

THE ENGINEERING AND MINING JOURNAL



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

VOL. LXX. OCTOBER 13, 1900. No. 15.

RICHARD P. ROTHWELL, C. E. M. E., Editor. ROSSITER W. RAYMOND, Ph. D., M. E., Special Contributor. THE SCIENTIFIC PUBLISHING CO., Publishers.

SUBSCRIPTIONS ARE PAYABLE IN ADVANCE. For the United States, Mexico and Canada, \$5 per annum; all other countries in the Postal Union, \$7. Remittances should be made by bank drafts, post-office orders or express money orders on New York, payable to the Scientific Publishing Co. When change of address is desired, both old and new address should be sent. NOTICE OF DISCONTINUANCE. The JOURNAL is not discontinued at expiration of subscription, but is sent until an explicit order to stop is received by us. We find that a large majority of our subscribers prefer not to have their subscriptions interrupted and their files broken in case they fail to remit before expiration. It is therefore assumed, unless notification to discontinue is received, and the amount of back subscription paid to date, that the subscriber wishes no interruption in his series. PAPERS RETURNED ARE NOT NOTICE OF DISCONTINUANCE.

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

Telephone Number, 3,095 Cortlandt.

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

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

Vancouver, B. C., Office, Molson's Bank Bldg. Wm. M. Brewer, Manager. London, Eng., Office, 20 Bucklersbury, 368. E. Walker, Manager.

English subscriptions to the JOURNAL may be paid at the London Office at the rate of £7 = £1 8s. 6d.; the publications of the Scientific Publishing Company may be bought at the rate of 4s. 2d. to the dollar, net.

CONTENTS.

Table listing contents with page numbers: Editorial Notes 421, Coal Exports 422, Iron and Steel Exports 422, Mining Prospects in the Transvaal 422, New Publications 423, Books Received 424, Correspondence 424, A New Coking Coal-Field Wm. Gilbert Irwin 425, The Chemical Production of Italy 425, The New Republic Steel Mill at Youngstown 425, Recent Decisions Affecting the Mining Industries 426, Preventing Falls of Roof in Coal Mines 426, The Great Storm at Nome 427, The Effect of Contractions in Area of Passages in Mine Ventilation Paul Petit 428, Some Notes on Deep Mining 429, The Burnett & Newbegin Washer 430, Abstracts of Official Reports 431, The Wells Slag Heater 432, Mineral Collectors' and Prospectors' Column 432, Questions and Answers 463, Patents Relating to Mining and Metallurgy 433.

Table listing contents with page numbers: Personal 435, Obituary 435, Industrial Notes 435, Trade Catalogues 435, Machinery and Supplies 436, Mining News. United States: Alaska 436, Arizona 436, California 436, Colorado 437, Georgia 437, Idaho 437, Illinois 438, Maine 438, Michigan 438, Minnesota 438, Missouri 438, Montana 439, Nevada 439, New York 439, North Carolina 439, Oregon 439, Pennsylvania 439. South Dakota 439, Texas 440, Utah 440, Wyoming 440. Foreign: Australasia 440, Canada 440, South America 441. Markets. Coal: New York 441, Birmingham 441, Chicago 441, Cleveland 441, Pittsburg 441, San Francisco 442, Foreign Coal Market 442. Slate: New York 442. Metals. Pig Iron Production 442, Birmingham 442, Cleveland 442, Philadelphia 442, Pittsburg 442. New York 443, Meetings 446, Dividends 446, Assessments 446, Stock Quotations: New York 447, Philadelphia 447, San Francisco 447, Boston 447, Salt Lake City 447, Toronto 447, Spokane 447, Colo. Springs 448, Montreal 448, Mexico 448, Denver 448, Paris 448, London 448. Mining Co's. List of 449, Current Prices: Minerals, Chemicals, etc. 450.

Alphabetical Index to Advertisers.....Page 20 Classified List of Advertisers.....Pages 14, 15, 16, 17 18

The amount of gold from Alaska this year is still doubtful, chiefly on account of the uncertainty about the Nome District. Estimates of the gold obtained there vary widely, apparently because there is very little definite or reliable information to base them on. The actual receipts up to date have been much smaller than had been expected, but a considerable amount may still come in.

