute, and on the land common to both claims had done work in the way of tunneling largely in excess of that required by law, with the manifest intention of striking the lode on the claim in dispute. The higher court held that a finding that the work performed could not be a benefit to the claim in dispute, and that the first parties were not entitled to the same was erroneous, since the lower court could not be permitted to substitute its judgment as to the expediency of the methods employed for developing a mine for that of the owners.—Mann. vs. Budlong (62 Pacific Reporter, 120); Supreme Court of California.

**SUFFICIENCY OF NOTICE OF LOCATION.**—A final notice of the location of a mining claim which fails to mention either the State or county of the purported location, but which refers to the preliminary notice posted by the locators as required by law, and recorded in the proper county, which latter notice named the county in which the claim is located, is a sufficient compliance with the statute of the United States (Section 2,324) requiring all records of mining claims to contain such a description of the claim located, by reference to some natural object or permanent monument, as will identify the claim, and also with the law requiring the certificate to be recorded to state a description of the claim, defining the exterior boundaries as they are marked upon the ground, and such additional description by reference to some natural object or permanent monument as will identify the claim, especially as against a subsequent locator who finds the bedding and tools of the previous locator upon the claim, and an employee holding possession for them.—Talmadge vs. St. John (62 Pacific Reporter, 79); Supreme Court of California.



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.)

297.—The Chicago Institute.—This school at Chicago, Ill., recently founded by Mrs. Emmons Blaine, now has a good mineral collection comprising some 700 or 800 specimens. It is greatly enhanced by a choice lot of the rarer minerals from abroad, the lead, zinc, and copper species being represented by dozens of fine specimens.

298.—Aikinite.—This mineral, a sulphide of copper, lead and bismuth is reported as recently being discovered near Prescott, Ariz. Its composition is sulphur, 16.7 per cent.; copper, 11.1; lead, 36; and bismuth, 36.2. Some of the specimens found were in acicular crystals.

299.—A Western mining paper, much given to publishing commendatory notices of its own excellence, printed recently a column of such stuff. Unhappily for this display, the paper in an adjoining column, ostensibly to lighten the steps of the non-technical reader, printed a jumble of definitions of mining terms. We select a few of these definitions, but do not guarantee that the non-technical reader will have his steps lightened or his knowledge of mineralogy and geology extended by committing them to memory:

"Augite.—A kind of basalt or greenstone found chiefly in eruptive rocks."

"Borate.—A rather brittle, sweetish alkaline mineral."

"Bath oolite.—A shelly limestone much celebrated as a building stone."

"Bifurcation.—Division in two prongs or parts."

"Contact.—Close union or junction of one ore body with another."

"Ferrous.—Anything having a considerable quantity of iron in its composition, as ferro-manganese."

"Cerusite.—A mineral of a white, gray or grayish-black color, sometimes tinged with blue or green by some of the salts of copper."

"Felspar or feldspar.—A genus of minerals rather than a single mineral."

"Hornblende.—One of the five most abundant simple minerals of which rocks are composed, the others being felspar, quartz, mica and carbonate of lime."

"Selvage.—An edge so wove as to prevent raveling or a woven border of close rock; used in a mining sense as the outer lining of a vein or fissure at its contact with another body."

"Sphalerite.—The same as blende. It is used by a few mineralogists, and relates to a treacherous character of rock."

"Sulphide.—A neutral salt of sulphydric acid."

"Titanite.—A mineral occurring mostly in crystals, rarely massive."

300.—Rock from Cripple Creek.—V. G. H.—The specimen shows a dark, fine-grained ground mass with crystals of hornblende and feldspar. It may be a rhyolite, or, as you suggest, a nepheline syenite. An accurate determination of fine-grained igneous rocks is often impossible without microscopic examination of thin sections. Your rock is a case in point.

301.—W. L.—No. 1 is seritic material, apparently gouge from a vein. It is not a true clay. No. 2 is a somewhat decomposed mica schist. No. 3 is a mica schist of which No. 2 is an alteration product. No. 1 might grade into No. 2 and No. 2 into No. 3, the last being the country rock and No. 1 the product of chemical changes along the walls of a vein.

302.—Gold Ore from North Carolina.—J. M. S.—No. 1 is ordinary vein quartz. No. 2 is not slate, but a quartz stringer in a mica schist. Neither specimen shows visible gold and probably neither contains gold in paying quantities.

303.—Supposed Tetrahedrite.—J. S. T.—Your specimen is not tetrahedrite. That mineral is much blacker in color, with a very pronounced metallic luster. Your specimen is not a simple mineral. It was perhaps once a schistose rock carrying copper pyrite.

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.)

Pelton Water Wheel.—Can you tell me what is the greatest head under which any water wheel is operated in the United States? I presume it is a Pelton wheel.—R. M.

Answer.—The Pelton Water Wheel Company informs us that the greatest head under which any of its wheels are working in this country is 2,200 ft. There are a considerable number working under heads ranging up to 1,000 ft.

Vanadium.—Having a considerable quantity of vanadium ore, I would like to know something of the market, prices, etc.—A. D.

Answer.—The market for vanadium is very limited, and the small quantity used is now obtained from certain slags from the blast furnaces at Creusot, France. Some salts of vanadium are used in dyeing and a very small quantity in making steel.

See the "Engineering and Mining Journal," September 22d, 1900, also "The Mineral Industry," Volumes VII. and VIII.

Big Five Mining Company.—Can you tell me anything about the Big Five Mining Company, whose property is in Boulder County, Colorado? I see statements of rich strikes on the property but have seen no notice of them in the "Engineering and Mining Journal."—C. F. J.

Answer.—The so-called rich strikes you refer to have not been mentioned in our columns because our well-informed correspondent in the district did not believe them to be worth mentioning. There has been really no news about the property for some time. The company sends out glowing prospectuses, but it has paid no dividends—nor do well-informed persons expect any.

Uranium.—Can you give me any information or put me in the way of getting information in regard to uranium or uranium plants? We have what are said to be fine uranium deposits in our mines in Arkansas, and that in abundance, and we wish some information on the subject.—C. P.

Answer.—The demand for uranium ore is not large enough to warrant you in putting up a plant of any size to treat it. With regard to the quantity you can dispose of, you might communicate with Steir & Boericke, at Primos, Pa., or Poullot & Voilleque, Denver, Colo.

See the "Engineering and Mining Journal," November 3d, 1900; also "The Mineral Industry," Volume VIII.

Zinc Dust.—I am informed that American insurance companies will not allow the storage of zinc dust except under a very greatly increased rate for all goods stored in the same building. Can you tell me why this is?—M.

Answer.—The New York Board of Fire Underwriters says: "Zinc Dust is classed by our Board as 'Special' in our classes of hazards, and when stored in a building is considered a special hazard risk, and subjects the building and contents to an extra premium. We would add that zinc dust is liable to spontaneous combustion (see Harris's 'Technological Dictionary of Insurance Chemistry,' page 406); and would also state that the storage of zinc dust in New York City, except under special permit from the Combustible Bureau of the Headquarters of the Fire Department, is in violation of a city ordinance."

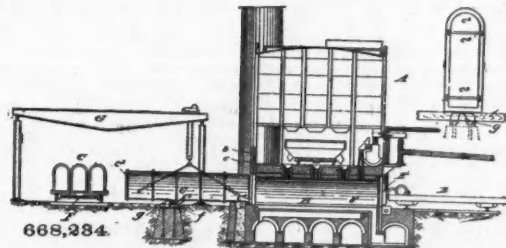
PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

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

Week Ending February 19th, 1901.

- 668,149. STOPPER-ROD. Solomon Anthony, Lorain, Ohio. The combination of a ladle-stopper, a stopper-rod having a socket in its lower end, a stopper-securing device engaging the said socket and removably secured therein, a sleeve of refractory material surrounding the said rod, and a sleeve of refractory metal removably seated within the first-named sleeve and around the said stopper-securing device between the stopper and the stopper-rod.
- 668,197. PROCESS OF EXTRACTING LIQUID METHANE FROM NATURAL GAS. Ernest A. Le Sueur, Ottawa, Canada. The process of preparing liquid methane in a state of comparative purity which consists in chilling natural gas until partial liquefaction occurs, whereby is precipitated a liquid richer in methane than is natural gas.
- 668,209. DEEP-WELL DRILLING APPARATUS. Charles D. Pierce, Jersey City, N. J. The combination of a foundation composed of parallel top and bottom members and vertical cross-braces connecting such members, two metallic legs carried by the bed or foundation converging toward each other at their upper ends and leaning slightly over the vertical, and braces; a samson-post supported by the bed or foundation, a walking-beam pivoted to said samson-post with its forward end extending over the cross-brace and working between guides, and means for operating said samson-post.
- 668,225. APPARATUS FOR MANUFACTURING GAS. Frederic W. C. Schniewind, Pittsburg, Pa., assignor to the United Coke and Gas Company, Charleston, W. Va., and Philadelphia, Pa. The combination with a multiple series of carbonizing-chambers and a common gas-collecting main receiving gas therefrom, of gas-furnaces arranged to heat the carbonizing-chambers, a gas-purifying plant connected to the common collecting-main and a gas-conduit leading from the purifying plant to the gas-furnaces.
- 668,234. APPARATUS FOR USE IN THE MANUFACTURE OF COKE. Maximilian M. Suppes, Elyria, Ohio. The combination of a coke-oven having a coke-making chamber therein, a vessel of substantially the same internal section as that of the said chamber, doors



for closing respectively one end of said vessel and one end of said chamber, and a flange at the same end of the vessel engaging a recess in the foundation-wall of the oven adjacent to the door, and providing means whereby said vessel may be constituted an end continuation of said chamber.

- 668,236. OIL-BURNER FOR FURNACES. George C. Thom, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. A burner having three arms, two for the admission of oil and steam respectively, the third forming a mixer and an outlet to the furnace.
- 668,266. PROCESS OF PRODUCING CONCENTRATES CONTAINING HIGH PERCENTAGES OF TITANIC OXIDE. Auguste J. Rossi, New York, N. Y., assignor of one-half to James MacNaughton, Taha-

wum, N. Y. The process of producing out of titaniferous iron ores a concentrate containing a higher percentage of titanic acid and practically free from silica and other impurities of the ore, such as sulphur and phosphorus, which consists in mixing with such ores sufficient carbon to reduce the oxides of iron and silicon therein contained, and sufficient earthy bases to form with such titanic acid a basic titanate of such earthy bases and subjecting said mixture, while supported, to a high temperature derived from an extraneous source of heat and sufficient to reduce the iron oxide and the silica, but not the titanic acid, and to cause the resulting silicon and other impurities of the ore to remain on the one hand with the iron, while on the other hand the titanic acid combines with the said earthy bases.

668,269 and 668,270. **METAL-CUTTING TOOL AND METHOD OF MAKING SAME.** Frederick W. Taylor, South Bethlehem, and Maunsel White, Bethlehem, Pa., assignors to the Bethlehem Steel Company, South Bethlehem, Pa. A tool formed of air-hardened tool-steel containing not less than 3 per cent of chromium and in addition one or more of the other specified members of the chromium group in the proportion of not less than 6 per cent of tungsten or its specified equivalent, said tool or its cutting portion being characterized, as described, by a considerable reduction of its contained carbide of chromium as compared with the steel from which it is made and by its capacity to maintain its cutting edge in cutting the softer steels at temperatures at or verging on incandescence.

668,275. **COMPOSITION FOR COATING CARBOYS OR OTHER VESSELS.** Francois Archambault, Lyons, France. A composition consisting of powdered cork, amiantus, and silicate of potash, the weight of silicate of potash being in excess of the amiantus.

668,282 and 668,283. **AMALGAMATOR.** Caleb G. Collins, Woodmere, N. Y., assignor to Calvin Amory Stevens, New York, N. Y. The process of continuously amalgamating ores consisting in maintaining a relatively large U-shaped body of mercury, continuously electrolyzing a solution of a sodium salt maintained over one leg of the body of mercury; continuously submerging and agitating the ore in the other leg of the body of mercury, whereby a continuous supply of sodium amalgam is maintained without possible commingling of the pulp and electrolytic solution and the diffusion of said sodium amalgam through the mercury is promoted by the agitation due to the submergence and agitation of the ore.

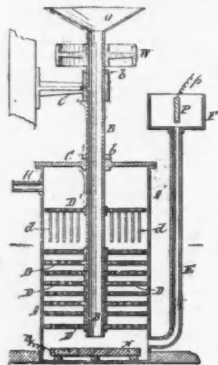
668,317. **MINER'S CANDLESTICK.** George T. Parsley, Hornbrook, Cal., assignor of one-half to J. W. Downing, same place. The combination of a handle having parallel separated extensions, the holding-point pivoted between said extensions having the rear end split and made elastic, and locking-lugs by which it is engaged and held in place and in line for use.

668,340. **REAMER FOR OIL OR LIKE WELLS.** William Plotts, McDonald, Pa. The combination with a solid body portion having a recess formed therein and a pin projecting through the rear portion of the recess, said recess adjacent to the pin being concentric therewith, of a cutter pivotally mounted on said pin and having a rear end that conforms to and closely fits the portion of the recess that is concentric with the pin, and a spring for holding said cutter normally up in a horizontal position.

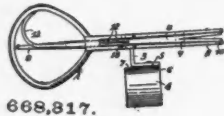
668,342. **HYDRAULIC DREDGING APPLIANCE.** Elton Risley, Pleasantville, N. J. A hydraulic dredge, provided with means for indicating the choking, or partial choking, of the pipe.

668,370. **KILN.** Arthur Finch, Mimico, Canada. The combination of a series of kilns each having a burning-chamber, a pipe connecting the chambers of two adjacent kilns, dampers for the pipe, a flue below each kiln communicating with the body of the same, a pipe coupling the flues of two adjacent kilns, dampers for the coupling-pipes of the flues, a branch pipe uniting the coupling-pipes of the flues and chambers.

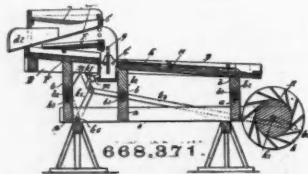
668,371. **GOLD-WASHING MACHINE.** Louis Franklin and John Tonnar, Anaconda, Mont. A machine comprising a stationary base-frame, a rocking frame mounted thereon, said rocking frame being provided with a downwardly and backwardly directed chute forming part of an apparatus mounted on said frame for washing and separating gold from ore and dirt, and a water-wheel connected



668,282.



668,317.



668,371.

with the rear end of the base-frame and adapted to receive the discharge from said chute, the shaft of which is pivoted at each end with a crank, a crank-rod connected with each of said cranks at the opposite sides of the machine, and toggle-levers connected with the base-frame and with the rocking frame, and with which said crank-rods are connected, whereby the movement of said wheel is utilized for operating the rocking frame.

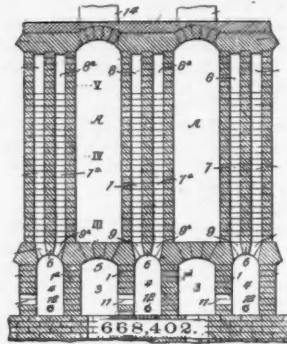
668,378. **CONVEYOR.** Max Korth and William Garrity, Franklin Furnace, N. J. An apparatus comprising a chute, chains movable along opposite sides of the chute, cross-arms clamped to the chains and bent at the center to approximately fit the chute, guides at opposite sides of the chute, rollers carried by the cross-arms and engaging the under sides of the guides, and buckets on the cross-arms to fit the chute.

668,402. **COKING-FURNACE.** Port B. Elkins, Pittsburg, Pa. Heating-walls suitably spaced with reference to the formation of coking-chambers between adjacent walls, each wall for its entire length or approximately so being provided with two series of vertical flues and with two horizontal flues each connected with the upper ends of one series of vertical flues, and two combustion-chambers each connected to the lower ends of one-half, more or less, of both series of vertical flues.

668,412. **ARTIFICIAL STONE AND PROCESS OF MAKING SAME.** George A. Parsons, Wilmington, Mass., assignor of four-fifths to James W. Smith and James P. Phelan, Lynn, Charles L. Smith, Dorchester, Boston, Herbert H. Pratt, Swampscott, and Horace M. Briggs, East Foxboro, Mass. An artificial-stone composition consisting of a vegetable base, a compound of silica and hydrate of an alkali metal the latter predominating over the silica in the proportion of three or more of said hydrate to one of the silica, a weak acid, and lime.

668,450. **STOPPER FOR LADLES.** William H. McFadden, Pittsburg, Pa., assignor of two-thirds to James Hemphill, same place, and James F. Tracy, Sheridanville, Pa. The combination of a ladle having a discharge-opening in its bottom, a rod provided with a stopper at its lower end, mechanism for raising and lowering the stopper-rod, and a flexible connection permitting the stopper to swing in all directions.

668,464. **CROSSHEAD FOR MINE-SHAFTS.** John T. Semmens, Bald Mountain, Colo. The combination with a hoisting-cable and a head thereon, of a crosshead, locking-bars mounted to slide on said crosshead and adapted to engage said cable-head, spring-pressed levers

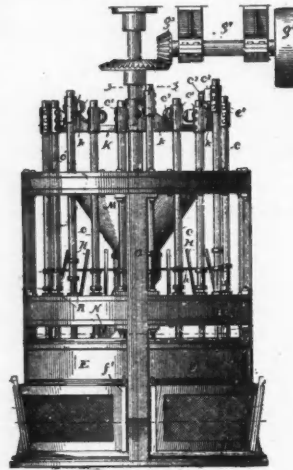


fulcrumed on said crosshead and connected with said locking-bars, and stops adapted to be engaged by said levers at the time the crosshead reaches a lowermost position in the mine-shaft.

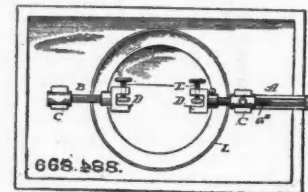
668,488. **AMALGAM-SQUEEZING MACHINE.** James V. Coleman, San Francisco, Cal. A machine for squeezing amalgam, comprising oppositely-set standards, shafts supported in said standards in horizontal position and in line with each other having gripping-jaws on their adjacent ends, means for rotating and feeding forward one of said shafts, and means for regulating the forward feed with respect to the rotary motion.

668,493. **TRIPOD FOR ROCK-DRILLS.** Joseph J. Crippen, Denver, Colo. The combination of a horizontal U-shaped frame having its ends formed with bearing-slots, a head provided with trunnions journaled in said slots, means for holding the head fixed in adjusted position, blocks fitted in said slots and confining the journals therein, and means for securing said blocks.

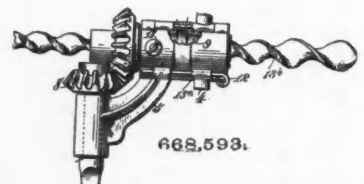
668,578. **STAMP-MILL.** George L. Gibson, Denver, Colo., assignor of three-eighths to J. W. Latimer and Peter Paulsen, Rawlins, Wyo. The combination with a suitable framework, of a series of circularly-disposed stamps having stems vertically guided in said framework, a centrally-journaled rotating disk provided with double vertical cams about its periphery, and a series of rollers and riders secured to the said stems and so arranged with relation to said double cams,



668,578.



668,585.



668,593.

that one part of each cam passes under the successive rollers and the other part of each cam passes under the successive riders, whereby the stems are lifted, through the operation of said cams upon the rollers, and are supported, by means of said riders, until after the rollers are completely free from the cams.

668,585. **BRICK FROM IRON ORE AND PROCESS OF MAKING SAME.** Arpad Ronay, Buda-Pesth, Austria-Hungary. A block or briquette composed substantially of comminuted iron ore and having an exterior crust of carbonate of iron. Also the process of forming such briquettes, which consists in submitting air-dried masses of iron ore to the action of gases containing oxidized carbon at a temperature where a crust of carbonate of iron is formed and no sintering or fritting action takes place.

668,593. **MINING-DRILL FOR COAL OR ROCK.** Alexander Walker, What Cheer, Iowa, assignor to the What Cheer Drill and Miners Tool Company, same place. Combination with a boxing of two hinged sections and an annular groove formed in its inner face, a lining therefor having a peripheral rib to prevent the longitudinal displacement thereof, a pair of studs formed integral with the inner face of said lining, and an adjustable wear-block arranged in said boxing, of a twisted auger operating through said lining and engaging said studs said auger having each of its twists adjacent to its drill end cut away in a segmental manner flattening one side thereof, a bevel-gear connected to said auger, and means for operating said gear.

668,600. **MINE-DOOR-OPERATING AND SIGNAL SYSTEM.** John Burns, Kensee, Ky., assignor of three-fourths to Hywell Davies, John H. Barker and William L. McKarsie, same place. In combination with a main and a branch track, a pair of swinging spring-controlled doors mounted to work in unison and closing across the rails of the main track, mechanism located on opposite sides of the door and operatively connected therewith and adapted to be actuated in turn by a car approaching the doors in either direction to open the latter and then permit them to close, a signal apparatus on the branch track, a cord connected at one end with said signal apparatus and at its other end with one of said doors, whereby the signal on the branch track will be actuated by the movement of said doors.



## PERSONAL.

Mr. A. Sherwin, of the Home Company of Leadville, Colo., is wintering in California.

Mr. D. R. Oliver recently returned to San Francisco from Minas Prietas, Sonora, Mexico.

Mr. J. J. Bamburger, largely interested in the Utah mining industry, is in New York City.

Mr. Norman M. Estey has resigned as superintendent of the Rialto Mine at Leadville, Colo.

Mr. S. P. Mahan recently resigned as superintendent of the Yellow Aster Mine, Randsburg, Cal.

Mr. George R. Bowman has resigned as cashier for the Arizona Copper Company, Clifton, Ariz.

Mr. A. B. Hall, of Los Angeles, will take charge of the Mineral Hill properties at Ballarat, Inyo County.

Mr. J. W. Deane, general manager of the Yavapai Copper Company, Prescott, Ariz., is in Denver, Colo.

Mr. Geo. Kislingbury, of Capt. J. R. De La Mar's staff, has gone to Mexico to examine mining properties.

Mr. R. H. Terhune, president of the New State Smelting and Refining Company, Salt Lake, Utah, has resigned.

Mr. Richard Khuen has been appointed chief engineer for the Pittsburg District of the American Bridge Company.

Messrs. W. Geo. Waring & Son, engineers and chemists, have removed from Joplin and are now located at Webb City, Mo.

Mr. W. Davey, of Phillipsburg, Mont., is back as superintendent of mines for the New Elkhorn Mining Company at Leadville, Colo.

Prof. Leslie L. Campbell, of Westminster College, Mo., will have charge of the chemical laboratory at the Summer School at New York University.