It is a little strange that so well informed a paper as our contemporary, the London "Colliery Guardian," should believe, as it states, that the strike of the anthracite miners will put an end to the "promising export trade" in coal. The exports to Europe so far are bituminous and not anthracite, and this is likely to be the case in future. Our exports of anthracite at present are almost entirely to Canada; and that is so nearly like selling the coal at home that the shipments are "exports" only in the legal or formal sense of the word.

Those who have followed our financial column will note that we are now importing again some of the gold which we exported earlier in the year; and the movement is likely to be a considerable one. Elsewhere also we note the movement of large amounts of gold from Australia to this country and to India. These facts again go to show that a very large part of the cost and risk of these shipments might be avoided by the International Monetary Clearing House, the establishment of which was suggested and advocated in our columns several years ago.

There is little that is new to be said this week about the strike of the anthracite coal miners. Practically all of the collieries are now closed, except those of the Lehigh Coal and Navigation Company in the Panther Creek Valley and one or two belonging to Coxie Brothers & Company. The future course of affairs depends upon the action of the miners' conference meeting on the companies' offer of a 10 per cent. increase in wages. This meeting begins just as we go to press, and opinions as to its probable action are so varied that it is useless to attempt any predictions of the result.

The great storm at Nome, an account of which is given elsewhere, has apparently done what we pointed out as possible some months ago—it has destroyed the dredging outfits and beach-working machinery which had survived the minor storms of the season. The storm has inflicted a severe blow upon the camp by destroying a large part of the stores collected for the winter at a time when it will be difficult to replace them. The loss of fuel will be felt with special severity. The number of men who want to get out of the district is now larger than ever, while it is harder for them to get away. It seems quite probable that a number will be forced to winter in the camp who are not at all prepared for it.

Some of the steel-rail people, who seem to constitute themselves spokesmen for the rest, continue to protest that no price below \$26 a ton will be made, and that inquiries for large orders have been received. This is possible; but the orders have not been placed. The railroad companies are evidently not buying at the present price, and in one case where a contract has been made, it is reported—and generally believed—that this contract has a protecting clause which will give the buyer the benefit of any reduction in price which may be made later. When Bessemer pig has sold below \$13.50 and steel billets under \$16.50 a ton, \$26 shows too great a difference for rails. The price will have to be reduced further before business is done.

A recent consular letter refers to the manufacture of briquettes in Germany from fine coal, and urges the adoption of the process in this country, with a view to the utilization of coal dust and the prevention of waste. The information thus collected is good enough in itself, but its practical application is not to be expected here at the present time. The fact is that the manufacture of briquettes has been tried at different times in the United States, and has failed, not from any practical difficulties, but simply because it would not pay. With soft coal of excellent quality obtainable at present prices, briquettes cannot be made at a cost low enough to compete with it, except in certain limited districts. The manufacture of briquettes from the Texas lignites, for instance, would probably pay, on account of the cost of transporting coal to the district where they could be sold; and there are some similar cases here and there. Until coal becomes much higher in price than at present, which is not probable, we cannot expect the establishment of briquette manufacture in this country on a large scale.

While the production of gold in the Australasian Colonies will, as we recently showed, probably vary but little from that of last year, the gold exports have been large. Earlier in the year the shipments to

London were considerable, taking to some extent the place of the gold which had been drawn from South Africa in previous years. Recently the London drafts have ceased, but a large amount has been sent to San Francisco on London account; and now gold is being shipped from Australia direct to India. Very little of the Australian gold mined this year will be retained in the colonies, if any. Australia is still heavily in debt to Great Britain and is paying interest on a large amount of British capital, so that these calls must be responded to. It must be noted, however, that there has been a steady recovery there since the bank crash of five years ago, and nearly all the colonies are in a better industrial and financial position than for some time past. The prosperity of the mining industry has had much to do with the improvement.