Mr. E. C. Means, of Ashland, Ky., has been appointed general manager of the Low Moor Iron Company of Virginia, with residence at Low Moor, Va.

Mr. John Hays Hammond has been in Denver, Colo., and is to personally conduct development at Stratton's Independence, in the Cripple Creek District.

Mr. Michael Sheridan, receiver of the Ratcliff mines, Ballarat, Inyo County, Cal., is in Pioche, Nev., starting work on a mining property he has acquired there.

Mr. Arthur L. Collins, of the Smuggler-Union Mining Company of Telluride, Colo., was in Gilpin County to look after his mining and milling interests during last week.

Mr. B. F. Rodgers, of Lawrence, Mass., will return to California about April 1st to take charge of the South Fork Mining and Development Company's mines near Igo, Cal.

Mr. James H. Calderhead has resigned as commissioner of the Montana Bureau of Labor, Agriculture and Industry and the Governor of the State has appointed Mr. J. A. Ferguson commissioner.

New Faculty appointments at Columbia University include Mr. Earl B. Lovell as adjunct professor in civil engineering; Dr. M. I. Pupin, promoted to a full professorship, with the title of Professor of Electro-Mechanics.

Mr. F. G. Tallyday, president of the Tallyday Tank and Pipe Company, of Waterloo, Ia., owing to poor health is now resting in Los Angeles, Cal. He is also investigating the outlook for steel tanks in the California oil fields.

Baron Eugene de Haupick, of St. Petersburg, Russia, the oil geologist of the Imperial Russian Engineering corps, is in the Pennsylvania oil fields studying the local peculiarities of oil formation and collecting data on the life of wells.

Mr. Henry Potter, of the Westinghouse Company, who recently returned from an extended tour through South America, reports that the opening for electrical machinery and material through Argentina, Chili and Peru is encouraging.

Mr. Louis Janin, Jr., the cyanide expert who has been a member of the editorial staffs of the "Engineering and Mining Journal" and "The Mineral Industry," and recently took charge of the Dorcas Company at Florence, Colo., is seriously ill with pneumonia in Denver.

Mr. R. D. Rhodes, for years superintendent of the Arkansas Valley Smelter at Leadville, Colo., but now consulting metallurgist of the Guggenheim plants, has been in Leadville renewing old acquaintances. He was accompanied by W. J. Hamilton, superintendent of the Guggenheim plants in Mexico.

Mr. Paul J. Stith, a mining engineer, who has been superintendent at Brookside, Ala., New Found and other mining camps of the Sloss-Sheffield Steel and Iron Company, has resigned his position and will take charge of the coal mining department of the Republic Iron and Steel Company in Alabama. His resignation does not take effect until April 1st. It is stated that he will be succeeded by Mr. Charles Toler.

In recognition of the service of George Labram, of Milwaukee, Wis., who, as engineer for the De Beers Mining Company, was one of the defenders of Kimberly and built "Long Cecil," the gun used during the siege, and who was killed during the siege, the mining company has settled upon Mrs. Labram, his widow, an annuity of \$500 during life, and upon her 13-year-old son an annuity of \$1,000 until he shall become of age. This is in addition to the \$1,000 recently awarded Mrs. Labram by the British Government.

## SOCIETIES AND TECHNICAL SCHOOLS.

Ohio Society of Mining Engineers.—Papers read at the annual meeting in Columbus February 28th and March 1st included "Duties of a Mine Foreman," by James Davis, of Delroy; "Mine Management," by David Wilson, of Gloucester; "Long Distance Electrical Power Transmission from Coal Mines," by Prof. Caldwell, of the State University; "Metallurgy of Copper in Montana," by Prof. Lord; "Lignite Coals of North Dakota," by R. M. Haseltine; "Mine Maps," by Claude V. Martin, of Zanesville and H. S. Van Atta; "Portland Cement in Southern Ohio," J. W. Jones, of Gallipolis; "The Cement Materials of Ohio and a Method for Their Rapid Chemical Examination," by Prof. Edward Orton, Jr., State geologist; "Sewerage and Sewerage Disposal," by Solon C. Smith, of Jackson.

At the election of officers the following were re-elected: President, Professor F. A. Ray, Columbus; vice-president, William B. Hanlon, Cleveland; secretary-treasurer, R. M. Haseltine, Columbus; executive committee, Prof. N. W. Lord, Columbus; W. H. Jennings, Columbus; Capt. J. L. Morris, Coshocton.

## INDUSTRIAL NOTES.

The Pelton Water Wheel Company of New York City has ready for shipment about 500 tons of piping for a power plant in South Africa.

The Eagle Iron Works, of Des Moines, Ia., is building an addition about 120 ft. long, and machinery for heavier work is to be placed therein.

The American Bridge Company is furnishing to Wm. Young & Company, Mexico City, Mexico, 8 bridges to be erected over the Sacramento Canal at Torreon, Mexico.

The Carnegie Steel Company has blown in its 2 new Carrie furnaces at Rankin, Pa. The stacks are the largest ever built and are expected to turn out 750 tons each day when running full capacity.

The General Electric Company has secured the contract for 3 1,500 Kw. 6,000-volt generators, and the equipment of 5 rotary converter substations of 500 Kw. and 1,000 Kw. each for the Sydney, N. S. W., tramway.

The George V. Cresson Company of Philadelphia, Pa., manufacturer of power transmission and mill machinery, states that its departments are full of work. Some recent shipments of power-transmission machinery have been made to both Holland and Mexico.

The Riter-Conley Company, of Pittsburg, Pa., has received a contract from the Breisels Tin Works of Tasmania for 5 miles of steel-riveted pipe 30 in. in diameter. The order will consume about 1,000 tons of steel. The pipe line will carry water to the mines of the company.

The Norwalk Iron Works, of Norwalk, Conn., has elected E. Beard, J. H. Ferris, W. F. Bishop, Eben Hill and Eben Hill, Jr., directors. At a meeting of the directors the following officers were chosen: President, E. Beard; treasurer and general manager, Eben Hill; secretary, Eben Hill, Jr.

The A. Wyckoff & Son Company, of Elmira, N. Y., reports the prospects for this year's business bright. It is now running overtime getting out a number of orders for wooden mine pipe for some of the larger operators. The company's wood pipe is not injured by the sulphuric acid in mine water.

The firm of Olcott, Fearn & Peele, consulting mining and metallurgical engineers of New York City, was dissolved on February 4th, 1901, by mutual consent, and on March 1st Messrs. E. E. Olcott, Robert Peele and C. R. Corning entered into partnership under the firm name of Olcott, Corning & Peele.

The Lackawanna Iron and Steel Company, of Scranton, Pa., recently concluded negotiations

for the lease of the Bird, Coleman and North Cornwall furnaces and the Cornwall railway near Cornwall, Pa., for a period of 20 years. The rental of the furnaces and railroad is reported to be \$100,000 annually.

The annual meeting of the Tennessee Coal, Iron and Railroad Company will be held in Tracy City, Tenn., on March 12th, and there are rumors of some bonds being issued. A committee to vote the stock has been appointed with Mr. D. H. Bacon, chairman of the executive board of the company, as chairman of the committee.

The Empire Salt Works at Warsaw were burned March 4th. The loss may reach \$150,000, well covered by insurance. The plant was the largest of the many salt works at Warsaw and used the vacuum process. N. S. Beardsley and S. B. Whitlock are among the heaviest losers. It is considered doubtful whether the works will be rebuilt.

The Alabama Bridge and Iron Company of the American Bridge Company will erect the viaduct over the Chesapeake & Ohio Railway tracks at 28th St., Newport News, Va. This will require 2 spans 153 ft. long, 7 spans 30 ft. long, 1 span 68 ft. long, 10 spans 31 ft. long and one span 66 ft. long. This viaduct will have a 36-ft. clear roadway and two 10-ft. sidewalks.

The American Potash Company, of New York City, has incorporated under New Jersey laws, the object of which is to purchase, acquire and grant letters patent to Henry S. Blackmore, of Mt. Vernon, N. Y. They cover the manufacture of alkali salts, etc. The incorporators are George W. Arthur, John Cairnes and Indiana Jones, all of New York City. The capital stock is \$1,000,000.

The Railway Commissioner of Queensland, Australia, recently entered into a contract with the Westinghouse Electric and Manufacturing Company, of Pittsburg, Pa., for a complete electrical equipment of new railway workshops at Ipswich. The steam will be supplied by 4 250-H.-P. Babcock & Wilcox boilers, with mechanical stokers, feed heaters and coal and ash handling machinery.

The Universal Steel Company, a St. Louis concern, to operate a steel foundry in the City of Mexico, has been incorporated in Trenton, N. J., with a capital stock of \$300,000. Edward F. Goltra, vice-president of the American Steel Foundry Company, is at the head of the enterprise. Work has already begun on the plant in Mexico City. Ores are to be had near the location of the foundry, and peat from a near-by lake will, it is stated, be used as fuel.

The Dominion Iron and Steel Company of Sydney, Cape Breton, is about to start its second furnace. The dates fixed for the third and fourth furnaces are May 1st and June 1st, respectively. These 4 furnaces will give a total daily capacity of 1,000 to 1,500 tons. The steel mill will be in operation in October for the manufacture of billets, and January 1st, 1902, for rails and plates. Iron from the company's plant is being offered in New York.

The United States Tube Company has broken ground for the plant it is about to erect on an 11-acre tract of land in Buffalo. The first building will be 300 ft. long, 84 ft. wide and 32 ft. high. In all there will be 10 buildings. The first building is expected to have an output of 125 tons of tubes a day. The United States Tube Company has a capital of \$1,000,000. The president is Harvey K. Flagler, and Charles H. Twist is vice-president. Mr. Flagler has built the Syracuse, Catsaqua and Tyler tube mills.

Work is now progressing on the new addition, 90 by 220 ft., to the works of James Leffel & Company at Springfield, O., to be built of brick and steel and equipped with electrical cranes and a number of new machines. This addition is to enable the company to supply the increased demand for Samson wheels, and the works will now give work for 300 men. The company has just received an order for a large pair of horizontal wheels from Minneapolis, to develop 3,000 H. P.; and another contract for 10 68-in. Samson wheels from Michigan, for driving electrical machinery.

As a result of changes in the management of the American Iron and Steel Manufacturing Company made at the recent annual meeting held at Lebanon, Pa., the board of directors is now made up as follows: J. H. Sternberg, H. M. Sternberg, C. W. Wilhelm, Reading; Arthur Brock, Philadelphia; Horace Brock, James Lord, H. H. Light, H. M. M. Richards, Thomas Evans, C. M. Hallman, Lebanon; W. H. Wallace, New York. The new board elected J. H. Sternberg, president; Arthur Brock, vice-president; H. M. M. Richards, treasurer, and C. M. Hallman, secretary. The company is capitalized at \$20,000,000 and operates 3 plants in Lebanon and 2 in Reading.

The new plant of the Franklin Air Compressor Company at Franklin, Pa., is completed. The company was organized last fall with a capital stock of \$800,000. General Charles Miller is vice-



president and S. G. Allen, who supervised the erection of the works, is general manager. The plant covers 3 acres of ground, consisting of several buildings all connected with narrow gauged railroads and platforms. The machine shops, testing and assembling departments are housed in one building 100 by 250 ft. The foundry department adjoins the machine shop, and is 120 by 170 ft.; the engine room 40 by 48 ft.; boiler room 48 by 52 ft., containing 2 200-H. P. boilers and 3 pumps of large dimensions. The company will manufacture compressors to furnish power for pneumatic tools.

The Canadian Salt Company has applied for incorporation articles, the capital stock to be \$800,000. The names on the petition are those of Sir William C. Van Horne, chairman of the Canadian Pacific board, Montreal; Richard B. Angus, Montreal; H. Vincent Meredith, bank manager, Montreal; George R. R. Cockburn, bank president, Toronto, and A. D. Bissell, vice-president of the People's Bank, Buffalo.

The consolidation carries with it the purchase of all property on which salt mines are located. The mines are at Windsor, Sarnia, Kincardine, Goderich, Wingham, Hensall, Seaford, Brussels, Exeter, Courtwright and Moretown. Recently the salt industry has had a bad spell, largely owing to competitive cutting of prices. The probable output of such a combine would be \$20,000 a day.

The Frue Vanning Machine Company reports the following sales for the past 4 months through its western agent, J. S. Brownell, of San Francisco: Keystone Consolidated Mining Company, Amador City, Cal., 14 4-ft. Frue vanners; Victor Gold Mines, Brownsville, Cal., 4 6-ft. Frue vanners; Ribbon Rock Mines, Sonora, Cal., 2 6-ft. Frue vanners; App Consolidated Mining and Milling Company, Jamestown, Cal., 24 6-ft. Frue vanners; Gould & Curry Mine, Virginia, Nev., 9 6-ft. Frue vanners; the Empire Mines, Grass Valley, Cal., 12 6-ft. Frue vanners; Crystal Lake Mines, Lundy, Cal., 2 6-ft. Frue vanners; Wadsworth Mining and Milling Company, Wadsworth, Nev., 1 6-ft. Frue vanner; Black Oak Mine, Soulsbyville, Cal., 4 4-ft. Frue vanners. All of these are supplied with the Brownell "patent lip" flange belts.

The people comprising the Curwensville Fire Brick Company, recently organized with a stock of \$100,000, to operate near Curwensville, in Clearfield County, Pa., are all directors in the Reese, Hammond Fire Brick Company, of Bolivar, Pa. They have increased the capital to \$150,000, and are going to build a model plant. The buildings are stone and steel. The main building is 96 by 252 ft. with dry floor, engine and boiler house 48 by 48 ft.; wet pan room 28 by 72 ft.; dry pan room 40 by 45 ft., and storage building 60 by 285 ft. All the buildings except the storage building are roofed with slate. The dry floor is of Cleveland sawed stone and is heated by exhaust steam. The machinery includes two 150-H. P. engines, high pressure boilers and a high speed Corliss engine of 350 H. P. The machinery consists of 3 wet pans, 1 dry pan, a dry press and a tuyere machine. The 3 wet pans have a grinding capacity of 45,000 to 50,000 per day on 3 turns, which gives a kiln capacity of about 35,000 per day. Four more kilns are being built which will give a capacity of 50,000 per day. The clay is brought on the Buffalo, Rochester & Pittsburg Railway, but the company is building a narrow gauge railway to the clay banks. It already has a Baldwin locomotive and 50 steel cars on the scene. A specialty will be furnace brick and other brick not made in Fayette and Westmoreland counties.

#### TRADE CATALOGUES.

The Star Corundum Wheel Company, of Detroit, Mich., manufacturing emery and corundum wheels, grinding machinery and polishers' supplies, has issued Catalogue C, an illustrated pamphlet of 48 pages, describing its products. Besides grinding wheels the company makes hand and lathe tools, wheel dressers, grinders, saw sharpeners and polishing wheels.

Among other features of Catalogue No. 15 issued by the Trent Engineering and Machinery Company, of San Francisco, is the space given to copper converting plants. The company states that it makes a specialty of this class of machinery and has furnished plants for the United Verde Copper Company, Detroit Copper Company, Copper Queen Mining Company, Butte & Boston Mining Company, Chemulpo Mines, Tennessee Copper Company and De La Mar's Bully Hill Mines.

The Trent Engineering and Machinery Company, of Salt Lake, Utah, has issued Catalogue No. 100, entitled "Boilers." The pamphlet contains 35 pages and gives information of a sort too often omitted from similar publications. It describes the essential characteristics of return tubular, internally fired water tube, Scotch marine, vertical, 2 and 6 flue and high pressure boilers, giving types of each, and in addition has useful notes on horse-power, water and

fuel consumption; also tables of weights of iron and steel plates, capacities in cubic feet, etc.

Concentrating machinery, mills and appliances are described in Section 2 of the catalogue of mining machinery published by the Edward P. Allis Company, of Milwaukee, Wis. The devices shown include "Reliance" Dodge and Gates crushers, "Reliance" ore feeders, crushing rolls, vanners and concentrators, Evans' slime tables, Richards' vortex classifier, Reynolds' Chilean mill, perforated screens, Hartz and Culom figs, screens and elevators, and Lefel, "Cascade" and Pelton water wheels. The catalogue contains 80 pages and is printed on plate paper with a neat cover.

The Lufkin Rule Company, of Saginaw, Mich., has published Catalogue No. 6, a 48-page pamphlet describing its measuring tapes, rules, etc. The surveyors' tapes are made in a variety of patterns from 25 to 100 ft. in length. The new "Reliable" tape is stated to have a new winding attachment which overcomes all objections against other flush handles. The tapes are made of steel, steel and linen, and all linen. The company also makes straight and folding steel rules for surveyors; also circumference rules and the "Magic" pattern rule for tinmiths, and board and log rules.

Cassel's self-governing impulse water-wheel is described in a pamphlet issued by the National Automatic Water Motor Company, of Seattle, Wash. This wheel is built with two discs having radial buckets and held together by a spring. An increase in the speed causes the discs to separate, allowing part of the jet to pass between the buckets. It thus differs widely from wheels regulated by independent governors operating deflecting nozzles or hoods and throttling devices, and the company claims unexcelled reliability, durability and efficiency for it.

The Hot Iron Paint Company, of Boston, Mass., states that a new paint, containing no asphaltum, capable of standing a high degree of heat and imparting to iron or steel a hard smooth, glossy surface, has been on trial for one year on the Boston & Maine Railroad and has proved valuable and economical. The custom has been to go over the dull parts of locomotive boilers with a composition of oil and lampblack; a daily application being sometimes necessary. The company states that one application per month of hot iron paint is ample. Free samples are supplied by the selling agents Fuller & Kitfield, Boston, Mass.

"Victor" turbine water wheels are described in Catalogue No. 23, an illustrated book of 183 pages published by the Stilwell-Bierce & Smith-Vaile Company, of Dayton, O. These turbines have been installed at a large number of power plants, a list of which is given, under differing conditions and to meet a great variety of specifications. The catalogue shows many of these installations, also the Gresler electro-mechanical water-wheel governor and shows governor and various fixtures, as head gates, etc. The turbines have been installed under heads of from 3 to 100 ft. The largest plant described is one of 7 units of 3 pairs of 54-in. wheels, each unit developing 5,000 H. P. under 32-ft. head, for the St. Lawrence Power Company, of Massena, N. Y. At this plant draft tubes, etc., are in place for 8 additional units, the plant projected thus aggregating 75,000 H. P., which the company believes is the largest power development at one place in the world.

#### MACHINERY AND SUPPLIES WANTED.

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

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

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

#### GENERAL MINING NEWS.

##### ALASKA.

##### Kuskokum River.

Reports of rich strikes of gravel on the Kuskokum River have been received at Rampart recently and there is considerable excitement there, though old-timers are reported to doubt the news, saying that country was prospected 2 or 3 years ago with no results.

##### Yukon River.

There is reported to be considerable friction between the miners at Circle City and Judge Wickersham over the question of a deputy mining recorder on each of the creeks. Judge Wickersham declares he has not the authority to appoint special recorders, and has ruled that

all staking in the Koyukuk, Chandeleer or other remote portions of the Circle City district can only be legally recorded at Circle City. As by steamer it is over 1,000 miles from the Koyukuk diggings to Circle City, the miners deem it unfair to make a man travel that distance to record a claim.

##### ARIZONA.

##### Gila County.

United Globe Mines.—Work is resumed at this mine near Globe, under the superintendence of N. S. Berray, with 50 men employed. Sinking the new shaft is progressing with 2 shifts. The shaft is on the Grey Claim, 420 ft. south and a little west of the old shaft. It will be 3 compartment, 2 compartments each 4 by 4½ ft. and one 4½ by 5 ft. Work will be carried on from the surface and from several levels in the Grey Mine, and it is expected that by the time the Hoosier shaft is stripped and the hoist and boilers removed and installed at the new site, the shaft will be so far advanced as to be ready for the cages.

##### ARKANSAS.

##### Howard County.

Schuyler Mining and Milling Company.—This Cleveland, O., company states that it has a shaft down 150 ft. on some claims which it asserts carry gold ore. The company has a small cyanide plant at this shaft, the Roxana, at Euclid and is experimenting on the ore.

##### CALIFORNIA.

##### Amador County.

(From Our Special Correspondent.)

Eureka.—A dividend of \$10,000 has been declared from this mine. The property is equipped with a modern plant. W. R. Thomas is superintendent.

Moon Mining Company.—This company is developing 4 copper claims in Camp Opra District, near the Newton Copper Mine. There are 4 ledges 11 and 18 in. and 7 and 16 ft. in width respectively. Two incline shafts have been sunk, one 100 ft. and the other 140 ft. The company is composed of local men.

Shenandoah.—At the 600-ft. level, 500 ft. south of the present shaft, a 12-ft. ledge of good ore has come in and an upraise will be made to the surface and made the main shaft.

##### Calaveras County.

(From Our Special Correspondent.)

Anglo-Saxon Company.—This company is opening the lower drift on the Tiger Vein, which taps the old shaft at a depth of 185 ft. Some good ore has been uncovered in the easterly portion of the Anglo-Saxon vein.

Buffalo Gravel.—At this mine, 2½ miles northwest of Copperopolis, the new hoist is being operated under a head of 300 ft., and the old shaft will soon be cleaned out. There are 10 men at work under Superintendent C. A. Werle, who intends to crosscut the Blue Lead Channel.

Gold Cliff.—The ground at this mine, which has been opened up by a great open cut, about 150 ft. deep, is said to be creeping, and a large cave is expected. The cave will bring down thousands of tons of ore that will not have to be broken in the usual way.

##### Kern County.

(From Our Special Correspondent.)

Yellow Aster.—The new 100-stamp mill will increase the capacity to about 550 tons of ore per day. The 3 parallel veins are all producing good milling ore. No dividends will be declared until all the new machinery is paid for. A new pump will be put in at the Goler Wells.

##### Nevada County.

(From Our Special Correspondent.)

German.—An Eastern syndicate is expediting this low-grade proposition with the view of purchasing it. A 10-stamp mill is on the ground. The mine has been idle several years.

Gold Blossom.—Operations have been resumed on this property and the old Cambridge tunnel on Union Hill, which is in 300 ft., has been cleaned out and continued about 100 ft., where a ledge has been struck, said to be rich in gold. The mine has laid idle for years. R. E. Jeffreys is owner.

Hudson.—A new shaft has been started on this property below Rough and Ready. It is reported that a new plant will soon be installed.

Schneider.—A 2-stamp mill and a concentrator are installed at this mine below Rough and Ready. There is a fine vein of fair-grade ore on the property.

##### San Bernardino County.

(From Our Special Correspondent.)

About 60 miles south from the Needles on the California side of the Colorado River, a valuable deposit of gold and copper ore has been found. The ledge is said to be from 4 to 14 ft. wide, assaying high in gold and copper.

Gold Mountain.—At this mine, near Holcomb Valley, 40 miles east from Victor, 5 miles northeast of Bear Valley Lake, a 40-stamp mill is crushing about 130 tons of ore per day. This plant is to be increased to 140 stamps with a



milling capacity of 500 tons per day. The working force will be increased in proportion. There is a large quantity of low-grade ore in sight.

#### Shasta County.

**South Fork Mining and Development Company.**—This company is driving a 3,000-ft. tunnel on its 11 claims on Chicago Mountain near Igo. The ore is stated to run in silver, lead and gold and good returns are reported from shipments to smelters. The company will put up a 50-ton smelter and install power drills in the spring. B. F. Rogers is superintendent.

(From Our Special Correspondent.)

**Elizabeth.**—Considerable development work has been done on this property, near Iron Mountain. The longest tunnel is in 1,100 ft., with about 700 ft. of backs. The ore body has been blocked out by crosscuts and upraises and is said to average \$6 per ton with 1½% sulphurets valued at from \$250 to \$1,500 per ton. A 40-stamp mill is to be installed very soon. F. Iler is superintendent.

**Shasta Copper Mining Company.**—This company has been incorporated with a capital stock of \$100,000. The directors are F. H. Dakin, V. Dakin, F. H. Dakin, Jr., C. C. Dakin and C. T. Dozier.

#### Siskiyou County.

(From Our Special Correspondent.)

All the hydraulic claims below Hamburg on the Klamath River, except the Siskiyou, have resumed work and on the latter work will start as soon as the flume is repaired. Among those working are the Van Brunt, Gordon, Minetta and the old Fort Gough. This latter property has 2,000 in. of water and the prospects are that a good clean-up will be made.

**Cherry Hill.**—Improvements are being made to the plant at this mine on Cherry Hill, and crushing will start soon. There is a quantity of ore blocked out and on the dump.

**Humboldt Flume and Mining Company.**—This company's hydraulic and placer claims at the mouth of the Humboldt are being worked with a full force of men ground sluicing and washing up rich bed-rock gravel.

#### Trinity County.

(From Our Special Correspondent.)

**Union Mutual Mining and Development Company.**—This company is operating the Zoellner Mine near Deadwood by a tunnel which is in 25½ ft. tapping a blind ledge of fine ore which has been crosscut for 36 ft. A 100-ton mill is contracted for.

#### Tuolumne County.

(From Our Special Correspondent.)

**Yosemite Gold Mining Company.**—The big ditch which furnishes water for this hydraulic mine near Hamilton, has broken in 4 places in less than 5 miles. One piece of flume 500 ft. long and 50 ft. high was carried away. This is the fourth time this particular section has been carried away. The loss to the company will be large.

### COLORADO.

**Atlantic & Pacific Tunnel.**—This tunnel, started in 1880 by Mark M. (Brick) Pomeroy, and which is now 5,300 ft. long, piercing the main range of the Rockies near Georgetown, was sold March 4th by a special commissioner of the Chancery Court for \$4,100.

#### Gilpin County.

(From Our Special Correspondent.)

**Mining Deeds and Transfers.**—A. H. Day to W. P. Day, Little Harvey Lode in Gregory and Lake Districts; E. Harlacher to T. A. Hatfield, ¼ interest Penobscot group of 6 claims and Penobscot Placer in Independent District; W. H. Smith to R. H. Buck 1-6 interest in 94 Lode, Enterprise District; R. L. Parrish et al. to Blue Grass Mining Company's Champion, Little Bob and Little Max lodes, Phoenix District; G. H. Hogan to M. Hogan, ½ interest Independent Lode, Hawkeye District; T. A. White et al. to J. R. Brierly ¼ interest Golden Ring and Orphan Girl Lodes, Wisconsin District; W. H. Lane et al. to W. H. Irion the Surprise and Enterprise Lodes in Gregory and Enterprise Districts; K. McNernan to D. Munday the Maggie M., Kate and France, Claire Marie and St. Anthony Lodes in Eureka and Quartz Valley Districts; F. Felch to J. R. Quigley et al. the Lake View Lode in Gregory District; H. R. Burk to Bertha Gold Mining and Milling Company the Colorado Star Lode in Pleasant Valley District; A. J. Crist to Avon Gold Mining Company the Avon millsite in Nevada District; D. A. White to S. A. White the Bobtail Lode in Wisconsin District. N. W. Callaway to H. Sturn, the Silver King, Emma, Lexington, Pennsylvania, Chesapeake and Rappahannock Lodes in Price and Vermilion Districts; G. Mariacher et al. to J. Brohl, ¼ interest in Everett Lode in Gregory District; T. Cody to J. McKay & Company, the Rivals and East Rivals Lodes in Gregory District; J. M. Ross to R. Wintermann the Caledonia, Courtlandt, Vermilion, Quaker City, Boston and Keystone Lodes in Russell District; C. Sutton to T. Cudahy et al., the Baldwin and West Baldwin Lodes in Russell District.

**Annex.**—Boston men have purchased this property and have started sinking 200 ft. W. Job, Central City, is in charge.

**Avon Gold Mining Company.**—This company is to put up a 30 rapid drop stamp mill in Nevada Gulch, for which castings are being made by McFarlane & Company, of Black Hawk. The mill will handle ores from the Climax Mine, over an aerial tramway about ¼ mile long, to be built in the future. Tom Jones, Central City, is in charge.

**Buckley.**—Michigan men are interested, including ex-Secretary of War R. A. Alger, and the shaft is to be sunk 200 ft. deeper. The vein matter is carrying increased values. J. H. Hooper, Central City, is manager. The same lessees are interested in the Gold Collar property, where active development is on.

**Carcassonne Mining Company.**—A 12-H.-P. Fairbanks-Morse & Company's gasoline hoist has been installed and new building erected. Illinois parties are interested, with H. E. Corn, Russell Gulch, as manager.

**Delmonico.**—This property, owned by John Ross, of Boulder, is being unwatered for examination. A company may soon take hold of it.

**East Boston Mining Company.**—Sinking has been started and will be kept up for 200 ft., which will make the shaft 600 ft. deep. W. H. Stimpson, Central City, Colo., is in charge for Bostonians.

**Gilpin County Ore Shipments.**—During February the shipments of smelting and crude ores, mill tailings and concentrates from the Black Hawk depot to the Denver and Pueblo smelters and other points were 264 cars of 4,884 tons, showing a gain of over 700 tons compared with January, 1900.

**Gregory Buell Consolidated Gold Mining and Milling Company.**—Examination of the Vasa Mine shows good ore reserves and the company has changed its plans of a 30-stamp to a 45 rapid drop mill, to be built by McFarlane & Company. Work on surface improvements is under way.

**Lola Montez.**—A 2-drill Rand compressor has been put up by Denver parties who have taken a lease and bond on this group near Black Hawk. The main tunnel is in 46 ft. and is being driven with double shifts. C. S. Yankee, Black Hawk, is in charge.

**Lombard.**—A good strike has been made on this claim at Yankee at 900 ft. in the lower tunnel. The ore is 2 ft. wide and carries high values in gold, silver and lead. Dr. Abe Ashbaugh, Central City, is the owner.

**Lucky Corner.**—Denver parties are organizing a company to work this property in Gregory District, adjoining the Freedom. It is only a prospect as yet.

#### Lake County—Leadville.

(From Our Special Correspondent.)

**Leadville Ore Output.**—The production averages 2,100 tons per day, a falling off of about 500 tons per day due to the exploration and development work being carried ahead by some of the big producers.

**Leadville Zinc Shipments.**—Alexander Davis, representing Jacobson & Company, of New York City, is stationed here permanently and is handling about 100 tons per day of good zinc ores. The zinc tonnage is about 150 tons per day. Most of the ore comes from the Maid, Moyer and A. Y. & Minnie.

**A. M. W. Combination.**—The many drifts and levels of the old Wolfstone Shaft are being cleaned out and shipments of 100 tons per day have started.

**Big Six Mining Company.**—Minority stockholders are suing the majority stockholders, claiming no accounting has been made of heavy shipments.

**Butcher Boy.**—The new shaft on this group on Ball Mountain has resumed and will be sunk 1,000 ft. Operations were suspended a few months ago owing to shortage of water power. P. L. Kimberly is at the back of this project.

**Carbonate Hill Mining Company.**—Operations are to be resumed on the Aetna Shaft on Carbonate Hill. The old shaft has not been worked for many years, but was sunk 400 ft., at which point the new lessees will resume work.

**Diamond Gold Mining Company.**—A new pump is being put in and a drill hole is going down to explore the lower contacts. Philadelphia people are largely interested.

**Eclipse.**—This property on the gold belt was recently purchased by the Zang Brewing Company people, who are sinking to the lower contacts.

**Fidella Gold Mining and Tunnel Company.**—Enquiries are arriving from the East about this company, which is advertising very heavily. The property is shut down and no effort is being made to work it. Years ago some good ore was taken from the Best Friend Claim, but the new company never accomplished anything and seems simply to be selling stock in the East.

**Ibex Mining Company.**—Shipments are cur-

tailed to 150 tons per day. The new machinery is now in place at No. 2 shaft and this tonnage will be considerably increased. A large amount of development work is under way.

**Iowa Gulch Section.**—An immense amount of work has been carried on in this locality the past 60 days and much territory that has lain idle for years is being worked. The First National, Doris, Rex, Fisk-Julia, Fortuna, Clear Grit and Ella Beeler are among the new projects being actively developed and the First National is already a shipper.

**Mikado.**—The lessees are taking out some good ore from the old workings of the Gallagher Shaft, and arrangements are being made to sink a new and deep shaft to open up the same ore shoot now mined in the R. A. M. of the Small Hopes combination.

**New Monarch Mining Company.**—An immense amount of development work is enabling the company to increase shipments and the output is 100 tons per day. The same ore shoot is opened in all 3 shafts.

**Peerless Maud.**—Arrangements are being made to start up this group by Hugh Dyatt. A new shaft will be sunk which should strike the vein at a depth of 100 ft.

**Poverty Flat Mining Company.**—Preparations are being made to resume on the Seeley Shaft, where a good carbonate ore body was disclosed some months ago. There are also large bodies of manganiferous iron opened.

**Printer Boy Gold Mining Company.**—This new concern is capitalized for \$1,000,000. J. M. Childs, of Leadville, has interested New York men and has secured a long-time lease and bond of 20 acres of Printer Boy territory. The claims include the upper and lower Printer Boy, Columbia, Miners' Hope, and Bradshaw claims. The company plans to use the lower Printer Boy shaft.

**Rex.**—Pittsburg people are at the head of the new company developing this Iowa Gulch property.

**Valentine Mining Company.**—The new station at 500 ft. is completed and as soon as the machinery is in place sinking will resume.

#### Ouray County.

The pyritic smelter at Ouray was blown in February 25th. The smelter has a capacity of 60 tons per day. The plant is located 4 miles north of Ouray on the Denver & Rio Grande road. Charles H. Kittredge, president, and W. B. Duvall, treasurer, of the smelting company were present.

#### San Miguel County.

**Butterfly-Terrible.**—A strike is reported of a vein which runs \$75 a ton, while running a tunnel over what was thought to be barren ground. It is thought to be an entirely new body of ore.

#### Summit County.

**Breene.**—This shaft at Kokomo is now making daily shipments of 30 tons or more, and the output is soon to be enlarged. Three 8-hour shifts are at work. The tramway is in good shape.

**Col. Sellers.**—This Kokomo mine on Elk Mountain is shipping steadily 40 or 50 tons a day. A large force of men is employed again.

**Summit Mining and Smelting Company.**—This company's property, known as the Wilfey, is putting out some 30 tons per day. The mill at Kokomo is running steadily. This mine has been a steady producer since 1879.

**Uthoff.**—This tunnel at Kokomo is driving ahead and good looking ore is reported opened. Several shipments have already been made. Capt. Johnson has charge of the work. Two drills are busy. The Uthoff is a sulphide proposition and is owned by St. Louis parties, who have spent considerable money developing it. The ore averages \$12 to \$14 and carries much iron.

#### Teller County.

The Standard Milling and Smelting Company, of Colorado City, Colo., has nearly completed its new mill, said to be the largest of its kind in Colorado. Its capacity will be fully 400 tons a day and it uses the chlorination process. All of the latest innovations in milling machinery have been adopted. The promoters of the enterprise are the officers of the Colorado-Philadelphia Company—Charles L. Tutt, president; Spencer Penrose, secretary and treasurer; Charles M. McNeill, vice-president and general manager, and J. D. Hawkins, superintendent. The same gentlemen are owners of the National Mill at Florence and of 2 samplers in the Cripple Creek district. With the new plant their mills built for the treatment of Cripple Creek ores have a combined capacity of 900 tons a day. A spur has been run to both of the Colorado City plants and all ores shipped will be unloaded direct into the sampling rooms. A system of elevators and belt conveyors carries the ores to the various crushing, drying, roasting and chlorinating departments and the labor expense has been reduced to the minimum.

(From Our Special Correspondent.)

**Colorado Cripple Creek Railroad.**—This railroad is now completed to Cameron in the Crip-



ple Creek District, and in a short time the road will be open for traffic.

**Teller County—Cripple Creek.**  
(From Our Special Correspondent.)

**Columbine-Victor Tunnel.**—The electric haulage plant is in operation, facilitating very much hauling from the Gold Coin Mine. A branch is now being run toward Bull Hill, where it is understood that it will cut the Wild Horse Shaft at about 1,000 ft.

**Doctor-Jack Pot Consolidated Gold Mining Company.**—The directors of this company have paid the regular monthly dividend of 1c. per share. Some remarkably rich ore is being shipped, said to be the richest average value ever sent from the district.

**Elkton Consolidated Gold Mining Company.**—Unwatering the 7th and 8th levels is proving a greater task than anticipated. Bailers are abandoned and several pumps have been ordered. The management thinks it will not be long before the pump on the lower level is recovered. Meanwhile production goes on as usual from the upper levels. The fact that a dividend has been declared shows that no apprehension is felt.

**Gold Coin Mining and Leasing Company.**—It is understood that the vein has been cut on the 1,000-ft. level of the same general character as on the levels above, but no values are reported. This is the principal company of the many controlled by the Woods Investment Company.

**Gold Dollar.**—At the annual meeting of the stockholders recently the following directors were elected: J. A. Whiting, F. L. Ballard, A. L. Houck, C. E. Collins, H. L. Shepard, J. S. Tucker and Henry McAlister, Jr. The reports of the officials show a satisfactory state of affairs with regard to the mine. At present about 65 men are employed on the property. The cash on hand amounts to about \$28,000.

**Princess Gold Mining Company.**—At a special meeting of the stockholders in Colorado Springs on March 2d it was voted to raise the capitalization from \$1,000,000 to \$1,500,000 and to place the 500,000 shares in the treasury to be sold as needed in development and to develop the Mollie Bell Claim of 10 acres on Raven Hill, adjoining the Elkton.

**GEORGIA.**  
**Lumpkin County.**

**Hicks Gold and Silver Extraction Company.**—This company has filed articles of incorporation with office at Dahlonega. The object is to treat ores by the so-called Hicks process, to buy ores and issue licenses to work under the patents. The capital stock is fixed at \$3,000,000. The incorporators are Thomas H. Hicks, John H. Bass, Fort Wayne, Ind.; George H. Breymann, Frank G. Thomson, Toledo, O.; Frank R. Adams, J. G. Rosenthal, Delaware, O.; Mark Hopkins, St. Clair, Mich.; J. W. Adams, Chattanooga, Tenn.; R. C. Thomson, H. D. Ingersoll, Dahlonega, Ga.

**IDAHO.**

**Elmore County.**

**Atlanta.**—This mine and the Buffalo at Atlanta are reported under option. The ores carry gold and silver and have been worked as free milling. If the company takes over the properties it may erect a chlorination plant. Chas. F. Lange has been making tests on the ore at Atlanta.

**Dewey.**—This Atlanta property, owned by Frankie, Lange & Lape Brothers, is being developed. Some \$10,000 has been spent on the property and a 5-stamp mill put in.

**Golden Nugget.**—This claim at Atlanta, formerly owned by Judge Heath, is being worked by S. H. Walby.

**Webfoot.**—C. V. Smith is opening this old mine at Atlanta and has some of the old ruby silver ore which made the camp famous.

**Shoshone County.**

(From Our Special Correspondent.)

**Bobby Anderson.**—This location, under bond to New York City men, has a shaft down on a ledge 55 ft. which is said to show 2 ft. of good ore, galena.

**Washington County.**

(From Our Special Correspondent.)

**Seven Devils District.**—The completion of the Pacific & Idaho Northern Railroad to Council brings Cuprum within 40 miles of transportation facilities. The balance of the road is under contract to be completed to the mines by September 1st. The ties are now being gotten out along the line of the extension. Notwithstanding the wagon haul of over 70 miles last season, over 50 car-loads of high-grade ore were shipped to Salt Lake City and to New York, meeting very handsome returns. The Blue Jacket from shipments of about 2,000,000 lbs. marketed 765,000 lbs. of copper and nearly 10,000 oz. silver, with considerable gold values. The Boston & Seven Devils Company shipped from its Peacock, South Peacock, Helena and Decorah claims ore averaging nearly as high.

In anticipation of increasing transportation facilities both of these companies have planned

increased development work, especially for the lower grade ores, and arrangements are being completed for matting furnaces to be erected at or near the mines to handle 100 tons per day to start with. Considerable bodies of low-grade ores ranging from 8 to 17% copper have been opened, and the diamond drill has shown veins from 30 to 48 ft. wide. The Blue Jacket shaft, down 300 ft., will be equipped with new machinery and sunk to 500 ft. as soon as possible. The South Peacock shaft is nearly 400 ft. deep and is planned to be 1,000 ft. The Helena is being developed by a tunnel which is now yielding considerable 40% ore, and it is intended to make a 10-car-load shipment to New York as soon as the roads are fit. Considerable development is being done on the Snake River claims by the owners, with excellent results. With the completion of the railroad Cuprum will take its place among the regular copper producing camps.

**MICHIGAN.**

**Copper—Houghton County.**

**Baltic Mining Company.**—At the annual meeting in New York, Wm. A. Paine, of Boston, was appointed chairman. The following directors were elected: John Stanton, Joseph E. Gay, Cameron Currie, William A. Paine, Samuel L. Smith. The new members of the board are: Wm. A. Paine, of Boston; Samuel L. Smith, of Houghton, Mich.

**No. 2 Hecla.**—This shaft went into commission again March 1st for the first time since the fire last May. It has been completely timbered from the surface to the full depth of nearly 1 mile and gives employment to about 250 men.

**Iron—Marquette Range.**

**Pioneer Iron Company.**—Quo warranto proceedings have been started in Lansing by Edward Breitung, of Marquette, inquiring into the right of this company to exist as a corporation. He has filed information to the effect that the company was incorporated in 1857, that its corporate existence ceased in 1887, and contends that its corporate existence was never legally revived. It originally erected a \$50,000 blast furnace at Marquette and began prospecting, but no actual mining. The plaintiff owns in fee a large tract of land near Negaunee, in which the Pioneer Iron Company claim to have rights. The Cleveland Cliffs Iron Company is interested in having the Pioneer Iron Company declared still effective.

**Victoria Iron Company.**—This company has been formed to work the Foxdale Mine, near Humboldt. A contract has been taken to deliver 30,000 tons to the Illinois Steel Company this season. A spur track from the Duluth, South Shore & Atlantic has been laid to the mine. Work will be started underground soon.

**Iron—Menominee Range.**

**Breen.**—This, the first Menominee mine, has been leased by the Oliver Mining Company, and will be explored. It is a lean, silicious Bessemer, and has been idle 20 years with a total of 17,430 tons shipped. It was under option last year to the Manila Iron Company. The Oliver Company will probably buy the mine if it proves satisfactory.

**Maas.**—Sixty men are employed at Negaunee in the drill work carried on by the Cleveland Cliffs on Maas lands. It is reported that the ledge has been struck.

**Oliver Mining Company.**—This company is drilling near Dexter on the Cascade Range. Exploring at the old Pascoe will be pushed soon.

**Quinnesec.**—This mine at Quinnesec was one of the first properties opened on the range and produced ore giving as high as 67% iron with very low phosphorus. The ore body pinched out and work was suspended nearly 10 years. Diamond drilling and drifting recently have shown up a large body. Corrigan & McKinney, who now are working the property, expect to ship considerable ore this year, while Mr. Brandt, recently superintendent for the Manila Iron Company, has an option on an adjoining 40 that carries the same ore body. The new find is reported to go 52 to 62% iron and .022 to .001% in phosphorus.

**Verona Iron Mining Company.**—This company has been formed to take over the Pickands, Mather & Co. properties, including the Verona at Vu'can, Murphy and Greninger at Iron River, the Mikado on the Gogebic and the Sparta and probably the Malta on the Mesabi. The Murphy is called one of the best recent showings on the Menominee Range.

The headquarters of the company will be at Awasa and Charles E. Lawrence will be superintendent. H. S. Haselton of Milwaukee, Wis., is secretary of the company.

**MINNESOTA.**

**Vermilion Range.**

**Section 30.**—Some of the drilling in this famous section has been stopped and the drill removed. It is a peculiar thing that this section, in legal battles over the ownership of which more than \$500,000 has been expended, has shown up very little ore, apparently.

**MISSOURI.**

**Jasper County.**

**Engleside.**—Five men were instantly killed and 2 others injured by an explosion of dynamite at the Engleside zinc mine in Centre Valley, 8 miles east of Joplin, on March 4th. Two shots had been fired and one had failed to explode. In working with the unexploded shot one of the men set off that and a box of dynamite.

(From Our Special Correspondent.)

There was a strong demand for zinc ore at last week's prices and buyers took every pound of ore they could secure. The last big lot to be cleaned up was 300 tons from the Sphynx and Big Kate Mining Company's at Neck City, which sold at \$27 per ton, the highest price paid. Prominent Joplin operators refused \$27 for 60% ore, expecting a better price. The La Tosca and Dew Drop mines at Oronogo and the Eagle at Belleville sold at \$26.50 per ton and the bulk of the Aurora ore sold at \$24 per ton, the balance of the district ore selling according to quality. Lead was unchanged at \$23 per 1,000 lbs. There was a scarcity of cars or the shipment would have been much larger.

During the corresponding week last year the best grades of zinc ore sold for \$33 per ton and lead at \$27.50 per 1,000 lbs. The lead sales were less than this year by 267,780 lbs., the zinc sales greater by 526,770 lbs., and the value greater by \$34,153. For the first 9 weeks last year the sales were less than this year by 2,678,780 lbs. of zinc and 1,701,560 lbs. of lead, but the value was greater by \$233,504.