The Queensland Mines Department, which has for some years past published monthly returns of the gold production of the Colony, has now increased the values of those returns very much by adding to the total of crude gold or bullion, the equivalent in ounces of fine gold. We are thus enabled to see at a glance the actual production, and are not forced to go through a tedious calculation; and this, too, often involving more or less hypothesis as to the value of the bullion.

This practice of reporting fine gold ought to be in use everywhere, since it is the only correct way. At present reports of gold production are largely misleading, because they report crude bullion and not gold. A ton of pig iron or of lead conveys a certain definite meaning; everyone knows what it is. But an ounce of gold may mean anything from an ounce down to half an ounce, or even less, the balance being usually silver, sometimes copper and any other impurity the bullion may contain. Every aid in doing away with this practice and securing correct reports is most welcome.

Some months ago our London correspondent gave an account of a corporation called the St. David's Gold and Copper Company, which had been formed to acquire and work the Clogan Mines in central Wales. From time to time reports have been given out of the company's success. The promoters are now issuing in London a new company called the Voel Mines (Merioneth), Limited, to acquire some adjoining properties called the Voel and the Prince of Wales. The capital of this new company is £160,000 and 80,000 of the shares at £1 each are being offered as 10 per cent. preference shares. This seems a big price for a Welsh gold mine of practically unproved nature. The promoters are advertising their ventures extensively, and the London illustrated papers have articles on the properties headed "A Klondike in Great Britain." The reports made are, however, not very precise from a mining point of view, and it is impossible to form a judgment of the value of the properties. Gold has been found in Wales for many years, but the veins have been irregular and intermittent and many small fortunes have been lost in working them, while no example of continued success has yet been met with.

COAL EXPORTS.

The exports of coal from the United States, as reported by the Treasury Department for the eight months ending August 31st, show a large relative increase this year, though the total is still small. The statement is as follows:

	1899.	1900.	Increase.	Per ct.
Anthracite	1,041,288	1,208,299	167,011	15.5
Bituminous	2,501,924	4,089,071	1,587,147	70.1
Total coal	3,543,212	5,297,370	1,754,158	49.5
Coke	173,792	253,590	79,798	45.7
Totals	3,717,004	5,550,960	1,833,956	49.3

The destinations of the coal exports, so far as reported, are given in the following table; and it will be noted that increases are shown to every country in the list:

	1899.	1900.	Increase.
British North America	2,589,029	3,710,982	1,121,953
Mexico	383,193	482,864	99,671
Central and South America	73,583	127,793	54,210
West Indies	419,383	490,626	71,243
Hawaii and the Philippines	56,004	62,069	6,065
Europe	15,816	375,761	359,945
Other countries	6,194	47,275	41,081
Totals	3,543,212	5,297,370	1,754,158

The shipments to Europe are classified as to countries as follows: United Kingdom, 4,360 tons (51 tons, 1899); France, 99,615 tons (1,012 tons, 1899); Germany, 4,969 tons (none in 1899); other countries, 266,817 tons (14,753 tons in 1899).

Canada is the chief buyer of our coal. The increase shown in Canadian shipments is partly due to the fact that the trade began very early in the season, and the bulk of the year's supply for Canadian points has already been forwarded. This will be shown by a comparatively small increase in the later months. Canada takes practically all the anthracite exported, and the increase in that class of coal is

due to the reasons stated above. Nearly all the coke goes to Mexico. The changes are therefore found almost entirely in bituminous coal, which is the fuel Europe will buy of us when it buys at all.

The figures here given should be read in connection with the article on coal exports, published in this column of our last week's issue. The important point in these returns is that coal is being shipped to and sold in Europe, and in increasing quantity.

IRON AND STEEL EXPORTS.

The total value of the exports of iron and steel from the United States for the eight months ending August 31st is given by the Treasury Department at \$87,174,389, or 9.5 per cent. of our total exports. For the corresponding period last year the total was \$68,008,070, and in 1898 it was \$52,925,002. The increase this year over 1899 was therefore \$19,166,319, or 28.2 per cent.; and over 1898 it was \$34,249,387, or 64.7 per cent. These values include all machinery except agricultural machines.