Compared with the previous week, the lead sales were greater by 44 tons, the zinc sales less by 463 tons and the value less by \$12,124. Following is the turn-in by camps of the Joplin District for the week ending March 2d:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin .....	1,835,150	466,320	\$33,664
Galena-Empire .....	1,598,790	240,830	24,721
Cartersville .....	1,785,180	260,120	25,620
Zincite (Belleville).....	484,130	.....	6,194
Oronogo .....	371,040	30,950	5,510
Central City.....	201,150	22,910	2,941
Webb City.....	496,090	41,050	6,400
Duenweg .....	46,180	49,110	1,582
Roaring Springs.....	79,160	7,440	1,009
Aurora .....	1,115,490	28,450	12,462
Peacock City.....	117,510	12,200	1,749
Neck City.....	671,370	.....	9,064
Cave Springs.....	249,590	9,090	3,293
Spurgeon .....	170,270	52,620	2,913
Spring City.....	61,650	43,270	1,673
Beef Branch.....	9,550	7,780	236
Carthage .....	82,930	.....	995
Carl Junction.....	140,380	.....	2,907
Granby .....	341,000	31,000	3,205
Seneca .....	11,490	26,770	658
Ash Grove.....	.....	31,800	700

District total, week 9,832,900 1,341,670 \$145,431  
Dist. total, 9 weeks 85,156,250 10,911,230 \$1,248,671  
Zinc values for week, \$114,632; lead, \$30,799; zinc value for 9 weeks, \$1,002,306; lead, \$246,365.

**American Zinc, Lead and Smelting Company.**—This company, on its Center Valley property at Oronogo, has drilled through 135 ft. of ore in one hole. In the second hole the drilling tools became fast while still in ore.

**Zinc Ore Exports.**—Enough contracts of producers with the Missouri-Kansas Zinc Miners' Association have been signed to assure the export plan being carried out and the first shipment will be made soon. J. Needham's Sons, of Antwerp, Belgium, have contracted for 1,000 tons weekly. The export basis is \$31 per ton for zinc ore running from 53% to 60% when spelter is quoted at £20 in London, with no deduction for iron unless the ore contains 6% or more. For ore assaying 60% and over the price is \$33 per ton. The Missouri-Kansas Zinc Miners' Association deducts \$10 per ton for handling and at the close of the year will return to stockholders any profits.

**St. Francois County.**

(From an Occasional Correspondent.)

**Mine La Motte.**—An agreement to sell this famous old mine was filed at Fredericktown on March 1st. The consideration is \$350,000 conditional on the attorneys for the purchaser pronouncing the title satisfactory. The property was purchased about 4 years ago by S. H. Leath, of St. Louis, from Rowland Hazard, of Rhode Island, for \$300,000, it is said, the deal including all the mills and machinery and the fee of 37,514 acres of land. The present purchaser is Charles C. Walcott, late of New York City, but for the past few months located at Galena, Kan., where he has been looking after the management of the New York Zinc Company, which he floated and which has not proved an altogether satisfactory investment.

**Washington County.**

(From an Occasional Correspondent.)

**Murrell Land.**—A drill hole shows 35 ft. of disseminated ore. It is rumored that the Murrell property will become an asset of the Anaconda Lead Company and that a shaft will be started soon. Contracts are being let for boilers, hoist and air compressor; also bids for a 400-ton concentrating mill. The company will be operated by Geo. J. Cole, of Farmington, Missouri.



**Irondale Lead Company.**—Heading to connect No. 1 shaft with No. 2 is in 150 ft. and being driven 5 ft. per day. A 13-drill air-compressor will be installed and the old 4-drill compressor moved to No. 2. The ore is improving. The work for foundations of mill and smelter is being pushed with a view of having the whole plant in operation by July 1st, 1901.

**MONTANA.**

**Beaverhead County.**

**Hecla Consolidated Mining Company.**—The annual meeting was held February 27th in Indianapolis, Ind. The board of directors elected for 1901 is: Charles O. Baird, of Philadelphia; John C. McCutcheon, H. A. Edson, Henry Knippenberg, Mrs. Thomas A. Hendricks, W. H. Thomas and John C. Wright. The board elected Henry Knippenberg president and general manager; John C. Wright, vice-president and treasurer, and John C. McCutcheon secretary. This makes 21 years that Mr. Knippenberg has held the position of general manager of the company. The mines are located at Glendale, Beaverhead County.

**Cascade County.**

Another "squeeze" has started in the Anaconda Copper Company's coal mine at Belt, commencing about where the other stopped. About 100 men are laid off on account of the trouble. Entries 12 and 13 are the most affected, and the company has had to abandon the engine and machines in the 12th entry.

**Fergus County.**

**Kendall.**—The tunnel on the Leaking Claim of this group in the North Moccasin Mountain has already attained a depth of 100 ft. About 40 tons of ore are extracted daily. Grant Robinson has charge.

**Whisky Gulch.**—This new cyanide mill at the head of Cave Gulch is in operation. It is owned by A. S. Wright & Company and has a capacity of 220 tons per day. The mill is constructed on the terrace plan, having 4 floors, the first or upper floor being connected by a chute with the ore bin. A Gates crusher, with a capacity of 50 tons per hour, receives the ore from this chute after it is passed over a grizzly. The crushed ore is raised to a revolving ¼-in. mesh screen. The fine ores then go through a trough to the leaching tanks on a belt conveyor, the coarser pieces in the meanwhile passing through another trough to Gates' rolls, and then carried by a second cup conveyor into another revolving screen. Here the fines, as in the first instance, pass to belt conveyors and thence to the tanks, the residue going back to the rolls.

The ore is levelled in the bottoms of the tanks by a revolving bar, which takes the place of a man. The 4 tanks each have a depth of 8 ft. and 8 in., are 25 ft. 6 in. in diameter and hold 20 tons. They are equipped with false bottom meshes for filtering, the solution being introduced through a perforated 1¼-in. pipe. The second application is made by a hose from the top. The mill is supplied with 3 solution tanks. The original solution tank is on the second upper terrace some distance above the slime tanks. The solution from the slime tanks runs into settling tanks and then into four round-bottom zinc precipitation boxes. From the sump tank, into which it goes from the zinc boxes, the solution is pumped into the original solution tank, and then back to the starting point.

**Granite County.**

(From Our Special Correspondent.)

**Granite-Bimetallic Mining and Milling Company.**—This property employs 300 men in the mine, from which is extracted 250 tons of silver ore per day. A tramway carries the ore from the mine to the mill—a distance of 4 miles—the cost being very small. The entire plant, consisting of a 100-stamp mill at Philipsburg and a large concentrator at Granite, together with the mine plant is operated by electricity furnished from the company's plant at Flint Creek Falls. About 245 tons of ore is crushed daily by the 100-stamp mill, and 45 bars of bullion are shipped every 10 days, worth about \$950 to the bar, making a monthly average of \$128,250. At present 135 men are employed in the mill, but the new 8-hour law will make a larger force necessary. John W. Hall has made a valuable gold discovery in the Boulder District, 6 miles from Princeton. A 3-ft. lead is said to show rock averaging \$65 to the ton. Deep snow prevents taking in supplies now.

**Meagher County.**

**Reynolds & McDowell,** who have been developing the Copperopolis copper properties, have, it is stated, transferred their interests in the mines to the Marcus Daly estate, which has taken up its bond on the property. Reynolds & McDowell developed the original shaft from 150 ft. to 500 ft. and sank 2 other shafts 200 ft. They have shipped \$100,000 worth of copper ore, laid out a townsite in which they still retain an interest, and have put up about 50 buildings. J. B. Gallagher is now in charge of the property. Reynolds & McDowell are now interested in the Emma copper mine in Butte.

**Silver Bow County.**

**Homestake Mining Company.**—This company, which is operating 12 miles northwest of Butte,

has an incline shaft, 2-compartment, down about 90 ft., which has been following ore from the 45-ft. point. The vein is 20 ft. thick. W. W. Wishon is consulting engineer of the mine. The ore runs in gold and silver. The foot-wall is granite, while the hanging is in porphyry.

**Minnie Healey.**—The State Supreme Court has handed down an opinion reversing the decision of Judge Clancy appointing Elliott H. Wilson receiver of this claim. The suit was brought by F. Augustus Heinze and the Johnstown Mining Company against Carl Kleinschmidt, Jr., administrator of the estate of John D. Allport, the heirs of that estate and Miles Finlen for the determination of rights, participation and sale of property and distribution of proceeds. Heinze alleged that Allport had ¼ interest in the property which was then in possession of Kleinschmidt as administrator, and that Heinze owned ½ and the Johnstown Mining Company ¼; that Heinze was also the equitable owner of an additional 1-20 inherited by Caroline V. Kelly from Allport. Finlen claimed the interests also claimed by plaintiffs and also claimed the Kelly interest under purchase. The petition for a receiver alleged that Kleinschmidt and Mary A. Miller, one of the Allport heirs, were working the mine, excluding plaintiffs therefrom and refusing to account to them. The appointment of a receiver was asked in order that the mine might be worked and plaintiffs secure their share of the proceeds of the ore extracted. Heinze also alleged Finlen had desisted from prosecuting the injunction suit against the Boston & Montana to prevent it from mining ore in the continuation of the Minnie Healey lode into Pico and Gambetta ground, though he knew the vein they were working had its apex in the Minnie Healey. Wilson was appointed receiver on February 5th.

**Rose.**—A remarkable accident occurred in this mine at Butte, near the Moonlight, recently. Three men fell with a bucket a distance of 450 ft. and the greatest injury was a broken leg for John Yocum, the engineer, while his two companions were simply cut about the head and badly shaken up. According to the story of George Conrad, who was running the engine, the brake failed and the bucket with the three men on it dashed to the bottom, going through the bulkhead at the bottom and into the sump which contained about 4 ft. of water.

**NEVADA.**

**Storey County.**

**Sutro Tunnel Mill.**—The new 10-stamp mill at the mouth of the Sutro tunnel, built by the Union Iron Works of San Francisco, is running night and day on low-grade ore from the old waste dumps of the Comstock mines. The ore is dumped on a grizzly at the top of the mill, the fine immediately dropping into an ore bin, while the coarse goes through a large Blake crusher. From the ore bin challenge feeders take the ore to the mortars. The stamps are 875 lbs. each and drop over 100 times per minute. The mill has indicated a capacity of over 5 tons per stamp, or over 50 tons per day. The pulp is discharged on four 6-ft. Union vanners. Sufficient water from the tunnel to run the mill is taken through a flume about 300 ft. long, whence it drops 50 ft. to a 3-ft. Pelton wheel.

**NEW MEXICO.**

**Grant County.**

**Fort Bayard Smelting and Refining Company.**—This Philadelphia concern has completed a 2-compartment shaft 500 ft. deep at its mines at Central and increased the capacity of the mill to 75 tons daily.

**Othello & Desdemona.**—These mines, situated at Cooks Peak, 18 miles north of Deming, are owned by the Kansas City Smelting and Refining Company. The ore is lead carbonate, carrying silver, and is much valued as a flux. About 150 men are employed. Shipments are a car-load per day.

**Penos Altos Gold Mining Company.**—This company is owned by the estate of the late Senator Hearst, of California. The claims are at Pinos Altos. The shaft is down 1,000 ft.

**OHIO.**

**Athens County.**

**McLesh Coal Company.**—This company is opening a new shaft 3 miles north of Gloucester. Ingersoll-Sergeant coal cutters are used. The shaft is connected with the tracks of the Toledo & Ohio Central Railroad.

**OREGON.**

**Baker County.**

According to a local paper, extensive development has been quietly carried on in the Baker City district during the winter, many prospects having reached a point whereat a stamp mill is justified. Machinery for the Quebec is being hauled in. Besides the Quebec 4 other 10-stamp mills will be erected this summer. They will be put up by the Oregon-Colorado company, Strassberg, Concord and Alamo. Several new mills have been erected during the winter. The 25-ton Bryan Mill on the Mammoth had its first clean-up in January. A 20-stamp mill has started on the Bald Mountain. The Red Boy mill clean-up for January was the highest for any month since the mill has been in operation. The machinery on the Red Boy is now almost ready to

begin sinking to the 200-ft. level. The recent strike on the Bonanza shows a rich 16-ft. ledge. The Sumpter Valley Railroad has been extended to within 10 miles of the Alamo and will be in operation in the early spring.

**Mine Inspector H. O. Prytherch** has completed his report for 1900. He reports 49 fatal accidents and 150 non-fatal, an increase of 5 fatal accidents and a decrease of 7 non-fatal, as compared with 1899. Falls of roof and coal are the chief causes, making 55% of the fatal accidents. The total production of coal was 6,429,112 tons, of which 5,870,752 tons were shipped, 204,952 tons sold for local use and 353,408 tons used for fuel at the mines.

**Golconda.**—The new directory is composed of C. A. Smith, Bela Kadish, J. Frank Watson, J. T. English, J. G. English, J. A. Flood and C. A. Johns. The new officers are C. A. Smith, president and general manager; Bela Kadish, vice-president; J. A. Flood, secretary and treasurer. The new company has men at work and will sink the shaft another 100 ft. and drift on the ledge from all 4 levels. It is understood that N. G. Neal will be superintendent. The Golconda Mine was originally located in the fall of 1887 and was sold in 1897 to Messrs. English for a reported consideration of \$24,000. In the spring of 1898 a bromine chlorine plant, with a capacity of 100 tons per day, was erected at a total cost of \$160,000, which after 60 days' use was pronounced a failure. The building was remodeled and a 20-stamp mill and vanners were installed. The results were satisfactory and the capacity of the plant was increased by a 4-ft. Bryan mill. In 1900 the capacity was increased by installing 10 stamps more. The plant now has 40 stamps and is capable of treating about 120 tons of ore per day and is equipped with 16 6-ft. vanners. The property has a hoist capable of sinking to 1,000 ft. and a large station pump is installed at the 400-ft. level. In addition to the Golconda the company owns the several quartz claims, 2 mill sites, water rights and about 500 acres of timber lands. The mill site has a plant, developed to 150 H. P., electrical transmission. All the claims have been slightly developed except the Golconda. On this a tunnel 650 ft. long has been driven which is said to have opened an ore shoot 6 to 10 ft. wide. The ledge is 12 to 18 ft. wide. Besides this tunnel a shaft about 450 ft. deep has been sunk, with cross-cuts. At the first level the vein has been drifted on 350 ft. and is said to be from 12 to 20 ft. wide. On the second level about 265 ft. of drifting has been done. The vein is 30 ft. wide. At the third level about 400 ft. of drifting has been done. The ledge is to be 18 ft. wide. At the fourth level drifting has started. The property has been developed with about 2,500 ft. of tunnels, shafts, drifts and crosscuts.

**Jackson County.**

**Ashland.**—In this mine at Ashland a full crew is sinking on the main shaft and rifting on both sides. The shaft will soon reach the 700-ft. level. Some rich ore was tapped in a drift on the 600-ft. level. The ledge is said to hold 7 to 8 ft. in milling ore carrying good values. The shipment of the assorted base high-grade ores to the smelters continues regularly.

**Opp.**—Work at this mine, located near Jacksonville, is progressing, and preparations are being made to put in machinery during the early spring.

**PENNSYLVANIA.**

**Anthracite Coal.**

**Lehigh Valley Coal Company.**—This company's statement for January and the two months of the fiscal year from November 1st to January 31st is as follows:

	January.	Two mos.
Earnings .....	\$1,915,177	\$3,940,464
Expenses .....	1,928,774	3,991,105
Net loss .....	\$13,597	\$50,641

For the two months the gross earnings increased \$442,166, or 12.6%, and the expenses \$484,375, or 13.8%; leaving an increase of \$42,209 in the net loss.

**Philadelphia & Reading Coal and Iron Company.**—The statement for January and the 7 months of the fiscal year from July 1st to January 31st is as follows:

	January.	Year.
Earnings .....	\$2,826,353	\$16,748,751
Expenses .....	2,480,652	15,417,352
Net .....	\$345,701	\$1,331,399

For the seven months the gross earnings decreased \$2,133,343, or 11.3%, and the expenses \$1,667,745, or 9.8%; leaving a decrease of \$465,598, or 25.9% in net earnings.

**Bituminous Coal.**

The Pennsylvania Railroad Company reports the coal tonnage originating on its lines east of Pittsburg and Erie for the 2 months ending March 2d as below, in short tons:

	1900.	1901.	Changes.
Anthracite .....	672,382	795,045	I. 122,663
Bituminous .....	3,352,817	3,572,097	I. 219,280
Coke .....	1,557,049	1,256,504	D. 300,545
Totals .....	5,582,248	5,623,646	I. 41,398

The increase in anthracite coal was 18.3%, and



in bituminous, 6.5%; but there was a decrease of 19.3% in coke.

#### SOUTH DAKOTA.

##### Custer County.

(From Our Special Correspondent.)

**Boulder Copper Company.**—This company has been organized in Custer with \$1,000,000 capital stock to develop a copper property near Spring Creek, joining the Copper Butte on the east. The officers are: President, W. A. Nelson; vice-president, H. G. Butterfield; treasurer, F. A. Towner; secretary, Louis Knowles, all of Custer.

**Chicago Mica Company.**—Another shipment of mica has been made from the Daly Mine, northwest of Custer.

**Empire.**—Eight men are working at this claim on Spring Creek, 15 miles northwest of Custer. The shaft is 40 ft. deep.

**New York.**—W. H. Sills, of the Sills-Eddy Mica Company, New York City, has been at Custer. He is taking the entire mill output from this mine. There are 2 shafts, each down about 100 ft. About 2 car-loads are shipped to New York per month.

**North Star Company.**—This company is cutting a station at the 335-ft. level at the North Star Mine, 9 miles northwest of Custer. The shaft is to be sunk 600 ft. The stockholders reside at Omaha.

##### Lawrence County.

(From Our Special Correspondent.)

**H. J. Mayham and A. M. Stevenson,** of Denver, Colo., have, it is said, bonded a number of claims in North Lead District, the consideration being \$500,000. The deal takes in the Hidden Fortune, Durango, Harrison, Bingham, Golden Crown, Golden Summit, Ethan Allen, Emerald, Old Virginia, Iowa, Brunette, St. Patrick, Marvin, Sam, Golden Crown Fraction, Cheyenne and Wooster, in all about 200 acres. A shaft is to be sunk 400 ft. and a crosscut run 400 ft., before February 27th, 1902, according to the option. The shaft is to be sunk north of the Hidden Fortune Mine, and work will also be started in the long tunnel on the Bingham Mine, which opens at the Elkhorn narrow-gauge railroad on the Deadwood Gulch side of the hill. It is the plan of the Denver people to erect all of the ore reduction works at Belle Fourche, on the Belle Fourche River, which will make a 30-mile haul for the ore. A cyanide plant may be erected this spring to treat the silicious and cement ores.

**Belt Development Company.**—The machinery is arriving for the hoisting plant. The shaft is down about 30 ft. O. B. Amsden, of Denver, Colo., has charge.

**Colorado-Dakota Mining Company.**—This company has purchased the Slavonian group in Ragged Top District for \$15,000, first payment of \$5,000 being made. C. E. Giddings, of Deadwood, is general manager. The company has purchased several other groups and will erect a 50-ton cyanide plant, for which grading has already been done. The Slavonian lies next to the ground of the Spearfish Mining Company.

**Crown Hill Consolidated Company.**—Stock in this company, a re-organization of the old Crown Hill Company, is being sold to erect a 50-ton cyanide plant at the Crown Hill Mine, west of Deadwood, and for increasing the capacity of the concentrating plant at the Spokane Mine, in Custer County. The principal office of the company is at Sioux Falls, S. D. The officers are: President, A. A. Crofts, Greenville, Me.; vice-president, C. E. Jones, Austin, Ill.; secretary and general manager, S. E. Young, Sioux Falls; treasurer, T. A. Snow, Austin, Ill. The company was stocked for 1,000,000 shares, at \$1 per share.

**Dakota Company.**—Excavation has started on the foundation for the new 100-ton cyanide plant in Deadwood. J. J. Feldhausen, of Deadwood, has the contract for the excavation and James Hartgering, of Rapid City, will build the mill.

**Dakota Maid.**—Joseph King, of Deadwood, owner of this mine in Strawberry Gulch District, proposes to organize the Dakota Maid Mining Company to erect a cyanide plant. There are 120 acres of patented ground, developed by 3,000 ft. of tunnels and drifts and 500 ft. of shafts.

**Durango Mining Company.**—This company's property consists of about 10 acres of ground, in the North Lead District. The officers of the company are: President, Tim Foley; vice-president, John L. Sullivan; secretary, Jas. Cusick, all of Lead.

**Imperial Company.**—Second payment has been made by this company, on the Modoc group, in Blacktail District, owned by W. A. Zink, O. W. Matson and associates, of Deadwood. Drifting is now in progress on quartzite, reached by a shaft 105 ft. deep. The officers of the company are: President, W. S. Elder, Deadwood; vice-president, W. W. Jamison, Seattle, Wash.; secretary and treasurer, R. S. Jamison, Jr., Deadwood. The company may soon erect a large cyanide plant in Deadwood.

**Ruby Company.**—This company, operating in Ruby Gulch District, east of Deadwood, is plan-

ning to erect a reduction plant of some sort. The officers are: President and treasurer, James Konzett, Deadwood; secretary, N. T. Mason, Deadwood. The ground is opened by 2 shafts and 1 tunnel. The company is capitalized at 400,000 shares, par value \$1.

**Spearfish Mining Company.**—A clean-up of over 200 oz. of gold is reported made from the 200-ton cyanide plant in the Ragged Top District. The company has 350 acres of ground and is said to mine and treat the ore for about \$1.50 per ton.

**Two Bit District.**—The water in the Chicago & Two Bit shaft has been taken out and 12 men are cross-cutting the ore encountered just before work stopped 2 years ago. Ore is being taken out of the Hallstorm Mine, owned by Fred Zipp, of Deadwood. Shipments are made again from the Golden Crest, under lease to Charles Graham, of Deadwood.

**Wasp No. 2 Mining Company.**—This company is not incorporated. It is operating a 50-ton cyanide plant in Yellow Creek District, where the mine is located. There are 25 tunnels, and about 5,000 ft. of workings. The officers of the company are: Secretary, W. S. McLaughlin, Deadwood; treasurer, D. A. McPherson, Deadwood; general manager, John Gray, Terraville; superintendent, R. F. Flinterman, Deadwood. The mine has a large amount of cyaniding ore blocked out.

##### Pennington County.

**Poisoned Ox.**—This group of mining claims is owned and worked by McCurdy Brothers, of Pactola. It produces copper ore, both carbonate native copper and sulphides.

(From Our Special Correspondent.)