A part of this increase was due to the appreciation in prices of the exports, but there has been nevertheless a substantial gain in quantities. This will be seen from the following table, which gives the principal items of the iron and steel export, in long tons:

	1899.	1900.	Changes.	Per ct.
Pig iron	177,355	120,712	D. 56,643	32.0
Steel billets and blooms	24,579	30,618	I. 6,039	24.5
Wire rods	14,114	4,778	D. 9,336	66.5
Rails	158,937	256,276	I. 97,339	61.2
Bar iron and steel	31,368	42,475	I. 11,107	35.4
Sheets and plates	44,428	29,115	D. 15,313	34.5
Structural iron and steel	37,762	46,702	I. 8,940	23.7
Wire, iron and steel	74,939	55,247	D. 19,692	26.3
Nails, iron and steel	27,867	31,045	I. 3,178	11.4

It will be seen that the changes in both directions were rather unevenly distributed, though, generally speaking, the tendency to growth appears rather in the finished products than in the comparatively raw materials, such as pig iron. Thus there were decreases in pig iron and wire rods, while the important gains, both in actual quantity and relatively, were in steel rails, in merchant iron and steel, and in structural material. On the other hand, there were decreases in both wire and plates. In the last-named product the falling off was due to a smaller demand from British ship-builders, who bought plates freely in 1899. In steel rails we seem to be establishing a steady foreign trade. The orders from abroad filled this year have come from many quarters, and it is of interest to see what countries have been buyers. The destination of the rail exports in both years is shown in the following tables:

	—1899.—		—1900.—		Changes.
	Tons.	Per ct.	Tons.	Per ct.	
Canada	40,700	25.7	87,158	34.0	I. 46,458
Mexico and Central America	15,663	9.9	27,675	10.8	I. 12,012
West Indies	7,034	4.2	6,027	2.4	D. 1,007
South America	3,536	2.2	10,120	4.0	I. 6,584
Europe	19,176	12.2	20,511	8.0	I. 1,335
Hawaii	4,475	2.8	5,971	2.3	I. 1,496
Japan	1,371	0.9	40,040	15.6	I. 38,669
Other Asia and Oceania	41,692	24.2	47,251	18.4	I. 5,559
Africa	25,290	15.9	11,523	4.5	D. 13,767
Total	158,937	100.0	256,276	100.0	I. 97,339

Naturally our Canadian neighbors are our best customers, while Mexico is also a good buyer. The European purchases were not large, but Japan took this year over 40,000 tons, while a still larger quantity went to Australia. The large exports to Africa last year were chiefly for the Soudan Railroad, and the demand this year has been much lighter.

Reducing the exports of all kinds to their equivalent in pig iron, we find that they amounted this year to about 7.3 per cent. of our total production. This is not yet a large proportion; but the foreign trade is growing in a very encouraging way, and there is much promise for the future.

MINING PROSPECTS IN THE TRANSVAAL.

Reports from South Africa do not encourage the expectation of an early resumption of work in the Transvaal gold mines. While the war is over so far as military operations of any importance are concerned, there seems to be a scattering guerilla warfare which effectually prevents any peaceable conduct of work, and there is yet but little reduction of the military force in the country. As long as that condition continues, there is little hope that civilians will be permitted to return to the Witwatersrand in any considerable numbers, or that the mines will be able to secure the shipment of the supplies needed before work on a large scale can be undertaken.

As we have heretofore noted, the reports received by companies in London from their agents in Johannesburg confirm the statements from our special correspondent which appeared in our columns during the war. The mines and machinery are in as good condition as could be expected. Very little wilful damage was done; disarrangement of some machinery from careless or unskilful handling and the inevitable de-

terioration resulting from disuse is the worst that can be reported. The plants could in most cases be put in working order in a short time, and production could be resumed at many of the mines within a month.

Our latest advices from Johannesburg are that the enforcement of martial law continues very strict, and that there is an actual dearth of everything outside of military supplies and the actual bare necessities of life. The civilian residents on the Witwatersrand find difficulty in supplying their wants; so that, as may be readily supposed, there is no opportunity for the return of the large number of workmen who left at the outbreak of the war.