**Cuyahoga Company.**—Charles Pilger, vice-president of this company, has been at Keystone from Cleveland, O., with Henry Fisher, a heavy stockholder. A contract has been let to run a tunnel 150 ft. in the company's claims south of Keystone.

**Elizabeth Company.**—A test run of 50 tons of ore is being made at the Holy Terror stamp mill at Keystone from the Bismark Mine. M. P. O'Brien and Edwin Fink, of Milwaukee, general manager and chemist of the company, have been at Keystone. Jesse Swift, of Keystone, has a contract for drifting. It is now thought that a good extraction can be had by amalgamating the ore and cyaniding the concentrates.

**Ida Florence.**—This claim, owned by David Sisk, of Keystone, is located 1 mile north of the Holy Terror.

**Mary Belle.**—A ledge has been encountered at this claim, 2 miles west of Rochford, in the Hornblende District, at the end of a 250-ft. tunnel. The claim is owned by W. L. Kerney, of Des Moines, Ia., and L. M. Kerney and George P. Billups, of Rochford. A mill may be erected at Rochford.

#### TEXAS.

##### Jefferson County.

The new pipe line for the big Beaumont gusher has been laid from the well to Vista, a distance of 9 miles. The other 6 miles of pipe between Vista and Port Arthur had been strung, but some little delay has been caused on account of securing rights of way, and within 2 weeks the line is expected to be fully completed. At Vista 100,000 bbls. of tankage is erected. An effort will probably be made to save a part of the oil that flowed from the well, and the balance will probably be burned. The well was opened for a few minutes recently and there was no noticeable decrease in the pressure or flow of oil as compared with that when it was shut in.

#### UTAH.

(From Our Special Correspondent.)

**Ore Production.**—February was a record-breaker in the matter of production of Utah mines. A total value of \$2,292,450 is shown. This includes ore and bullion settlements aggregating \$1,800,663, and the output of the Highland Boy Smelter to the extent of \$195,487; besides \$140,000 derived from the Consolidated Mercur gold bullion. This total is decidedly greater than any previous record in the history of the State. The output will probably not hold out in March owing to the breaking up of the roads.

During the week ending March 2d there were shipped from the several smelters 125 cars, or 5,315,700 lbs., of silver-lead ores; 19 cars, or 792,649 lbs., of silver-lead bullion, and 5 cars, or 271,191 lbs., of copper bullion. A total of 149 cars, or 6,379,540 lbs., showing an increase of 50% over the week previous.

##### Salt Lake County.

(From Our Special Correspondent.)

**Bingham Copper and Gold Smelter.**—During February 4,200 tons of crude ore were used from which were derived 800 tons of copper, gold and silver-bearing metal. Not the slightest interruption has occurred since the fires were first kindled and an analysis of the slag shows that practically all the values, save a fraction of 1% of the silver, are saved.

**Louise S.**—A strike of high-grade silver and

gold ore is reported by Superintendent Garretson. The pay-streak is from 3 to 6 ft. wide, carries values of \$50 up. A car of ore is nearly ready for shipment and work will be vigorously pushed.

##### Summit County.

(From Our Special Correspondent.)

**Park City Shipments.**—For the week ending March 2d there were marketed through the Mackintosh Sampler 2,546,450 lbs. of ores and concentrates, representing the output of the camp. The several contributors were: Silver-King, concentrates 682,500 lbs.; Daly-West, crude ore, 798,740 lbs., concentrates 340,320 lbs.; Quincy, crude ore 239,900 lbs.; Ontario, crude ore 603,600 lbs.; Anchor, concentrates 211,390 lbs.

#### VIRGINIA.

##### Tazewell County.

(From Our Special Correspondent.)

**Browning Coal and Coke Company.**—This company's mines have been badly handicapped by water coming in from the old workings of the Southwest Virginia Colliery Company's mines.

#### WASHINGTON.

##### Ferry County—Republic.

**Republic Mill.**—Superintendent Jackling is reported to have considerable trouble in securing contracts for ore supply for new smelter, Republic mine owners objecting particularly to the price offered for silver. The rates announced by Mr. Jackling were as follows:

For ores containing 0.6 oz. or less of gold per ton, \$4.75; for ores containing 1 1/4 oz., \$7.50 per ton. On ores running between these amounts a scale increasing with every additional quarter of an ounce of gold from the lower to the higher will be charged.

On ores containing 1 oz. of gold or more the mill will pay for 90% of the assay value, and on ores running less than 1 oz., 85%.

The mill will pay for 50% of the silver shown in assay at market quotations.

In addition to these milling charges a flat sampling rate of 75c. per ton will be charged.

(From Our Special Correspondent.)

**Bell Group.**—The main shaft is 45 ft. deep, the bottom in ore sampling at \$10 per ton.

**Black Tail.**—The cross-cut from the southeast drift, east of the fault, has run into a body of good milling ore.

**Butte & Boston.**—The south drift is in 160 ft. The upraise to the old workings is being timbered.

**California.**—The machinery works satisfactorily. Work in the shaft is resumed, and ore is being stoped for shipment on the 100-ft. level.

**Chico.**—Power drills have taken the place of hand work. The north drift on the 300-ft. level is in 97 ft. The other exploration work consists of a prospecting tunnel in 145 ft. A 2-compartment shaft down 317 ft., a cross-cut of 90 ft. and 2 short drifts on the 200-ft. level, a drift, in 200 ft., and a 28-ft. cross-cut on the 300 ft. The Chico Gold Mining and Milling Company held its annual meeting at Tacoma February 4th and reported \$22,670 spent, of which \$5,585 was for machinery and \$17,085 for buildings, labor and supplies. The machinery, calculated for a depth of 800 ft., comprises a 50-H.-P. boiler, air compressor, hoist, pump and Sullivan drills. The last 27 assays reported run from \$24 to \$243 per ton. Among the samples were 10 and 50-lb. lots from the full face of the drift, taking 7 to 8 ft. of the vein.

**Elk.**—At this claim in Bodie Camp the vein has been cross-cut 9 ft. to the hanging wall, showing good gold values.

**Flag Hill.**—The drift on the main tunnel level is in 142 ft., showing 7 ft. of milling quartz between clean walls. Since last July nearly 700 ft. of prospecting has been done with one shift of 2 men and a foreman.

**Golden Reward.**—Work has been resumed on the tunnel at this Bodie claim.

**Republic Power and Cyaniding Company.**—The mill will be ready for custom ore by March 5th. D. C. Jackling, the superintendent, has gone to Spokane to meet the trustees of the mining companies operating in Republic to fix treatment rates and make contracts.

**Unga.**—The tunnel is in 315 ft. and has cross-cut the ledge, which is 8 ft. wide. Drifts have started. Value of ore is not reported.

##### Spokane County.

**Spokane Smelting Company.**—The legal troubles of this company are multiplying. Robert A. Nevin, who claims \$390 is due him as watchman of the property during receivership, is asking that the property be sold, that he may collect his wages. Judge Belt has ordered the receiver to sell the machinery or other movable property to satisfy the debt.

#### WEST VIRGINIA.

##### Mercer County.

(From Our Special Correspondent.)

**Cherokee Colliery Company.**—This company has obtained a large lease from the Flat Top Land Association, on the North Fork branch



of the Norfolk & Western Railroad, and will develop it at once. Messrs. Jervis Collins, Henry Bell, S. M. Buck and others are the lessees.

**Coaldale Coal and Coke Company.**—This company has obtained a large additional lease of coal land carrying a seam 10 ft. thick, and is improving its plant accordingly.

**Mill Creek Coal and Coke Company.**—This company is to erect a large tippie to replace the old one. Five miles of the branch of the Norfolk & Western Railroad up Crane Creek have been let to the contractors, S. Walton & Company, and others.

**WYOMING.**

**Carbon County.**

**Rambler.**—A car-load of machinery has been purchased in Denver for this copper mine in the Douglas Creek District. The purchase included a 40-H. P. boiler, pump and modern engine. Thirty-four men are now employed at the Rambler and 18 teams are engaged in hauling the ore to the railroad for shipment to the Argo Smelter, Denver. Two car-loads of ore go out every week.

**Uinta County.**

**Diamondville Mine Fire.**—The fire at the Diamondville No. 1 mine of the Diamondville Coal and Coke Company, which cost 26 lives, is supposed to have started in a brattice and board stopping at a point where trips were made about 3,000 ft. from the main slope. Supt. Snedden's promptness in sealing all entries kept the fire under control and on February 26 the mine was reopened to bring out the dead.

**FOREIGN MINING NEWS.**

**AUSTRALASIA.**

**New Zealand.**

The Mines Department reports the exports of gold and silver for the full year, as below, in crude ounces:

	1899.	1900.	Changes.
Gold .....	389,558	371,993	D. 17,565
Silver .....	349,858	311,136	D. 38,722

The gold reported in 1900 was equal to 337,383 oz. fine gold, or \$6,973,705.

**Western Australia.**

The Mines Department report that the crushing returns for all gold mining companies in the colony for the month of January last are: Ore treated, 108,895 tons; yield of gold, 122,375 oz.; average yield per ton, 1.12 oz. The return for January, 1900, was 94,898 tons treated, yielding 101,081 oz. gold.

**CANADA.**

**Yukon District.**

**White Pass & Yukon Railroad Company.**—A deal for the purchase of the property of the Canadian Development Company may be put through, to go into effect April 1st. By this the railroad company practically extends its line from Skaguay to Dawson. The purchase includes 14 steamboats, all the terminal facilities at White Horse and Dawson, warehouses, wharves, lighters and other apparatus, besides 2 shipyards, one at White Horse and the other at Dawson. This gives the White Pass Railroad Company the control of all the waterways to the interior, as it also controls the Atlin route.

**MEXICO.**

**Sonora.**

**Greene Consolidated Copper Company.**—The present officers of this company are William C. Greene, president; Mark L. Sperry, vice-president; Philip Berolzheimer, treasurer; George S. Robbins, secretary.

**COAL TRADE REVIEW.**

**New York. Anthracite.**

March 8.

March is furnishing excellent weather from the coal man's point of view, and the activity of the anthracite trade shows no falling off. Small dealers, who do not like to carry coal over the summer, are apt to have low supplies by this time of the year, and consequently a cold and windy March brings out a lot of small orders.

Trade in the West is generally brisk. Supplies on docks at the head of the Lakes are fast approaching the vanishing point. Nut coal is about all gone. Consumers at Minneapolis are dependent on all-rail shipments. In Chicago territory business is good. All-rail coal is coming in freely, but the movement to consumers equals receipts. Supplies on docks decrease and will be very low by the opening of navigation. Along the lower lakes, where the snowfall this winter has been very heavy, coal is in strong demand. The movement to Canadian points is unusually heavy. At inland points in the East and along the seaboard the market fluctuates as the thermometer rises and falls. Buyers at Boston are not likely to lay in larger supplies so late in the winter if they can avoid it.

The production of anthracite coal in February

amounted to 4,098,000 long tons, which compares with 5,153,400 tons in January and 3,188,100 tons in February, 1900.

The discussion over a strike at the collieries on May 1st continues, and at present arguments for and against about balance. Probably there will be no strike if President Mitchell can restrain the more hot-headed among the United Mine Workers. Yet the situation is delicate, and may be brought to a crisis very easily. The most probable outcome seems to be a continuance of the present mining rates another year.

We continue to quote free-burning white ash at New York Harbor ports as follows: Broken, \$3.65; egg, \$4; stove, \$4.50; nut, \$4.50.

**Bituminous.**

The Atlantic seaboard bituminous trade is still dull, though better than last week, as more inquiries are coming in. The chief matter of interest at present is that of contracts for the coming season. All the main line roads have named rates on through shipments to tidewater 10c. higher than last year. The coal men are endeavoring to get together in their association with every prospect of being more successful this year than last, since the association now includes a greater percentage of the operators. As soon as present endeavors are concluded new prices will be given out and the new contract season will begin. It is not thought that any contracts have been closed yet.

There is a possibility of a strike among the Clearfield miners. If it occurs it will simply throw a proportional amount of business to the Maryland and West Virginia operators.

Trade in the far East is dull. Still, little coal has gone there for some time and steady consumption has undoubtedly reduced stocks. Low water has increased the consumption of coal at those mills partly dependent on water power and this is expected to help the market. Along Long Island Sound trade is better than it was, though quiet. New York Harbor trade continues dull. All-rail trade is fairly good.

Transportation from mines to tide is up to schedule. Coal supply at the collieries is up to all demands. In the coastwise vessel market ice has almost put an embargo on shipments at the lower ports. Coastwise freight rates remain very low. We quote from Philadelphia: Providence, New Bedford and the Sound, 65@70c.; Boston, Portland and Salem, 75@80c.; Wareham, 85@90c.; Lynn, 90@95c.; Newburyport, \$1.05; Portsmouth, 80@85c. Rates from the further lower ports are 5c. higher. Prices for coal are nominally unchanged.

**Birmingham, Ala. Mar. 4.**

(From Our Special Correspondent.)

The Alabama coal market presents no new front this week. There is much activity in the State and every ton of coal being mined is finding a ready sale. One little mine in Bible County shut down during the past week, but several new mines were started.

No new mining company was organized during the past week. The companies organized in the last three or four months are working hard to get their mines in full operation and place their product on the market. The new mines at Altoona and at Stout Mountain are increasing their outputs right along and are meeting with better success than was anticipated. The new mines in Walker County will be shipping coal just as soon as the railroads to them have been constructed. Other new mines expect to place their product on the market also between now and June.

**Cleveland, O. Mar. 6.**

(From Our Special Correspondent.)

Some of the coal shippers are beginning to figure on their movement up the lakes this season. Although the prices at which the coal is to be sold in the Northwest have not been fixed as yet, some of the dealers in that section are making inquiries as to possible conditions. The consumption in the Northwest has been heavier than it has been in this section during the winter and the prospects now are that the stock piles will be pretty well cleaned up in the spring. This promises a good movement during the summer. Shippers had hoped to get low rates on their movements, but the strike of the marine engineers has probably altered conditions, leading to slightly increased freights.

The market locally has been brisk. The railroads have not been able to swamp the market because storms have kept back the shipments. This has made prices strong without any change being seen. The market might be represented in the following quotations: Slack, \$1.20; nut, \$1.50; run-of-mine, \$1.16; three-quarters, \$1.80; lump, \$2; Massillon, \$2.60.

**Pittsburg. Mar. 9.**

(From Our Special Correspondent.)

Coal.—The rivers have reached a boating stage but the running ice prevented shipment of coal until to-day, when a number of tows were started for the Southern market. Most of the coal that went out to-day was loaded in boats and is destined for the New Orleans market. The barges will be held back until the heavy craft gets out. There are probably 30,000,000 bus. of coal loaded and it is estimated that fully

10,000,000 bus. will be shipped on the present rise. A number of tow boats at the lower ports have started back with empty barges, which will ensure a steady operation of the river coal mines for some time. Conferences on the local features of the general mining scale agreed to at the Columbus convention began yesterday afternoon. No serious trouble is anticipated and an amicable adjustment is expected before the new scale goes into effect on April 1st.

**Connellsville Coke.**—There was a decided increase both in production and shipment of Connellsville coke last week. More ovens were blown in. Prices are firmer. The H. C. Frick Coke Company quotes furnace coke at \$1.75, but sales have been made at \$2 a ton. Foundry coke is quoted at \$2.35@2.50 a ton. Of the 21,477 ovens in the region, 18,730 are active and 2,747 are idle. The production last week was 226,445 tons, an increase of 12,344 tons compared with the previous week. The shipments aggregated 10,671 cars distributed as follows: To Pittsburg and river tipples, 3,487 cars; to points west of Pittsburg, 4,813 cars; to points east of Connellsville, 2,371 cars. This was an increase of 428 cars.

**Foreign Coal Markets.**

Long distance charters from United States ports are more frequent since the release of many British transports, and easy freight rates. This week we note a steamer from Baltimore to Yokohama, Japan, at \$3.12½; also one from Baltimore or Virginia ports to Marseilles, France, at 16s. (\$3.84). An interesting charter is that of the two Italian steamers, "Andace," 2,297 tons, and "Ardito," 2,281 tons, for six months from Atlantic ports to ports in the Maritime Provinces at about 8s. (\$1.92). Some South American charters have been booked, including Norfolk to Rio Janeiro at 16s. (\$3.84), and from Baltimore to Bahia at the same rate. We also learn that two steamers have been chartered from Cardiff, Wales, to Cape Town, South Africa, at 20@21s. (\$4.88@5.04). The rate for a similar voyage from Philadelphia in December last was 26s. (\$6.24).

German demand for coal is falling off to such an extent as to alarm some of the mining syndicates, and there is talk of lowering prices.

In France the prices are fairly well maintained on steam coal, but are still very high on house coal. There has been a decrease in demand, though not so marked as in Germany. It has affected imported coal chiefly.

Messrs. Hull, Blyth & Co., of London and Cardiff, report under date of February 23d that tonnage is offering plentifully, and as colliery stems for prompt loading are full, prices for large coal continue steady. On the other hand, smalls are weaker. Quotations are: Best Welsh steam, \$4.32@4.44; seconds, \$4.20; thirds, \$4.02; dry coals, \$3.72@3.84; best Monmouthshire, \$4.14 @ \$4.20; seconds, \$3.72@3.84; best small steam coal, \$1.66@1.80; seconds, \$1.56; other sorts, \$1.20.

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

Tonnage has been offering freely, and freight rates have consequently been easier. Some rates noted are: Marseilles, \$1.65; Genoa, \$1.80; Naples, \$1.80; Singapore, \$3.96; St. Vincent, \$1.74; Buenos Aires, \$3.24; Rio Janeiro, \$3.60.

**SLATE TRADE REVIEW.**

**New York. March 8.**

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

Size, inches	Monson or Br'n. ville.	Bangor.	Bangor Ribbon.	Alb'n. or Jackson Bangor.	Chap'n Keyline	Peach Bottom.	Sea Gr'n.	Unf'd'g Green.	Red.
14 x 14	6.50	3.50	3.00	3.00	3.80	5.10	3.00	3.75	.....
24 x 12	6.60	3.50	3.00	3.00	.....	5.25	3.00	3.75	.....
22 x 12	6.60	3.50	3.25	3.00	.....	5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.00	4.00	5.25	3.00	4.00	.....
20 x 12	6.90	3.75	.....	3.00	.....	5.25	3.00	3.75	.....
20 x 11	6.80	.....	.....	3.25	.....	5.25	3.00	.....	.....
20 x 10	6.80	4.25	3.50	3.25	4.00	5.35	3.00	4.25	10.50
18 x 12	6.80	3.75	.....	3.00	.....	5.25	3.00	3.75	.....
18 x 11	7.00	.....	.....	.....	.....	.....	3.00	3.50	.....
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	3.00	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	3.00	4.25	10.50
16 x 12	6.80	3.75	.....	3.00	.....	.....	2.90	3.50	.....
16 x 10	7.00	4.00	3.50	3.25	4.00	5.25	2.90	4.00	10.50
16 x 9	7.00	4.25	.....	3.25	4.00	5.35	2.90	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	4.25	5.35	2.90	4.25	10.50
14 x 10	6.60	3.75	3.25	3.00	.....	5.25	2.70	3.75	10.50
14 x 9	6.50	.....	.....	.....	.....	.....	2.70	3.75	10.50
14 x 8	6.60	3.75	3.25	3.00	4.00	5.10	2.70	4.25	10.50
14 x 7	6.40	3.75	3.25	3.00	3.75	5.10	2.50	4.25	10.50
12 x 10	5.75	.....	.....	.....	.....	.....	2.50	3.25	.....
12 x 9	5.60	.....	.....	.....	.....	.....	2.50	3.50	.....
12 x 8	5.50	3.50	.....	2.85	.....	4.85	2.50	3.50	9.00
12 x 7	5.00	3.25	.....	2.85	3.25	4.85	2.00	3.50	9.00
12 x 6	4.80	3.25	.....	2.85	3.25	4.75	2.00	3.50	8.50

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

In the first two months this year the shipments of roofing slate from Pennsylvania quarries increased about 30%, owing to the larger export movement. Mill stock manufacturers report



smaller shipments this year, especially school slates and blackboards. There appears to be less demand for mill stock in the foreign markets so far this year, as the orders received in 1900 were promptly filled, thus satisfying the consumption for a time at least. However, we may expect a freer movement in this direction during this and next month. Recently a quantity of school slates were shipped to India from New York, and more is to follow. South African business is small, though shipments are still being made there.

It is gratifying to note that the slate exports from the United States in January were the largest in six months, aggregating \$83,218. This increase was due partly to the heavier shipments to British territory, and also to the easier freight market which permitted exporters to fill some of their hold-over orders. It is estimated that 22,611 squares of roofing slate were exported in January, showing an increase of 8,460 squares over the same month last year. The movement of mill stock, on the other hand, shows a decrease this year. Good customers for our slate in January were Great Britain, Germany, Denmark and Australasia.

### IRON MARKET REVIEW.

NEW YORK, Mar. 8, 1901.

#### Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending				From	From
	Mar. 9, 1900.	Mar. 8, 1901.	From	From	Jan., '00.	Jan., '01.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
An'racite & Coke.	264	286,350	210	270,550	2,512,327	2,472,640
Charcoal.	29	7,175	31	8,125	76,822	75,923
Totals.	293	293,525	241	278,675	2,589,149	2,548,563

The iron market continues to show marked activity in almost all its branches. Sales of all descriptions of pig iron—foundry, Bessemer and basic—have been larger, consumers having apparently concluded that their needs will be large, and that there is no use in holding out for lower prices. Steel billets have also been in demand.

In finished material orders are numerous and there seems no doubt that a large trade will be done. There is a general movement to increase prices, and higher quotations will be the rule.

Export trade is dull, and not much demand from abroad is looked for in the present condition of the European markets.

The organization of the great steel trust is progressing slowly; fuller references to it will be found on another page.

Birmingham, Ala. Mar. 4.

(From Our Special Correspondent.)

The little boom in the pig iron market which began a fortnight ago continues, and there is further improvement noted. During the past week another advance of 25c. in the prices was announced, making 50c. advance altogether in prices that occurred during the past two weeks. There is a good demand for the product, even at the advanced price, and the indications point to a steady market for some time. During the month of February the furnaces in this State succeeded in selling good quantities of their product, enough to keep them busy for some time to come. It is not doubted but that there will be demand for pretty nearly all the iron that will be manufactured this year, and the little accumulation will soon be wiped away. During the first part of the month some very large sales of iron were made, and especially basic iron, which went to Northern steel manufacturers. After the 20th of the month the demand became steady and the sales with the larger companies seemed to be the same every day. Inquiries are being received quite liberally for future delivery and some nice orders are being booked for delivery through the summer. The production is equal to the demand as yet, if not a little greater. Active preparations are now being made, however, looking to an increase in the production and another furnace or two will blow in during this month.