As a consequence of these conditions such repair work as had been undertaken at some of the mines with the force available is decidedly flagging, and at some of the mines where pumping had been continued, it has been stopped. In some cases the few men employed have been discharged and work stopped altogether. In fact, the outlook is more discouraging than it was a short time ago, and no one in Johannesburg now hopes to see anything approaching a general resumption before the end of the year.

A curious piece of information is that at some of the mines outside the Witwatersrand, where a quantity of gold was seized by the Boer forces in the field, and there was no opportunity of coining the metal, it was made into slugs, such as passed current in California in the early days. These form the currency of such of the country as is still under control of the scattered commandoes which remain in the field.

A difficulty which the mining companies will have to meet when resumption does finally come, is the collection and reorganization of the working forces of natives. A few of the men were retained by the Government for its own use, but the majority have been widely scattered and probably thoroughly demoralized. Some of them would probably be glad to return, but the collection and new training of an efficient force will be a work of time and difficulty. The war has had a demoralizing effect upon many of them, and it will take some time for them to realize the new order of things. It is, indeed, one of the few fortunate incidents of the war that the natives took no advantage of the conflict to assert themselves in any forcible way. That they were contented with some incidental plunder shows to what extent the white rule and the white man's vices which they have learned have destroyed their former warlike spirit. These have also injured their working capacity; but their labor is all that is now available and it must be utilized as is best possible.

NEW PUBLICATIONS.

"Journal of the Proceedings of the Royal Society of New South Wales for 1899." Edited by J. H. Maiden and G. H. Knibbs, Honorary Secretaries. Sydney, N. S. W.: published by the Society. Pages, 324; illustrated.

The papers and discussions of this society cover a wide range, including mining, civil and municipal engineering, geology, meteorology, botany and the economic application of scientific research. The number and variety of the papers and discussion show that an active interest is taken in the society by many members. The present volume contains several papers of value, besides many short notes of interest. The latter include a number of suggestions as to the mineral and other resources of the colony and their possible utilization, showing a practical as well as a purely scientific direction of observation and research. Credit is due to the editors for the preparation of the papers for publication, and evident care in condensing the short notes and the proceedings of the society.

"Sixteenth Annual Report of the Commissioners of the New York State Reservation at Niagara. For the year ending September 30th, 1899." Andrew H. Green, Alexander J. Porter, Thomas P. Kingsford, Charles M. Dow, George Raines, Commissioners. Albany, N. Y.: State Printer. Pages, 128; illustrated.

When the State of New York acquired the property adjoining Niagara Falls and formed what is now known as the Niagara Reservation, there was in some quarters a degree of opposition to the policy of State ownership. This opposition has long since passed away, and there is now a general agreement that the decision to preserve the property for public use under State ownership was a wise one. We may add also that the management of the reservation has been generally approved by the public, and that few trusts of this kind have been better administered. In fact the success of this work suggests the extension of the policy of public ownership to other places notable for exceptional natural beauty or historical interest. It may be noted that the number of visitors to Niagara Falls during the year covered by the report reached 750,000; it is increasing every year and will doubtless continue to do so.

A feature of this report is a historical sketch by Hon. Peter A. Porter, whose knowledge of and interest in the Falls has extended over many years, and who has made a special study of almost everything connected with them and their surroundings.

The report alludes to the proposal to build a regulating dam in the Niagara River, and suggests the possibility of a consequent diminution of the volume of water passing over the Falls. It is evident, however, that any such effect could be only temporary, and could not result in

any greater changes than are now frequently caused by high winds, which force or hold back the water in Lake Erie. No permanent diminution of the volume of water passing through the Niagara River is possible.

"Foreign Markets for American Coal." Prepared by the Bureau of Commerce, Department of State. Washington: Government Printing Office. Pages, 312.