The following quotations are given: No. 1 foundry, \$11.50@12; No. 2 foundry, \$11@11.50; No. 3 foundry, \$10.50@11; No. 4 foundry, \$10@10.25; gray forge, \$9.50@10; No. 1 soft, \$11.50@12; No. 2 soft, \$10.75@11.50.

There is considerable activity in steel circles in this district. The steel plant is busy and there is a demand for all the steel being manufactured. A small-sized strike during the past week did not last over 24 hours and caused no curtailment of the production. The plant is in good condition now, with the extra gas producers and other new machinery in operation. The Alabama Steel and Wire Company still finds it necessary to keep the plant in steady operation in order to keep up with the demands. The plow factory, using a small amount of steel, continues to do well.

There is a very good demand in the finished iron and steel markets, and as a consequence the rolling mills in this section have been keeping well in operation. A large number of men have been given employment and there is still

a small shortage in the amount of help at the mills reported. The shipments are steady. All stocks at the rollings mills are being kept up well and all orders are being filled on demand almost.

The foundries and machine shops are doing fairly well. During the past week the Hardie-Tynes Foundry and Machine Company began work on rebuilding the plant which was destroyed by fire a few weeks since. It was stated that the plant was to be removed to Memphis and parties in that city made the company a very flattering offer. However, the citizens of Birmingham prevailed on the company to rebuild here, and a new site was purchased and work has been started on the new structure. The plant will be ready for operation again before the middle of summer.

Cleveland, O. Mar. 6.

(From Our Special Correspondent.)

Iron Ore.—The ore situation is unchanged, which means that shippers are very far from agreeing upon the prices at which the season's sales will be made and that the vessel men are not even discussing possible freight rates. This latter is a development of the last week, rather than a continuation of a previous condition. The marine engineers on the lakes have decided to strike, making it possible that there will be a late opening of the season of navigation. This being the case, owners refuse now to talk of possible freights, believing that later they will be higher.

Pig Iron.—The market has been very strong all week. The demand for material has been pushing the prices gradually upward until wherever sales have been made they have been upon a higher plane than last week. In a number of instances buyers have become feverish over the information that the supply for the first half of the year is about sold up and have offered extravagant prices and have even bought iron to cover their needs for a short period into the second half. An extravagant tendency pervades the entire market. Bessemer has advanced to \$15, Valley furnace, at which price heavy sales have been made. Basic also is sold at the same figure, although transactions here have been limited owing to the fact that the capacity is about sold up for some time to come. Foundry irons have also advanced, No. 1 being sold at \$14.50 and No. 2 at \$14. Off-basis is not quoted because none of the merchant furnaces have any product to spare. Nominally it stands at \$14.

Finished Material.—The spring trade seems to have set in in reality. Every grade of finished material this week has shown signs of improved conditions. The week was characterized by heavy sales, heavy shipments and large inquiries for material to be furnished at some future date. The business in prospect is most encouraging. The railroads are now demanding deliveries on former orders for rails and in addition have been buying heavily. Orders aggregating 6,000 or 7,000 tons have been placed during the week. Some good-sized orders for billets have been placed, but the mills are not courting the business, the capacity remaining uncovered being limited. Consumers are aware of this condition and are offering premiums for prompt deliveries. Nominally the old price of \$19.75 holds. Bars are stronger than they have been, all of the mills holding now for 1.40, with some others getting 1.45. There are but small amounts for sale. Plates also have boomed and the heavy buying has brought out talk of advances in prices. Several large orders for structural shapes have been placed this week, but the price holds firm at 1.50 for beams and channels and 1.40 for angles.

Old Irons.—The scrap market is without a change, prices holding firm as they have been for several weeks. The sales this week have been moderate only.

Philadelphia, Pa. Mar. 7.

(From Our Special Correspondent.)

Pig Iron.—Reports to-day from all leading makers represented here indicate a strong market, made so more by outside influence than by any particularly active local demand. Those consumers who have fair stocks under control are taking no interest in the talk of permanently higher prices. Those who need iron are in the minority and are buying in a small way. The latest transactions in Bessemer show that in small lots at least higher prices were paid and it is probable that larger transactions will soon follow. Basic pig is also strong and higher in sympathy with influences in the West.

Forge iron makers are neither seeking business nor trying to run up prices. Most of the output is virtually sold ahead to regular customers. Some slight changes in quotations have been made in an upward direction, especially in forge and Bessemer. Foundry irons are strong, but there is no rush for them.

Billets.—The market is unsettled and agents decline to give bottom quotations. The difficulty of obtaining quick deliveries and the fact that manufacturers are slow to commit themselves to new contracts are the features this week.

Merchant Bars.—Mill representatives are more interested in the outcome than current sales, which they generally agree are satisfactory. Prices also are firm, but when pressed for an opinion as to the future they do not say the present high rates are likely to prevail. The car builders and certain other large buyers are not following the market up, but will wait for a reaction. Reports from mills are that capacity is about as fully engaged as for months, and prices range from 1.35 to 1.50 for steel and iron bars.

Skep.—The skep mills of the State are accumulating business constantly, some of this week's orders having been the largest taken this year. Prices on these are shaded.

Sheets.—Activity continues all along the line. Those who must have prompt deliveries were quite willing to pay as much as one-tenth more than February prices. The tendency of prices is upward, but mill people will not force them unduly. There is correspondence on the market this week for large supplies of common sheets and corrugated material to be used in building work.

Merchant Steel.—No particular developments since last week.

Plates.—Plates have been advanced. In fact, a week ago, in reply to some inquiries, higher prices were named. The news from Western markets is encouraging our people to quote stronger prices, especially on moderate-sized orders.

Structural Material.—The business brought to the attention of manufacturers within the past few days has strengthened the market. While no advance has been made the conditions are favorable. The mills are well sold up and a great many requirements will soon be in shape. Besides, the season's local building needs have not been fully covered.

Steel Rails.—Brokers in touch with buying interests speak of the possibility of an advance as soon as the 2,000,000 ton limit is reached, but this opinion is neither affirmed nor contradicted by those higher in authority. The girder rail business, it is generally agreed, will be heavy.

Scrap.—Prices are no higher and two or three buyers have secured supplies they were after, but the opportunities to dispose of heavy or choice scrap are no less.

Pittsburg. Mar. 6.

(From Our Special Correspondent.)

The iron and steel market has not been stronger nor the outlook brighter at any time since the boom year of 1899. Prices are higher this week, large sales of Bessemer pig iron having been made at \$15, Valley furnaces. There has been some active buying of foundry and forge iron and prices are firmer. Foundrymen who have been buying from hand to mouth during the year have made some large purchases and fully 10,000 tons of foundry No. 2 and 3,000 tons of gray forge were sold this week. From 5,000 to 6,000 tons of Bessemer pig iron were contracted for at \$15.75 delivered in Pittsburg before April 1st. Ore rates for the year have not yet been arranged and no one will give a prediction as to when the producers are likely to get together for this purpose. That the big steel consolidation now being completed is responsible for the advances in prices is not generally believed in iron and steel circles. Consumers who have been waiting for lower prices and who have been buying only for immediate requirements, are coming into the market with large orders, which seems to be evident that still higher prices are expected.

All finished lines of steel continue very strong and during the week advances will be ordered. A meeting of the plate pool has been called for to-morrow and will be held in New York. At this meeting prices are to be advanced at least \$2 a ton, which will make the price of tank plate in Pittsburg \$1.50 per 100 lbs. A meeting of the steel billet pool is scheduled for Friday, at which an advance of at least \$2 a ton in Bessemer steel billets will certainly be ordered and it is not at all unlikely that the advance will be greater, as billets have been in demand at \$2 above the fixed price, about 2,000 tons having been sold this week at \$21.75. These meetings were to have been held several weeks ago, but the formation of the big steel combination caused a delay. Open-hearth billets have been selling as high as \$25 a ton for over a week. No announcement has been made of a meeting of the steel rail pool, but it seems certain that with billets selling away above the \$20 mark that the \$26 rate for rails will not be continued and an advance may soon be expected. The advance in the price of sheets did not lessen the demand and the market is stronger this week. The demand for structural material continues strong and many new orders are being received.

During the week the officials of the Amalgamated Association have declared all non-union mills in the country open to members of the organization. The only conditions imposed are that union rates be paid and that the members endeavor to organize the workmen. At many of the non-union mills it is claimed the rates paid



are higher than are called for by the Amalgamated Association scale. There is considerable discussion here as to what the attitude of the United States Steel Corporation will be toward organized labor. The leaders of the Amalgamated Association of Iron, Steel and Tin-Plate Workers will make a strong effort to secure recognition for the organization. It is not believed that they will meet with success, as the attempts to bring the small combinations that are now in the corporation into line were fruitless.

**Pig Iron.**—The market is stronger than it has been for many months and there has been some active buying this week. Producers are not anxious to sell for extended future delivery and sales made are for delivery this month. About 6,000 tons of Bessemer pig iron were sold at \$15, Valley furnace, equal to \$15.75, delivered at Pittsburg. From 8,000 to 10,000 tons of foundry No. 2 were sold at \$14.65@14.90, Pittsburg. About 3,000 tons of gray forge sold this week at \$14@14.25, Pittsburg.

**Steel.**—Several lots of Bessemer steel billets, aggregating 1,500 tons, sold this week at \$21.75, or \$2 a ton above the pool price. A meeting of the steel interests is scheduled to be held in New York on Friday, at which a new price for billets will be fixed. Open-hearth billets, which usually sell at \$1 or \$2 higher than Bessemer, are quoted at \$25. There is a heavy demand for prompt shipment. Plates are to be advanced at least \$2 a ton at a meeting of the pool called for Thursday. This will bring the price of tank plate from 1.40c. to 1.50c., Pittsburg. There has been some heavy buying of steel bars during the week and while the price quoted is 1.35@1.40c., in some instances a higher rate has been paid.

**Sheets.**—Despite the advance ordered by the American Sheet Steel Company last week, the demand is as heavy as before the new prices went into effect. There are still a number of idle sheet plants and it is believed that some will soon be put in operation. No. 28 gauge is quoted at 3.15@3.20c. and galvanized sheets are 70 and 10% off, with no allowance for freight.

**Ferro-manganese.**—An advance was expected this week, but none has been ordered. The demand for 80% domestic continues good and the price remains at \$62.50.

**New York. Mar. 8.**

The local market for finished products is generally strong and fairly active. In foreign trade we note a shipment of \$15,000 worth of railroad supplies to Australia, with continued shipments of machinery to European ports.

**Pig Iron.**—The local market is still inclined to be quiet with prices no higher. We quote for Northern iron, tidewater delivery: No. 1 X foundry, \$16.25@17.25; No. 2 X, \$15.50@16; No. 2 plain, \$14.75@15.25; gray forge, \$14.50@14.75. For Southern irons on dock, New York, No. 1 foundry, \$15.25@15.75; No. 2, \$14.50@15; No. 3, \$14.25@14.50; No. 4, \$13.50@14; No. 1 soft, \$15.25@15.75; No. 2, \$14.50@15.

**Bar Iron and Steel.**—Demand is active. Eastern mills have secured some good-sized orders. We continue to quote common bars at 1.35c. for large lots on dock; refined bars, 1.45c.; soft steel bars, 1.50c.

**Steel Rails and Rail Fastenings.**—The domestic market is quiet. Several good-sized foreign contracts have been taken by German mills. Standard sections are still quoted at \$26 at Eastern mills; light rails at \$26@30, according to weight. Spikes are 1.55c.; splice bars, 1.30c.; bolts, 2.10@2.25c.

**Plates.**—Prices have been advanced. Mills have plenty of orders and the outlook is good. We quote for large lots at tidewater: Tank, 1/4-in. and heavier, 1.70c.; flange, 1.80c.; marine, 1.95c.; universal, 1.70c.

**Structural Materials.**—The American Bridge Company has recently taken contracts for 2 buildings that will require 5,000 tons. We continue to quote at tidewater: Beams, 1.65c.; channels, 1.65c.; angles, 1.30c.; tees, 1.70c.; zees, 1.65c.

**METAL MARKET.**

**New York. Mar. 8.**

**Gold and Silver.**

**Gold and Silver Exports and Imports**

At all United States ports in January and year.

Metal.	January.		Year.	
	1900.	1901.	1900.	1901.
<b>GOLD.</b>				
Exports	\$5,691,290	\$8,221,159	\$5,691,290	\$8,221,159
Imports	1,982,692	4,161,012	1,982,692	4,161,012
Excess	E. \$3,698,598	E. \$4,060,147	E. \$3,698,598	E. \$4,060,147
<b>SILVER.</b>				
Exports	4,599,199	4,790,239	4,599,199	4,790,239
Imports	2,174,573	3,169,034	2,174,573	3,169,034
Excess	E. \$2,424,626	E. \$1,621,205	E. \$2,424,626	E. \$1,621,205

These figures include the exports and imports

at all United States ports, and are furnished by the Bureau of Statistics of the Treasury Department.

**Gold and Silver Exports and Imports, New York**  
For the week ending March 6th, 1901, and for years from January 1st, 1901, 1900, 1899 and 1898.

Per.iod.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	\$7,180	\$56,324	\$939,875	\$48,317	E. \$842,414
1901...	9,028,520	614,753	7,020,420	710,439	E. 14,723,748
1900...	2,373,136	989,289	7,533,179	803,832	E. 8,115,194
1899...	866,969	4,108,922	5,792,145	575,144	E. 2,075,048
1898...	3,539,136	7,686,780	6,012,650	535,505	E. 3,320,501

Gold exports were in small parcels; imports were from the West Indies and South America. Silver exports were chiefly to London, and imports from Mexico.

The United States Assay Office in New York reports the total receipts of silver at 30,000 oz. for the week. This makes a total of 725,000 oz. from January 1st.

**Average Prices of Silver per oz. Troy.**

Month.	1901.		1900.		1899.	
	London Pence.	N. Y. Cents.	London Pence.	N. Y. Cents.	London Pence.	N. Y. Cents.
January...	28.97	63.12	27.30	59.90	27.42	59.36
February...	28.13	61.06	27.49	59.76	27.44	59.42
March.....	.....	.....	27.59	59.81	27.48	59.64
April.....	.....	.....	27.41	59.59	27.65	60.10
May.....	.....	.....	27.56	59.96	28.15	61.23
June.....	.....	.....	27.81	60.42	27.77	60.43
July.....	.....	.....	28.23	61.25	27.71	60.26
August.....	.....	.....	28.13	61.14	27.62	60.00
September.....	.....	.....	28.85	62.63	27.15	58.89
October.....	.....	.....	29.58	63.83	26.70	57.98
November.....	.....	.....	29.66	64.04	27.02	58.67
December.....	.....	.....	29.68	64.14	27.21	58.99
Year.....	.....	.....	28.17	61.41	27.44	59.58

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

**Average Prices of Metals per lb., New York.**

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.
Jan.....	16.25	15.58	26.51	27.07	4.35	4.68	4.13	4.65
Feb.....	16.38	15.78	26.68	30.58	4.35	4.675	4.01	4.61
March.....	.....	.....	.....	.....	.....	.....	.....	.....
April.....	.....	.....	.....	.....	.....	.....	.....	.....
May.....	.....	.....	.....	.....	.....	.....	.....	.....
June.....	.....	.....	.....	.....	.....	.....	.....	.....
July.....	.....	.....	.....	.....	.....	.....	.....	.....
August.....	.....	.....	.....	.....	.....	.....	.....	.....
Sept.....	.....	.....	.....	.....	.....	.....	.....	.....
October.....	.....	.....	.....	.....	.....	.....	.....	.....
Nov.....	.....	.....	.....	.....	.....	.....	.....	.....
Dec.....	.....	.....	.....	.....	.....	.....	.....	.....
Year.....	.....	.....	.....	.....	.....	.....	.....	.....

The prices given in the table for copper are the averages for electrolytic copper. The average price for Lake copper for the year 1900 was 16.52c.; for the month of January, 1901, it was 16.77c.; for February, 16.90c.

**Prices of Foreign Coins.**

	Bid.	Asked
Mexican dollars.....	\$.49	\$.51
Peruvian soles and Chilean pesos ..	.43 1/4	.46 1/4
Victoria sovereigns.....	4.85	4.88
Twenty francs.....	3.84	3.88
Twenty marks.....	4.73	4.78
Spanish 25 pesetas.....	4.78	4.82

**Financial Notes of the Week.**

Business continues active, and its condition is shown by returns of large railroad earnings and the full occupation of mills and factories. Notwithstanding the probable withdrawal of funds used in financing the big steel consolidation, money in New York is easy and rates remain low. The European rates are still much higher than those on this side, but no further shipments of gold are looked for.

The silver market is steady, and there is no special feature. Forward delivery is commanding 1/16d. premium over prompt shipment.

The statement of the United States Treasury on Wednesday, March 6th, shows balances in excess of outstanding certificates as below, compared with the corresponding day last week:

	Feb. 27.	Mar. 6.	Changes.
Gold.....	\$79,404,683	\$84,959,084	I. \$5,554,401
Silver.....	19,888,781	18,849,050	D. 1,039,731
Legal tenders.....	12,335,673	11,879,790	D. 461,883
Treas. notes, etc.,	107,086	179,974	I. 72,888
<b>Totals.....</b>	<b>\$111,736,223</b>	<b>\$115,861,898</b>	<b>I. \$4,125,675</b>

Treasury deposits with national banks amounted to \$97,542,181, showing a decrease of \$529,860, as compared with the corresponding day last week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending March 2d, gives

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

	1899.	1900.	1901.
Loans and discounts.....	\$780,607,700	\$715,076,100	\$914,209,400
Deposits.....	914,810,300	829,917,000	1,012,514,000
Circulation.....	14,495,200	18,574,300	31,369,000
Reserve:			
Specie.....	198,407,100	158,177,900	193,948,500
Legal tenders.....	54,873,600	62,942,900	73,981,100
<b>Total reserve.....</b>	<b>\$253,280,700</b>	<b>\$221,120,800</b>	<b>\$267,929,600</b>
Legal requirements ..	228,702,575	207,479,256	253,128,900
<b>Balance, surplus....</b>	<b>\$24,578,125</b>	<b>\$13,611,550</b>	<b>\$14,801,100</b>

**Imports and Exports of Metals.**

Port.	Week, Mar. 6.		Year 1901.	
	Expts.	Impts.	Expts.	Impts.
<b>New York.</b>				
(N. Y. Metal Exchange.)				
Aluminum.....long tons		70	28	25
Antimony ore.....			19	213
" regulus.....				
Chrome ore.....	1,302	400	13,937	3,061
Copper, fine.....			8	374
" matte.....				10,030
" ore.....				
" ash.....				
Iron ore.....				
" pig, bar, rod.....	966	177	5,180	474
" pipe.....	408		4,167	
" plates, sheets.....			149	
Lead.....	1,764	2,730	14,137	11,075
" ore.....				
" dross.....				
Manganese ore.....			123	1,235
Metals, old, scrap.....			2	2,988
Composition.....			261	1,711
Nails.....			60	354
Nickel.....			4,970	8,570
" ore, matte.....				
Rail'd material.....	103	50	5,784	440
Rails, old.....				
Steel bars, plates.....	2,240	288	17,660	2,156
" rails.....	3,320		14,440	
" wire.....	730		6,065	
Tin.....			219	230
" and black plates.....				
" dross.....			2	307
Zinc.....			123	123
" dross.....			123	235
" ashes, skim.....	2,150		4,109	
" ore.....				
<b>Baltimore.</b>				
(Special Correspondence.)				
Antimony.....long tons		5		5
Copper, fine.....	881	402	4,686	1,214
Iron pig, bar, etc.....			1,145	1,790
" ore.....			4,134	43,984
Manganese ore.....				3,250
Nails.....				306
Pipe, iron & steel.....				582
Pipecastings.....				125
Steel, bars, etc.....	362		8,166	67
" wire.....			563	24
" rails.....	1,264		19,465	
Tin.....			50	175
" and black plates.....				97
Zinc.....				
<b>Philadelphia.</b>				
Copper, fine.....long tons	332		332	1,140
Iron, pig, bar.....	27		134	38,770
" ore.....		9,900		17
" pipe.....				200
Lead.....	200		200	11
Metals, old.....				7
" composition.....				44
Nails.....	13		41	62
Railroad material.....	41		319	3,536
Steel, bars, etc.....	319		339	103
" wire.....			14	25
Tin.....			25	140
" and black plates.....				4
Zinc ore.....				2,061
" dross.....				77
" ash.....				6
<b>Total United States.</b>				
Articles.	Jan., 1901.		Jan., 1900.	
	Expts.	Impts.	Expts.	Impts.
Antimony.....long tons		171		86
" ore.....	2	17		342
Copper, in all forms.....	10,003	7,980	14,035	6,435
Iron, pig & bar.....	24,722	2,276	9,931	6,841
" ore.....	440	33,368		89,715
Iron & steel plates.....	5,235	188	1,985	1,171
Iron & steel rails.....	25,596	116	17,406	288
" wire.....	6,339	828	6,229	137
Lead, in all forms.....	10,381	15,512	4,779	4,302
Manganese ore.....		8,809		35,256
" and oxide.....		12		131
Nickel.....	240			835
" & matte.....	3,167			4,195
" wire.....	1,693			27
Quicksilver.....	24			
Steel, billets.....	8,987	1,241	2,339	4,566
" rods, etc.....	62	3,316	8	4,927
Tin.....				

creases of \$2,408,500 in loans and discounts, \$3,327,100 in deposits, \$84,000 in circulation, \$995,200 in specie, \$91,000 in legal tenders and \$254,425 in surplus reserve.

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

Banks.	1900.		1901.	
	Gold.	Silver.	Gold.	Silver.
N. Y. Ass'n.	\$158,177,900	.....	\$193,548,500	.....
England	179,860,255	.....	179,294,725	.....
France	383,965,305	\$223,351,830	476,380,215	\$218,847,230
Germany	137,690,000	70,930,000	150,650,000	77,610,000
Spain	68,080,000	74,890,000	70,005,000	\$2,475,000
Neth'ld's	26,270,000	30,155,000	25,215,000	23,706,500
Belgium	14,625,000	7,310,000	14,665,000	7,330,000
Italy	77,135,000	7,965,000	77,050,000	9,321,000
Russia	418,755,000	30,745,000	368,410,000	33,460,000

The returns of the Associated Banks of New York are of date of March 2d and the others are of date of March 1st, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold. The Bank of England reports gold only.