This volume, which constitutes Part 1 of Volume XXI, Special Consular Reports, is one of the series on foreign commerce prepared and issued by the State Department. Like the others this contains much material useful for reference and for the information of those who wish to engage in foreign trade. It is compiled from the reports of United States consuls in various parts of the world, treating of local demands for coal; local supplies; foreign sources from which demands are wholly or partially supplied; prices; ocean freights and other particulars affecting the coal trade of the countries from which the reports are sent. About two-thirds of the book is devoted to the coal markets of Europe; 50 pages to Canada, Mexico and the South American countries; 10 pages to African countries and Colonies; and the balance to Eastern Asia. France and Germany receive the most attention; the reports of consuls in the Mediterranean ports are given a good deal of space. This report is timely and should be consulted by all coal operators who want to extend their trade to foreign countries.

"Preliminary Report on the Structural and Economic Geology of Missouri." Prepared by the Bureau of Geology and Mines; John A. Callahan, State Geologist. Jefferson City, Mo.: State Printers. Pages, 260; illustrated.

This report, though it fulfils some of the expectations aroused by previous statements of the author, is hardly to be classified as a scientific book. It is rather a curious hodge-podge of sense and nonsense. The opening chapter is entitled "The Synthetic Method of Nature," and begins with the declaration that the author has been working out a cosmic philosophy with physics, logic and consciousness as his only guide.

The chapter contains sentences like these: "In the simple Medusa whose central ganglion dominates its lateral ganglia through its homogenous mass, without connecting lines of nerve fibers, we have a living analogue of our Solar System wending its way majestically through the latent energy of space." "When the embryonic earth had reached her first transitional epoch, when she had passed from a gaseous body into an incandescent solid more compact than any known solid, and begun to evolve a solid shield of movable solids preparatory to her reproductive functions, she then changed her reconstructive method." "While our cosmic mother, Earth, is slowly declining as her pristine energy is exhausted, our blessed motor the Sun is surely augmenting and thus the synthetic current of nature moves on rhythmically."

Speculations like these are pretty ancient; they are as old as the Chaldeans, but where does logic come in? And how about physics?

After exposing nature's methods in this fashion the author takes up geology. He finds the term Archæan misleading and substitutes for it primordial or prehistoric. He takes pains to state, however, that he is writing for the unlearned masses, not for scientific sticklers. He then gives a disquisition on the probable genesis of the primordial rocks, which in its mingling of scientific truth and utterly unscientific conjecture, surpasses anything of the sort attempted in this country during the past 20 years, excelling even that remarkable theory of the genesis of iron ores once propounded by the Minnesota Survey. It is enough to say that the author speaks of volcanoes as "sending out continuous streams of water and gases obviously for the renewal of our water and atmosphere," lava being regarded as a by-product. The incandescent interior of the earth is constantly sloughing away, he says, and this causes mountain-building forces. After demolishing accepted ideas of vulcanism the author takes up the geological record and in a few mystic sentences expresses his disapproval of the Darwinian conception of the origin of species. On page 56 the author begins to talk about the geology of Missouri and on page 61 propounds a most remarkable theory of rock joints. A description of the granite country of Missouri takes about a page. On page 87, in discussing the Cambrian, the author says that ingenious theories and strong arguments on the correlation of rocks tend to discourage the average reader, hence the delineation of the State's geology is not a compilation of the information contained in any previous report; and shortly after, on page 94, proves this statement by referring the origin of the Cambrian and Ordovician limestones to a deposit on the floor of a sargasso sea—this theory, to which the author frequently refers, answering all the requirements of physics, logic and consciousness.

As the work of previous geologists, including such men as Brodhead, Pumpelly, Nason and Winslow, is lightly dismissed, the unlearned reader may think himself entitled to a fair substitute. The author often uses a nomenclature of his own, however, and does not undertake to show the areal distribution of the formations he describes, the report being confessedly preliminary. He arranges the formation chronologically, but of the value of this arrangement it is impossible to judge without fuller details of the paleontological and stratigraphical evidence on which the determinations are based.

But it is uncharitable to criticize the book in detail. Dr. Callahan is dead, and his work and his theories are not likely to live after him. He evidently had a mind fond of learning, but not guided by a scientific spirit—the type of mind shown in books on nature written 50 years ago.