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

	Total Stock.	In Treasury.	In Circulation.
Gold coin (inc. bullion in Treas.)	\$1,117,032,760	\$231,150,064	\$628,333,957
Gold Certificates	.....	.....	257,548,739
Silver Dollars	510,301,316	16,884,259	71,763,367
Silver Certif.	.....	.....	422,343,690
Subsid. Sil.	88,667,880	7,230,500	81,437,330
Treas. Nts of 1890.	55,957,000	99,673	55,857,327
U. S. Notes	346,081,016	11,259,294	335,421,722
Currency Certif.	.....	.....	.....
Nat. Bank Notes	345,955,255	10,062,244	335,893,012
Totals	\$2,467,295,228	\$276,686,064	\$2,190,609,144

Population of the United States March 1st, 1901, estimated at 77,311,000; circulation per capita, \$28.34. For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets of the Government. This statement of money held in the Treasury as assets of the Government does not include deposits of public money in national bank depositaries to the credit of the Treasurer of the United States, and amounting to \$91,545,697. The amount in circulation March 1st shows a decrease of \$171,069 as compared with February 1st; but an increase of \$187,677,353, as compared with March 1st, 1900.

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

Denominations	Feb., 1901.		Two Months.	
	Pieces.	Value.	Pieces.	Value.
Double eagles	141,430	\$2,828,600	141,430	\$2,828,600.00
Eagles	457,670	4,576,700	1,208,440	12,084,400.00
Half eagles	365,000	1,825,000	1,394,900	6,974,500.00
Total gold	964,100	\$9,230,300	2,744,770	\$21,887,500.00
Dollars	1,620,000	1,620,000	3,818,000	3,818,000.00
Half-dollars	290,000	145,000	676,000	338,000.00
Quar.-dollars	872,664	218,166	1,316,664	329,166.00
Dimes	2,740,000	274,000	4,700,000	470,000.00
Total silver	5,492,664	\$2,242,166	10,510,664	\$4,955,166.00
Five c. nickels	1,488,000	74,400	3,600,000	180,450.00
One c. bronze	4,210,000	42,100	7,933,000	79,330.00
Total minor	5,698,000	116,500	11,562,000	\$269,980.00
Total Coinage	12,154,764	\$11,588,966	24,817,434	\$27,112,646.00

Comparing these two months with the corresponding period last year, we note a decrease in the total coinage of \$2,409,485, chiefly in gold. The silver coinage in 1901 is somewhat larger than last year, while minor coins show a falling off.

Shipments of silver from London to the East for the year up to February 21st, 1901, are reported by Messrs. Pixley & Abell's circular as follows:

	1900.	1901.	Changes.
India	£789,727	£1,340,500	I. £550,773
China	71,229	74,875	I. 3,646
The Straits	3,300	48,976	I. 45,676
Totals	£864,256	£1,464,351	I. £600,095

Arrivals for the week, this year, were £100,000 in bar silver from New York and £5,000 from Australia; total, \$105,000. Shipments were £156,000 in bar silver to Bombay.

Indian exchange is firm, and Council bills sold in London at 16d. per rupee, though the India Council has decided to offer bills more freely than for some time past. Purchases of silver for Indian account continue to be made.

Other Metals.

Daily Prices of Metals in New York.

March.	Sterling Exchange.	Silver.		Copper.				Spelter.		
		Fine oz. Cts.	London. Pence.	Lake, cts. # lb.	Electrolytic # lb.	London # ton.	Tin, cts. # lb.	Lead cts. # lb.	N. Y. cts. # lb.	St. L. cts. # lb.
2	4.87 1/4	61	23 1/2	16 1/2	16.40	.....	26 1/2	4.32 1/2	4.00	3.85
4	4.87 1/4	61	23 1/2	16 1/2	16.40	70 1/2	26 1/2	4.32 1/2	4.00	3.82 1/2
5	4.87 1/4	61 1/2	23 1/2	16 1/2	16.40	70 1/2	26 1/2	4.32 1/2	4.00	3.82 1/2
6	4.87 1/4	61 1/2	23 1/2	16 1/2	16.40	70 1/2	26 1/2	4.32 1/2	4.00	3.82 1/2
7	4.87 1/4	61	23 1/2	16 1/2	16.40	70 1/2	26 1/2	4.32 1/2	4.00	3.80
8	4.87 1/4	60 1/2	23 1/2	16 1/2	16.40	70 1/2	26 1/2	4.32 1/2	4.00	3.80

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

Copper.—The market is without change. Demand for copper in this country is very good, manufacturers are reported to be exceedingly busy, and the outlook for the spring and summer months is very favorable. Orders from Europe continue to be of small volume. It is, however, stated that supplies on the other side are much depleted and that larger purchases will soon have to be made. We quote Lake copper at 16 1/2@17c.; electrolytic in cakes, wirebars and ingots at 16.40@16.50c.; in cathodes at 16.15@16.25c.; casting copper at 16 1/2@16 1/2c.

The market for standard copper in London, which closed last week at £70 13s. 9d. for spot, £71 5s. for three months, opened on Monday 1s. 3d. lower. On Tuesday it was £70 10s. for spot, £71 1s. 3d. for three months, but on Thursday it went up 3s. 9d. The closing quotations are called as £70 10s. for spot, £71 1s. 3d. for three months.

Refined and manufactured sorts we quote: English tough, £75@£75 10s.; best selected, £77 15s.@£78 5s.; strong sheets, £86; India sheets, £83; yellow metal, 6 1/2d.

Tin.—The market opened very weak in sympathy with the lower cables from London, and sales of spot tin were made as low as 26 1/4c. Toward the middle of the week prices improved somewhat, and spot tin sold at 26 1/2c. A fair volume of business has been transacted. At the close we quote spot tin at 26 1/2c., futures at 26c. The London market has again fluctuated considerably. It closed last week at £121 for spot, £115 12s. 6d. for three months, and opened on Monday 12s. 6d. lower. On Tuesday it was again £1 7s. 6d. lower; on Wednesday futures went up £1, while spot remained unchanged. On Thursday futures advanced a further £1, and the closing quotations are called as £118 15s. for spot, £114 12s. 6d. for three months.

Imports of tin into the United States in January were: East Indies, 2,522,691 lbs.; Australasia, 79,066; Great Britain, 4,769,951; Holland, 23,751; other countries, 26,845; total, 7,422,304 lbs. In January, 1900, the total was 6,655,274 lbs.; showing an increase of 767,030 lbs., or 11.5%, this year.

The visible supply of tin on March 1st is reported as follows, in long tons:

	London	Store.	Afloat.	Totals.
London	4,853	3,469	8,322	
Holland	1,613	408	2,021	
U. S., exc. Pac. ports	2,918	3,755	6,673	
Totals	9,384	7,632	17,016	

The total is 1,337 tons less than that reported on February 1st, but 263 tons more than on March 1st, 1900.

Lead.—The market is without change. It is reported that a fair business is doing from day to day at last prices, 4.22 1/2@4.32 1/2c. St. Louis, 4.32 1/2@4.37 1/2c. New York.

The foreign market has again declined, Spanish lead being quoted at £13 11s. 3d.@£13 13s. 9d., English lead 5s. higher.

Imports of lead in all forms into the United States in January and re-exports of foreign lead refined here in bond are reported by the Bureau of Statistics of the Treasury Department as follows, in short tons:

	1900.	1901.	Changes.
Lead, metallic	12	58	I. 46
In ore and base bullion	4,806	17,316	I. 12,510
Totals	4,818	17,374	I. 12,556
Re-exports	5,294	11,047	I. 5,753

Balance retained..... 6,327  
Excess of exports..... 476

Of the lead imported this year, 7,617 tons, or 43.8%, came from Mexico, and 8,769 tons, or 50.4%, from Canada. The exports of domestic lead—in addition to the foreign lead above reported—were 567 short tons this year, against 28 tons in 1900.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead

is quiet but firm, and 4.22 1/2@4.25c. appears to be the price for chemical and Missouri metal, with none to be had for less. Argentiferous lead is pegged at 4.32 1/2c., with light trading at that price.

Spelter.—A fair business is reported this week, but in some instances transactions were made at slightly lower prices. We quote St. Louis at 3.80c., New York at 4c.

The foreign market has declined somewhat, good ordinaries being quoted at £17 5s., specials £17 10s.

Exports of spelter or metallic zinc from the United States in January were 112,103 lbs., against 2,456,110 lbs. last year. Exports of zinc ore were 3,061 tons, against 2,259 tons last year.

Antimony.—The market is without change. We quote Cookson's at 10c.; Hallett's 9c.; Hungarian 8 1/2c.; Italian, 8 1/2c.; U. S. Star, 8 1/2c.

Imports of antimony metal or regulus into the United States in January were 383,453 lbs., against 192,639 lbs. in 1900. Imports of antimony ore were 37,115 lbs., against 766,080 lbs. last year.

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

Exports of nickel, nickel oxide and matte from the United States in January were 539,143 lbs., against 292,643 lbs. last year, showing an increase of 246,495 lbs. this year.

The steamer "Auchenarden" arrived at New York from New Caledonia this week with 4,970 tons nickel ore.

Platinum.—Consumption continues good and prices are strong. For ingot platinum in large quantities \$18.20 per Troy oz. is quoted in New York. In London a recent quotation gives 75s. per ounce, unmanufactured, and 77s. 6d.@80s. for crucibles, etc. This is very nearly on a parity with New York prices.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 2c. per gram.

Imports of platinum into the United States in January were 659 lbs., against 1,015 lbs. last year.

Quicksilver.—While \$51 is still nominally quoted in New York, there has been some selling at \$48.75@50 per flask for large lots; while \$50@51 is quoted for small orders. San Francisco quotations are \$47.50@48 for domestic orders, \$43@43.50 for export. The London price is £9 2s. 6d. per flask.

Exports of quicksilver from all United States ports in January were 54,723 lbs., against 60,901 lbs. in 1900; showing a decrease of 6,173 lbs. this year.

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

	Per lb.	Per lb.
Aluminum	.....	.....
No. 1, 99% ingots	53@57c.	Ferro-titanium (2%)
No. 2, 90% ingots	31@34c.	Ferro tungsten (5%)
Rolled sheets	42c. up	Magnesium
Alum.-bronze	20@23c.	Manganese (over 99%)
Nickel-alum	33@39c.	Manganese Cop (20% Mn)
Bismuth	.....	Manganese Cop (3% Mn)
Chromium (over 99%)	1.00	Molybdenum (Best)
Copper red oxide	50c.	Phosphorus
Ferro-Molyb'dum (50%)	\$1.00	American
Ferro-Titanium (10%)	90c.	Tungsten (Best)

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

LATE NEWS.

The Horn Silver Mining Company, of Utah, reports for the year 1900: Balance from previous year, \$169,313; receipts for the year, \$184,597; total, \$353,915. The expenditures were \$226,750, leaving a balance of \$127,165 to current year.

The National Tube Company has secured a contract for the shipment of 3,000 tons of 4-in. wrought iron pipe to Palembang, Sumatra. It is to be used in building an oil-pipe line from the wells to the seaboard.

At the annual meeting of the National Wire Corporation of New Haven the following officers were elected: President, E. R. Hastings, of Boston, Mass.; treasurer, Everett B. Webster, Beverly, Mass.; secretary, Walter H. Seaver, New Haven; assistant treasurer, William E. Hitchcock; directors, Theodore B. Casey, Edward W. Cates and George E. Armstrong, all of Boston. The president and secretary are also directors, making a board of five members. The company is considering rebuilding its mill which was burned down a month ago.

A dispatch from Joplin, Mo., states that the International Zinc Company has gone into the hands of a receiver, with assets which are of small value. The company is capitalized at \$1,000,000, and has sold its stock in various American and European cities at almost par (\$1). It will be remembered that the "Engineering and Mining Journal" advised the public not to invest in the company, as the properties it operated would not yield the monthly dividends which the promoters promised to investors. The company was floated by Joshua Brown & Co., of New York and Boston, and an effort was made to interest the British public, but with little success.



CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 326.)

New York. Mar. 8.

Heavy Chemicals.—Contract deliveries absorb attention in the wholesale trade. Jobbers report sales at less than makers' quotations below. The American Potash Company, of New York, with \$1,000,000, has been incorporated to take hold of Henry S. Blackmore's patents for making alkali salts, granted in 1894.

We quote per 100 lbs. as follows: Domestic soda ash in bulk is worth 2 3/4 c. per 100 lbs. less than quotations below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	70@80		85@87 1/2
48%.	80@85		
Caustic Soda, high test.	\$1.30@1.35		1.95@1.87 1/2
powd., 60%.		2.75	
70@74%.		2.85	
98%.		3.25	3.75@4.00
Sol Soda, "conc."	50	60	67 1/2
Bicarb. Soda, 1.12 1/2@1.25	1.25@1.50		1.75
"extra	1.12 1/2@1.25		1.37 1/2@1.75
Bleach Pdr., Eng. prime.	3.25@3.50		2.00@2.10
other brnds.			1.80@1.95
Chl. Pot. oryst. powd.		8.00@8.25	9.00@9.25
		8.25@8.50	9.25@9.50

Cyanide of Potash.—There have been some arrivals from England recently. Importers quote prices unchanged at 25@26c. per lb.

Emerald Ore.—Business is increasing, and several large cargoes are expected from Smyrna. Importers of Naxos (Greek) ore now ask \$27.50 per long ton, ex-ship New York. The Afrodissia Turkish ore is being offered at \$23@24.

Acids.—Acetic shows an improved demand. Sulphuric is also in better request, and the February deliveries show an increase over last year. The activity in the oil regions promises an increased trade for chamber acid. Reports received from Japan state that the consumption of 50° sulphuric acid in 1900 there amounted to fully 62,000,000 lbs. The bleaching powder makers are credited with using 21,700,000 lbs., while the petroleum refiners consumed 18,600,000 lbs., the remaining 21,700,000 lbs. being taken by the Government, the artificial manure and other manufacturers. It is noted that 3,100,000 lbs. were exported, some of this acid going to China. In the present year Japan expects to increase its production of sulphuric acid. This acid is made largely from native pyrites, as the brimstone production and imports are comparatively small.

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

Acetic, No. 8	..... \$1.62 1/2	Nitric, 36°	..... \$3.87 1/2
Blue Vitriol	..... 5.00@5.25	Nitric, 38°	..... 4.12 1/2
Aqua Fortis, 36°	..... 3.62 1/2	Nitric, 40°	..... 4.37
Aqua Fortis, 38°	..... 3.87 1/2	Nitric, 42°	..... 4.75
Aqua Fortis, 40°	..... 4.12 1/2	Oxalic	..... 5.75@6.00
Aqua Fortis, 42°	..... 4.50	Sulphuric, 66°	..... 1.20
Muriatic, 15°	..... 1.20	Sulphuric, 60°	..... 1.05
Muriatic, 20°	..... 1.35	bulk 50° ton	..... 14.00
Muriatic 22°	..... 1.50		

Brimstone.—Limited spot supplies caused the market to strengthen. Best unmixeds seconds are quoted up to \$26 per ton. Near-by arrivals are worth \$22 1/2@23 per ton, while future shipments are held at \$21.25@21.50. Best thirds are \$2 less. The 1,000 tons imported at New York this week are under contract to consumers. We note the British steamer "Thornley," 1,827 tons, has been chartered from Sicily to New York at 6s. 9d. (\$1.62), which is the lowest rate in a long time. Word is received here that the Mexican Government has granted a charter to the Sulphur Railroad and Mining Company to build a railroad to tap the San Rafael sulphur deposits in Carbonera, district of Cerritos, San Luis Potosi, and to connect with the Mexican Central Railway.

Pyrites.—Market conditions are good. Mining operations are on a large scale, especially in Virginia, and miners report a prosperous business. The Boyd Smith mine, in Virginia, which was sold at public auction about two months ago for \$115,550, is shipping its ore over the Sulphur Mines Company railroad. Work on some of the new properties promises well. The deposits of pyrites in Massachusetts and a few other States are being worked regularly, and at present prices business is satisfactory. Concerning foreign pyrites, the Spanish mines still have several good-sized orders for the American market. Ocean freight rates are comparatively easier from Huelva to Atlantic ports, being about 9s. (\$2.16). We quote as follows: Mineral City, Va., lump ore (basis 45%), \$4.90 per long ton, and fines \$4.50. Charlemont, Mass., lump, \$5.50 and fines \$5. Spanish pyrites, 12s. delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51% of sulphur; American from 42@44%.

Nitrate of Soda.—Arrivals this week are "Caspac" with 19,678 bags, and "Glenelg" with 3,750 bags. Other steamers due this month are "Heathcraig," 42,000 bags; "Membrand," 33,000

bags, and "Baron Innerdale," 25,350 bags, making a total of 100,350 bags. Cable advices give the shipments from the West Coast of South America in February for the United States at 64,000 bags, which is much less than last year. Loadings for the United States on March 1st are estimated at 96,000 bags, showing a large increase as compared with last year. Spot nitrate of soda is quoted in New York at \$1.80 per 100 lbs., while futures are held at \$1.82 1/2@1.85, according to position.

Messrs. Mortimer & Wisner's monthly statement of nitrate of soda dated New York, March 1st, gives the following statistics:

	1901.	1900.	1899.
	Bags.	Bags.	Bags.
Imp. into Atlantic ports from West Coast S. A., from Jan. 1, 1901, to date:	260,415	159,581	69,598
Imp. from Jan. 1 from Europe			
	260,415	159,581	69,598
Stock in store and afloat Mar. 1, 1901, in New York:			
Boston	15,722	30,838	29,023
Philadelphia	1,500		
Baltimore	3,200		
Norfolk, Va.	29,825		2,500
Charleston			
To arrive, due June 15, 1901.	267,916	333,800	256,000
Vis. supply to June 15, 1901.	318,163	364,638	287,528
Stock on hand Jan. 1, 1901.	13,446	9,586	58,406
Deliveries past month	141,878	99,635	20,332
Deliveries since Jan. 1, to date	223,614	138,332	96,476
Total yearly deliveries	1,173,651	976,592	
Prices current, Mar. 1, 1901.	\$1.82 1/2	\$1.95	\$1.67 1/2

Phosphates.—Foreign superphosphate manufacturers report many orders on their books which keep them very busy. To replenish their stocks of raw material they have placed further orders for Florida and Tennessee high-grade rock, the latter at slightly lower prices than were quoted recently. Owing to the comparatively low prices at which sales have been made, and believing vessel owners will not reduce their rates much below the present level, some large exporters of phosphate rock have contracted for any room they may need this year. In February the average prices of Florida phosphates were somewhat less than the previous month. Tennessee phosphates for the domestic market were slightly higher than January, while the lower freight rates in February have lessened the average c. i. f. value of export rock.

The Peace River Phosphate Mining Company, of Florida, shipped 6,485 tons of river pebble phosphates to domestic ports. This is an increase of 5,480 tons as compared with last year.

In South Carolina much interest has been aroused by the purchase of a majority of the stock of the Charleston Mining and Manufacturing Company by the Virginia-Carolina Chemical Company, the Southern fertilizer combination. The price paid is said to be \$130 per share for 5,700 shares. Recently the Charleston Company, which is a large producer of phosphate rock, decided to erect a fertilizer plant on its property, and this probably hastened the purchase by the Virginia-Carolina Company. Thus a formidable competitor of the Southern fertilizer trust has been quieted. When all the stock of the Charleston Company has been acquired, the Virginia-Carolina Company will have paid fully \$1,500,000.

Phosphates.	Per Ton F. o. b.	C. i. f. Un'd Kingdom or European Ports.	
		Unit.	Long ton.
* Fla. hard rock (77@80%)	\$6.50@7.00	7 1/2@8d	\$11.70@12.48
* Fla. land pebble (68@73%)	3.85@4.00	6 1/2@6 3/4d	9.10@9.45
* Fla. Peace River (58@63%)	2.50@2.75	6 1/4@6 3/4d	7.80@8.10
† Tenn. rock 78% export.	3.25@3.50	6 3/4@7d	10.53@10.92
† Tenn. .... 78% domestic.	3.00		
† Tenn. .... 75% "	2.75		
† Tenn. .... 72% "	2.50		
† So. Car. rock, crude	2.50@2.75		
† So. Car. rock, dried	3.25	6 1/2d	7.80
Algerian, rock (63@70%)		7@7 1/2d	9.24@10.05
Algerian, rock (59@63%)		6 3/4@7 1/4d	7.80@8.70
Tunis, Gafsa		6 1/2@7 1/4d	7.80@8.70

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

Liverpool. Feb. 27.

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

The export demand for heavy chemicals continues disappointing, and outside of deliveries against running contracts there is little business passing.

Soda ash is held for full rates. Quotations vary according to export markets, but the nearest range for tierces may be called about as follows: Leblanc ash, 48%, £5 10s.@£6; 58%, £6 2s. 6d.@£6 7s. 6d. per ton, net cash. Ammonia ash, 48%, £4 10s.@£4 15s.; 58%, £4 15s.@£5 per ton net cash. Bags 5s. per ton under price for tierces. Soda crystals in fair jobbing request at £3 7s. 6d.@£3 10s. per ton, less 5% for barrels, or 7s. less for bags, with special terms for fav-

ored markets. Caustic soda is rather quiet, but quotations are steady as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.; 76%, £11@£11 5s. per ton net cash.

Bleaching powder is dull at £7@£7 5s. per ton net cash for hardwood packages as to market.

Chlorate of potash is neglected and offering at 3 3/4 d.@3 1/4 d. per pound net cash, but buyers hold aloof.

Bicarbonate soda is in moderate demand at £6 15s. per ton, less 2 1/2% for the finest quality in 1-cwt. kegs, with usual allowance for larger packages; also special terms for a few favored markets.

MINING STOCKS.

Complete quotations will be found on pages 323 and 324 of mining stocks listed and dealt in at:

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

New York. Mar. 8.

Features this week were the booking of subscriptions to the big steel combination, the rise in copper stocks and the American Smelter litigation. Large sales were made, notably of Amalgamated Copper, of which over 84,000 shares were sold on Wednesday alone. Various contradictory rumors have been floated concerning this company. It seems probable that there has been some heavy selling by insiders. While the boom was on Amalgamated stock touched \$103 1/2, which is the highest record on 'change. Those who had bought at and above par nearly two years ago, it is said, took advantage of this rise to sell out. Subsequently the market weakened, and on Wednesday dropped to 100%. Lower prices are looked for. Anaconda made some gain, but the transactions were comparatively much lighter. A little more business was done in the coppers on curb. British Columbia advanced to \$21 and Tennessee to \$19, while some shares of Union of North Carolina brought \$4@ \$4 1/4.

American Smelting and Refining during the trial of the suit in New Jersey did not fluctuate widely, though on Monday the common stock touched \$52 and the preferred, \$91 1/2. Dealings were chiefly around \$55 for the common and \$95 for the preferred. Sales were not as large as last week.