The State of Missouri has great mineral wealth and can well afford to employ trained men to direct the development of its resources. It is to be hoped that Dr. Callahan's successor will carry on the survey along the lines indicated by workers in adjacent States, and stick close to facts. The present volume is printed on good paper and contains numerous cuts that give a fair idea of the topography of the country. Otherwise the book represents a waste of time and money.

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.

- "Victoria Chamber of Mines. Report for the Year Ending June 30th, 1900." Melbourne, Victoria: printed for the Chamber. Pages, 52.
- "The Transportation Question as Affected by the Cullom Bill." By Edward A. Moseley. Washington: Published for the Author. Pamphlet; pages, 18.
- "Geological Survey of New South Wales. Report on the Hillgrove Goldfield." By E. C. Andrews. Sydney, N. S. W.: Government Printer. Pages, 44; with map and 14 plates.
- "Das Pumpenventil: Ein Buch für Konstrukteure." By Otto H. Mueller. Leipzig, Germany: Arthur Felix. Pages, 150; illustrated. Price (in New York), \$1.75 paper, or \$2.25 cloth.
- "Queensland. Annual Report of the Under-Secretary for Mines for the Year 1899." A. R. Macdonald, Secretary. Brisbane, Queensland: Government Printer. Pages, 198; illustrated.
- "Laramie Cement Plaster." By E. E. Slosson and R. B. Moudy. Laramie, Wyoming: published by the Wyoming College of Agriculture and Mechanics. Pamphlet; pages, 18; illustrated.
- "Iowa Geological Survey; Annual Report, 1899, with Accompanying Papers." Samuel Calvin, State Geologist; H. F. Bain, Assistant Des Moines, Iowa: Published by the Survey. Pages, 666; illustrated.
- "Geological Survey of New South Wales. List of Papers and Reports dealing with the Economic Geology of New South Wales." Compiled by W. S. Dun. Sydney, N. S. W.: Government Printer. Pages, 176.
- "West's Moulders' Text-book. Part II. of American Foundry Practice." By Thomas D. West. Eighth Edition. New York: John Wiley & Sons, and London: Chapman & Hall, Limited. Pages, 464; illustrated. Prices, \$2.50.
- "Elements of Mineralogy, Crystallography and Blowpipe Analysis from a Practical Standpoint." By Alfred J. Moses and Charles Lathrop Parsons. New enlarged edition. New York: the D. Van Nostrand Company. Pages, 414; with 664 illustrations. Price, \$2.
- "The Nature and Yield of Metalliferous Deposits. Cantor Lectures Before the Society for the Encouragement of Arts, Manufactures and Commerce." By Bennett H. Brough. London, England; published for the Society. Pages, 54; illustrated. Price (in New York), 35 cents.
- "The Law of Operations Preliminary to Construction in Engineering and Architecture. Right in Real Property, Boundaries, Easements and Francises." By John Cassan Wait. New York: John Wiley & Sons, and London: Chapman & Hall, Limited. Pages, 700. Price, \$5 cloth, or \$5.50 sheep.

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.

An Original Assayer.

Sir. No doubt you occasionally run across some odd reports and we have thought that an original certificate of assay might be of some interest to you. It runs as follows:

"Well I received your ore and have been working on it since and I find that it contains the following,

Gold sulphide about .....	.001%
Silver sulphide .....	.0005
Zinc sulphide .....	.008
Iron Sulphide from.....	.2 To 5%
Iron oxide from.....	.5% To 1%

"Then there were some others that are not worth anything and will not interfere with the assaying such as Organic matter, Silica and a free acid or two. The gold and silver will not be very hard to get out but it will have to be crushed pretty fine, and if there is much of it you have got a good thing.

"If you find anything else in that line I will be glad to get a sample, and mabe I can help you some in anything of that kind, if so I will be glad to do so, as I want all the practice I can get, and in simple analysis I can do as good work as anybody, and dont charge, anything. Those quantities are not exactly right as I have just broke my scales and could not weigh them, but I will have the apperratrice for volumetric analysis soon and I can do better work then.

"Your Truly,
(Signed)

"A. B."

We can vouch for the authenticity of the certificate and that it came to us in the regular course of business. You are at liberty to publish it, omitting all local names.