Ontario, of Utah, is higher at \$8@8.25, while Horn Silver brought \$1.15.

Isabella, of Cripple Creek, is firmer at 75c. Small Hopes, of Leadville, sold at 70c., and Iron Silver at 66c.

Father de Smet, of South Dakota, made sales at 50c., the best price in some time.

Brunswick, of California, slumped from 28c. to 23c. on sales of several hundred shares.

Among the auction sales this week were 100 shares of the Boston Consolidated Copper and Gold Mining Company, of Utah, at \$2 per share, of £1, or \$5, par value. Heavy holders of stock in this company are people in New York, Boston and London, where it was floated. Many of these investors paid considerably more than \$2 per share.

Boston. Mar. 6.

(From Our Special Correspondent.)

Apparently the weight has been taken off the market and we have had very active trading, with sharp rises in price in all the coppers, especially marked in the blind pool shares. Today there was some reaction consequent on profit taking, but the market continued strong, with a large volume of trading. Amalgamated has touched \$100, while Boston & Montana, after selling up to \$370, closed at \$367. Butte & Boston sold at \$102, closing at \$97, while Parrot is quoted at \$55. The Lake coppers were also strong, Calumet & Hecla closing at \$85 1/2; Tamarack, \$85; Quincy, \$175; Osceola, \$93; Wolverine, \$53 1/2; Baltic, \$40; Atlantic, \$35; Mohawk, \$29. There was a very good demand for the new stocks, some of which promise well for the future.

In the gold stocks Centennial Eureka brought \$28 and Cochiti \$9 1/2. In the general list Dominion Coal was quoted at \$48 1/2; New England Gas and Coke, \$12.

The Butte situation is still a little puzzling, but no doubt is entertained here that Senator Clark has made definite terms with the Amalgamated people. As to Heinze there is doubt; some people think he will keep up the fight, while others say that he will make terms for himself soon. We shall see. Meantime it is safest not to believe the current reports.

We do not hear anything of Trinity Copper nowadays. So far as can be ascertained the Arimex flotation was a failure. A good proof of this is that nothing is said about it. I cannot find anyone who has taken stock or knows of anyone else who has done so. All of which is well.

Colorado Springs. Mar. 2.

(From Our Special Correspondent.)

The Colorado Springs Mining Stock Exchange has made another important set of rules concerning the listing of stocks, which, it is believed, will prevent companies from over-issuing stock or misrepresenting the character of titles



to their properties. The governing committee has made the following amendments to the constitution of the Exchange:

"On and after April 1st, 1901, no stock of any company not already listed shall be called upon the exchange unless said company shall first have made application in proper form to the exchange and shall accompany said application with a check for the listing fee prescribed.

"All stocks shall be classified under three heads: First, Mines. Second, Preferred Prospects. Third, Prospects."

"Mines shall be admitted as under present rules.

"Preferred prospects shall include the stocks of companies qualified to rank as prospects under the present rules.

"Prospects shall consist of those companies which from moderate acreage, or from location in an unimproved section, or from financial condition, although legitimate in other respects, are not of sufficient merit to be admitted as preferred prospects.

"All applicants shall have the option of paying the regular listing fee already prescribed, or of paying \$25 per annum in advance.

"The listing committee shall have full power to decide upon the classification and reclassification of all stocks.

"Members of this exchange shall deal only in stocks listed upon the exchange."

**San Francisco. Mar. 2.**

(From Our Special Correspondent.)

There has been no special news, and the market has been heavy and rather dull. Changes have been small, and business light. It is even said that some of the old hands are dropping off to the oil exchanges, though they all deny it when accused.

Some prices reported are: Consolidated California & Virginia, \$1.75; Ophir, 75c.; Sierra Nevada, 30c.; Gould & Curry, 20c.

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

	1900.	1901.
January, shares.....	164,400	312,385
February.....	112,000	132,585

Total..... 276,400 444,970

The increase this year was due to the large transactions in January.

On the Producers' Oil Exchange business has been good, with a large number of sales. Some quotations noted are: Peerless, \$8.25@8.50; California Gas, \$1.75; Occidental, 63c.; Petroleum, 15 @16c.

On the new San Francisco Oil Exchange trading is going on regularly. It is confined chiefly so far to the lower-priced prospect stocks. Some quotations noted to-day are: Junction, 70c.; Four Oil, 60c.; Vesuvius, 50c.; Lion, 20c. The parties connected with this exchange are very hopeful of success.

**London. Feb. 19.**

(From Our Special Correspondent.)

The Stock Exchange continues to hold the opinion that the war in South Africa will not last much longer and inquiries and purchases are being made from this point of view. There is no means of telling whether this movement is due to information received from South Africa or whether it is done speculatively. It is a fact, however, that many inquiries are coming from France and Germany and I have heard of several purchases from the Continent. The alleged buying from America is still talked about and most of the rumors relating to this are undoubtedly due to the imagination of stock brokers. The copper and steel amalgamations are pointed to and the hint thrown out that American Trust ingenuity will have no more scope at home and that the next move will be to buy up the South African gold industry. Therefore the professional holders of South African shares advise their clients to buy now in expectation of securing a huge profit when the American millionaire comes along. All this talk is, of course, very wide of the mark, but it is sufficient for the purposes of the London mining market when there are multitudes of professional holders who would be delighted to realize their stock.

The West Australian market continues to be very much depressed. The promised reforms in management and the commencement of sulphide plants do not come forward as quickly as might have been expected. During this lull a good deal is being made in the papers of the Riecken electro-cyanide process for treating sulphides. This process was described recently in your correspondence column, and it has just been started at the South Kalgurli Mine. As usual with Englishmen the inauguration was celebrated by a dinner, and what is lacking in the way of publication of scientific facts about the process was made up for by festivities and speechifying. I do not find that the process is highly thought of by experts and indeed it appears to be very similar to several processes which have been proved to be of no practical value.

The whole mining market continues to be very much upset with the London & Globe collapse.

Mr. Whitaker Wright makes no headway with his proposed reconstruction of this company and the shares are being disposed of, whenever possible, at ridiculously rubbish prices. Other shares in this group are also suffering from the collapse. The market in Rossland Great Western and Kootenay mining is utterly blocked by the refusal of the companies to apply for settlement facilities on the Stock Exchange. The fact is, it is inconvenient to the supporters of the companies to have such a settlement, for they are not ready to pay out profits to the public. The public are at the same time practically precluded from disposing of their shares, for they cannot do so on the Stock Exchange unless there are settlement facilities. Altogether, the London & Globe group is in a pretty mess.

The West African boom continues to increase, and the Stock Exchange has made up its mind to work it for all it is worth. Quite a number of new companies are now being advertised, and promoters seem to have got over their fright with regard to the new companies act. The companies advertised this week are the Gold Coast Corporation, Limited, capital £150,000; the Coomassie Consols Corporation, Limited, capital £100,000; the Gold Reefs of West Africa, Limited, capital £115,000, and the Corbacorl Company, Limited. Of these the Gold Reefs of West Africa is by far the most interesting, for it possesses a property which has been worked for several years. Owing to adverse circumstances the company has not hitherto proved a success, but as the district has now become fashionable no doubt underwriters will be found who will supply the necessary money to put it on a business basis. The mine has been worked from prehistoric times almost, and the natives have extracted great quantities of gold. The present owners have continued the work in depth and have obtained over 1 oz. per ton treated in the mill. The natives had no idea of timbering, so that the workings require a good deal of putting in order and much debris has to be removed. The property is equipped with a 20-stamp mill and there should not be much delay in getting to work. This is really the first company which has given us any definite information about the properties. The others are chiefly parent or speculative companies with no decided object in view.

**Paris. Feb. 24.**

(From Our Special Correspondent.)

Two points have marked the past week on the Bourse. The first is the decline in the metallurgical stocks. The companies are no longer overwhelmed with orders; they are seeking work and there is a general apprehension that the industrial crisis which has so seriously affected Russia and Germany may reach our ironmasters. The only favorable point in the situation is the fall in the price of coal.

The other feature of the market is the advance in the Transvaal gold stocks. There is no apparent reason for such a movement; but the market has shown more strength than for many weeks past.

The Vieille Montagne Company has made an issue of 6,000,000 fr. in 4% obligations. In part this is to provide working capital, which the company has been obliged to obtain by temporary loans, which will now be funded in the new issue. In part also, it is for the purchase of new mines in Russia.

The yield of the Bourse tax on dealings in securities for the year 1900 amounted to 6,427,464 fr., of which the sum of 4,446,203 fr. was paid by the agents de change, and 1,981,261 fr. by the coullissiers.

The foreign merchandise trade of France in January is reported as below by the Ministry of Commerce:

	1900.	1901.
Imports.....Fr.	410,617,000	Fr. 365,905,000
Exports.....	279,749,000	285,580,000

Excess, imports..... 130,868,000 80,325,000

The decrease of 44,712,000 fr. in imports, and the increase of 5,831,000 fr. in exports, left a decrease of 50,543,000 fr. in the balance or excess of imports.

The provisional report of coal production in the Nord and Pas-de-Calais basins is as follows, in metric tons:

	1899.	1900.	Changes.
Nord.....	6,032,160	5,995,220	D. 36,940
Pas-de-Calais.....	14,508,719	14,888,955	I. 380,236

Totals..... 20,540,879 20,884,175 I. 343,296

In the Nord there are 9 companies, operating 46 shafts. The largest production was 3,105,500 tons by the Anzin Company, the Anriche Company coming second with 1,161,946 tons; no other company producing more than 1,000,000 tons. In the Pas-de-Calais 78 shafts are operated by 16 companies. The largest producer was the Lens Company, with 3,116,962 tons. Seven others produced between 1,000,000 and 2,000,000 tons each, these being, in the order of their importance, Courrieres, Bruay, Bully-Grenay, Noeux, Lievin, Marles and Douges.

Frequent meetings have been held recently between representatives of the "agents de change," or privileged stockbrokers, and those of the "coullisse," or outside brokers, in concert

with the Minister of Finance, to modify the arrangements between the two markets established by the laws of 1898 and subsequent decrees. By those measures the number of the official brokers was raised from 60 to 70, and certain securities, negotiations in which on the coullisse were previously tolerated, were reserved exclusively to the agents de change. Any such operations by outside brokers were required to pass through an agent de change, who allowed the coullissier a proportion fixed at 20% of the legal commission on purchases or sales for the account. No allowance was made for continuations or for dealings for money. Under the new arrangement, which has been accepted by both parties, the coullissier's proportion of the commission on orders for the account is raised to 40%; 20% will be given for continuations and 10% on orders for money. This arrangement only applies to securities quoted in the official price current. Mines, with a few exceptions, such as Rio Tinto, are only dealt in on the coullisse. Outside brokers will be interdicted by severe penalties from conceding to their clients any part of the advantages now to be accorded to them. A space will be allotted to the coullisse inside the Bourse when the plans adopted for enlarging the building are carried out.

This involves a certain recognition of the importance of the coullisse. The attempt to do away with it entirely has failed—which is well. Azote.

**DIVIDENDS.**

NAME OF COMPANY	Latest Dividend.			Total to date.
	Date.	Per share.	Total.	
*Bald Butte, Mont. . . . .	Mar. 9	\$0.06	\$15,000	\$667,148
*Hull Hill Con., Colo. . . . .	Mar. 15	.01	15,000	60,000
*Cambria Iron. . . . .	April 1	1.00	169,320	846,600
Central Lead, Mo. . . . .	Mar. 15	.50	5,400	222,000
Continental Oil Cal. . . . .	April 1	.03	7,200	7,200
*Doc'r Jack-Pot. Colo. . . . .	Mar. 25	.01	29,000	87,000
*Elkton Con., Colo. . . . .	Mar. 20	.03	75,000	1,054,461
*Empire State, Idaho. . . . .	Mar. 15	.10	50,554	803,351
*Golden Cycle, Colo. . . . .	Mar. 15	.05	10,000	408,500
*Home Oil, Cal. . . . .	Mar. 20	.10	10,000	230,000
*La Fortuna, Ariz. . . . .	Mar. 9	.05	12,500	93,000
*Modoc, Colo. . . . .	Mar. 15	.01	5,000	220,000
*National Lead, pf. . . . .	Mar. 15	1.75	260,820	10,810,100
*National Tube, pf. . . . .	April 1	1.75	699,935	4,899,546
*N. Y. & Hond. Rosario . . . . .	Mar. 16	.10	15,000	1,475,000
*North Star, R. C. . . . .	Mar. 15	.03	39,000	156,000
*Republic I. & S. pf. . . . .	Apr. 1	1.75	355,371	2,487,596
*Rocco Homes' e, Nev. . . . .	Mar. 11	.01 1/2	4,500	22,500
*Smuggler, Colo. . . . .	Mar. 15	.03	30,000	1,820,000
South Swansea, Utah. . . . .	Mar. 7	.05	7,500	172,500
*St. Joseph Lead. . . . .	Mar. 20	.15	37,500	3,347,000
*Swansea, Utah . . . . .	Mar. 10	.05	5,000	291,500
Va. Car. Chem. com. . . . .	Mar. 15	1.00	90,000	820,000

\* Monthly. † Quarterly. § Semi-Annually.

**ASSESSMENTS.**

NAME OF COMPANY.	Location.	No.	Delinq.	Sale.	Amt.
Alliance. . . . .	Cal.	3	Mar. 18	Apr. 8	.02
Alpha Con. . . . .	Nev.	24	Mar. 11	Apr. 2	.03
Centennial. . . . .	Mich.	..	Apr. 12	..	2.00
Chollar . . . . .	Nev.	54	Mar. 18	Apr. 9	.10
Contra Costa Oil . . . . .	Cal.	1	Feb. 23	Mar. 12	.01
Eutonia . . . . .	Utah	5	Mar. 12	Mar. 28	.00 1/2
Excelsior. . . . .	Utah	..	Feb. 14	Mar. 20	.00 1/2
Golconda. . . . .	Nev.	..	Mar. 1	..	.00 1/2
Gold Hill. . . . .	Utah	2	Feb. 13	Mar. 11	.01
Gold Hill. . . . .	Cal.	..	Mar. 27	..	.25
Hanford, of Fresno, Oil . . . . .	Cal.	..	Mar. 9	..	.04
Jenny Lind. . . . .	Cal.	..	Mar. 27	..	.01
Larkin . . . . .	Cal.	9	Feb. 25	Mar. 18	.02
Leo . . . . .	M'tn.	..	Mar. 13	Apr. 4	.00 1/2
Little Chief. . . . .	Utah	6	Mar. 15	Apr. 4	.01
Maple Creek . . . . .	Cal.	1	Mar. 13	Apr. 3	.10
McKinley . . . . .	Utah	..	Mar. 18	Apr. 13	.00 1/2
McKittrick Oil. . . . .	Cal.	..	Mar. 5	..	.02
Mexican . . . . .	Nev.	66	Mar. 2	Apr. 15	.15
Potosi . . . . .	Nev.	58	Feb. 19	Mar. 11	.10
Reward . . . . .	Cal.	..	Mar. 15	..	.02 1/2
R. G. W. . . . .	Utah	..	Mar. 27	Apr. 16	.00 1/2
Salt Lake . . . . .	Utah	..	Mar. 2	Mar. 22	.00 1/2
Shoebridge Bonanza. . . . .	Utah	7	Feb. 25	Mar. 18	.01
Sierra Nevada. . . . .	Nev.	121	Feb. 20	Mar. 14	.15
Sonora. . . . .	Cal.	..	Mar. 30	Apr. 12	.02
Spanish Con. . . . .	Cal.	4	Mar. 19	Apr. 8	.05
Tetro . . . . .	Utah	17	Feb. 14	Mar. 11	.01
Tule Belle. . . . .	Cal.	..	Mar. 23	..	.02
West Mtn. Placer. . . . .	Utah	..	Feb. 23	Mar. 9	.03
Yankee Con . . . . .	Utah	..	Mar. 11	..	.02

**ANNUAL MEETINGS.**

Name of Co.	Locat'n.	Date.	Place of Meeting.
Acacia . . . . .	Colo.	Mar. 15	Colo. Springs, Colo.
Allouez. . . . .	Mich.	Mar. 12	11 William St., N. Y.
British Col. Cu. . . . .	H. C.	Mar. 14	31 Nassau St., N. Y.
C. K. & N. . . . .	Colo.	Mar. 9	Colo. Springs, Colo.
Columbia Lead. . . . .	Nev.	Apr. 1	St. Louis, Mo.
Hale & Norcross . . . . .	Cal.	Mar. 16	San Francisco, Cal.
Mayflower . . . . .	Mich.	Mar. 20	60 State St., Boston.
National Steel . . . . .	Cal.	Mar. 19	East Orange, N. J.
Osceola. . . . .	Mich.	Mar. 14	oston, Mass.
Potosi . . . . .	Nev.	Mar. 13	San Francisco, Cal.
*South Swansea. . . . .	Utah	Mar. 13	Salt Lake City, Utah.
Sunshine . . . . .	Utah	Mar. 30	Salt Lake City, Utah.
Tecumseh. . . . .	Mich.	Mar. 13	19 Congress St., Boston
Tenn. C. I. & R. R. . . . .	Cal.	Mar. 13	Tracy City, Tenn.
Un. C Land & M. R. . . . .	Mich.	Mar. 28	60 State St., Boston.
Washington Cop. . . . .	Mich.	Mar. 26	60 State St., Boston.

\*Special Meeting.



STOCK QUOTATIONS.

NEW YORK.

Table of stock quotations for New York, listing companies like Alamo, Amalgamated, Anaconda, and others with columns for location, par value, and sales.

BOSTON, MASS.

Table of stock quotations for Boston, Mass., listing companies like Adventure, Acton, Alton, and others with columns for location, par value, and sales.

COAL AND INDUSTRIAL STOCKS.

Table of coal and industrial stock quotations, listing companies like Am. Sm. & Ref., Am. S. & W. Con., and others.

\* On Pittsburg, Pa. Exchange. Total sales, 778,183.

SAN FRANCISCO, CAL.

Table of stock quotations for San Francisco, Cal., listing companies like Belcher, Best & Belcher, Caledonia, and others.

CALIFORNIA OIL STOCKS.

Table of California oil stock quotations, listing companies like Blue Goose, Buckhorn, Cal. Standard, and others.

\* Producers' Oil Exchange, San Francisco. Total sales, 69,851 shares.

ST. LOUIS, MO.

Table of stock quotations for St. Louis, Mo., listing companies like Am.-Nettle, Catherine Lead, and others.

\* From our special correspondent.

PHILADELPHIA, PA.

Table of stock quotations for Philadelphia, Pa., listing companies like Am. Alkali, Am. Cement, Bethlehem Iron, and others.

Total shares sold, 26,466. Reported by Townsend, Whelen & Co., 809 Walnut St., Philadelphia.

SALT LAKE CITY, UTAH.

Table of stock quotations for Salt Lake City, Utah, listing companies like Ajax, Albion, Alice, and others.

TORONTO, ONT.

Table of stock quotations for Toronto, Ont., listing companies like Ontario, Golden Star, Ham Reef, and others.

Total shares sold, 156,000.

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.

Table of stock quotations for Colorado Springs, COLO., listing companies like Acacia, Adams, Anaconda, and others with columns for Par. val., Feb. 25, Feb. 26, Feb. 27, Feb. 28, Mar. 1, Mar. 2, and Sales.

Colorado Springs Mining Stock Exchange. Total sales, 1,411,620 shares.

MONTREAL, CANADA.

Table of stock quotations for Montreal, Canada, listing companies like Big Three, California, Can. Gold Fields, and others with columns for Par. val., Week Mar. 4, and Sales.

Montreal Stock Exchange. Total sales, 3,010 shares.

MEXICO.

Feb. 22.

Table of stock quotations for Mexico, listing companies like Durango, Barranon, Candelaria de Pan., and others with columns for No. of shares, Last div'd., and Prices.

DENVER, COLO.

Table of stock quotations for Denver, COLO., listing companies like Acacia, Adams, Anaconda, and others with columns for Par. val., Feb. 25, Feb. 26, Feb. 27, Feb. 28, Mar. 1, Mar. 2, and Sales.

Official Quotations Denver Stock Exchange. Total sales, 96,000 shares.

SPOKANE, WASH.

Week Mar. 1.

Table of stock quotations for Spokane, Wash., listing companies like Crystal, Deer Trail, Evening Star, and others with columns for Par. val., Feb. 25, Feb. 26, Feb. 27, Feb. 28, Mar. 1, Mar. 2, and Sales.

PARIS.

Feb. 14.

Table of stock quotations for Paris, listing companies like Acieries de Creusot, British Columbia, and others with columns for Country, Product, Capital Stock, Par. val., Latest divs., and Prices.

LONDON.

Feb. 22.

Table of stock quotations for London, listing companies like American, Alaska Goldfields, and others with columns for Country, Authorized capital, Par. val., Last dividend, and Quotations.



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

Table with 14 columns: Number, Name and Location of Company, Authorized Capital Stock, Shares Issued (No., Par Val), Dividends (Paid, 1901, Total to Date, Latest Date, Amt.), and similar columns for the second set of companies.

COAL, IRON AND OTHER COMPANIES.

Table with 14 columns: Number, Name and Location of Company, Authorized Capital Stock, Shares Issued (No., Par Val), Dividends (Paid, 1901, Total to Date, Latest Date, Amt.), and similar columns for the second set of companies.

This table is corrected up to January 30th. Correspondents are requested to forward changes or additions

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

Table with multiple columns listing various chemicals and minerals such as Abrasives, Borax, Bromine, Cadmium, Calcium, Carbonate, Chloride, Chrome Ore, Cobalt, Copper, Cream of Tartar, Cryolite, Explosives, Fluorspar, Fuller's Earth, Graphite, Gypsum, Infusorial Earth, Iron, Iodine, Kaolin, Lead, Lime, Magnesia, Magnesium, Marble, Mica, Mineral Wool, Nickel, Nitrate, Oxide, Potash, Potassium, Silica, Sulphate, Sulphur, Tar, Zinc, and Zirconium. Each entry includes a description, unit of measurement, and price.

THE RARE ELEMENTS.

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

Table listing rare elements including Barium, Beryllium, Boron, Cadmium, Calcium, Cerium, Chromium, Cobalt, Didymium, Erbium, Germanium, Glucinum, Indium, Iridium, Lanthanum, Lithium, Magnesium, Molybdenum, Niobium, Osmium, Palladium, Potassium, Radium, Rubidium, Ruthenium, Selenium, Strontium, Tantalum, Tellurium, Thallium, Thorium, Uranium, Vanadium, Yttrium, and Zirconium. Each entry includes a description, unit of measurement, and price.

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 Feb. 16. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.