The Colorimetric Assay of Copper.

Sir:—In commenting upon my modification of the color test, in the "Engineering and Mining Journal" September 29th, Mr. Heath considers it a reversion to the old method, and objects to the waste of time in making a fresh standard. The old method requires a fresh standard to each assay solution; on the other hand, in the method described by me, one standard will do for a batch of samples, as large as may arise in the routine work of the chemist. At the same time, it only takes about one minute to fill the standard tube with the requisite amount of water, acid and ammonia, and the titration does not take any longer than the comparing of solutions with permanent standards. Having used both

methods for several years, I do not hesitate to say that I find my method as rapid as Mr. Heath's, and for reasons stated in my paper, prefer to use it. Mr. Heath was the first chemist to make permanent standards possible, and his bottle is as perfect as can be made. If, however, a fresh standard can be run with one or several assays at once, and as rapidly as with standard colors, then there is no reason why a chemist should go to the trouble of preparing the latter. There is no reason why the same uniform conditions cannot be observed in making the fresh standard as well as by any other method so that Mr. Heath's remarks on this point are unnecessary.

With reference to my electrolytic assays being made on a second weighing of ore, it seems to me preferable to do this in checking assays, as the errors in weighing will then be reduced. Averages are always more reliable than single assays. My experience with the bottles made from selected tubing has been rather unfortunate, they being so easily broken by the laboratory attendant. If a cheaper bottle can be used, and at the same time the results are accurate and obtained rapidly, it is unfair to class the same as "cheap apparatus." Simple appliances are always effective if suited to the work required.

J. D. Audley Smith.

Clifton, Ariz., Oct. 4, 1900.

IRON ORE IMPORTS.—Imports of iron ore into the United States for the eight months ending August 31st were 637,302 long tons. Last year they were 371,291 tons, and in 1898 they were 137,569 tons. This shows an increase this year of 246,011 tons, or 66.3 per cent., over 1899, and of 499,733 tons, or 363.2 per cent., over 1898. The imports this year have been largely from Cuba, though some ore has come also from Spain and Newfoundland.

COAL IN THE FAROE ISLANDS.—Hitherto the coal resources of the Faroe Islands have not been developed. It is now said that contracts have been entered into for the supply of 200,000 tons of coal and minerals annually from the Faroe Islands to Bergen, Drontheim, Copenhagen, Amsterdam and Antwerp. Shipowners in Hull, England, have been invited to tender charters for the carriage of the coal, for which it is anticipated two steamers weekly will be required.

A LARGE BLOCK OF IRON ORE.—The London "Colliery Guardian" says: "A record block of kidney hematite ore has been discovered in the Rita Pit of Roanhead Iron Mines, near Barrow. It is a perfect specimen, weighing almost 2 tons, and its circumference measures 8 ft. It is of oval shape, and took 15 miners many hours to get it to the mouth of the pit shaft. It constitutes a record for the northwest of England, and will be forwarded to a museum for exhibition."

COAL IN WALES.—The London "Colliery Guardian" says: "A remarkable discovery of coal has just been made at Llwynion, near Rhosllanerchrugog, the place where they are now working in connection with the new passenger line between Rhos and Wrexham. At this point a cutting about 45 ft. in depth is being made with the aid of a steam navy, and, to the great surprise of the workmen, the navy struck against a bed of coal some acres in extent. It is stated to be a most valuable one."

COAL AND IRON IN BELGIUM.—The total quantity of coal put out by Belgium during the first half of the present year is 11,740,000 tons, against 10,420,410 tons during the corresponding period of last year, showing an increase of 1,319,590 tons, or 12½ per cent.; and of this quantity 2,247,190 tons were contributed by the Center District, 2,038,200 tons by the West of Charleroi, and 2,166,570 tons by the East of Charleroi. During the corresponding periods the production of pig iron was 494,720 tons, including 303,440 tons of steel pig, against 502,285 tons including 303,665 tons of steel pig; 42,280 against 54,920 tons of iron plates; 154,910 against 195,810 tons of other finished iron products; 362,770 against 359,170 tons of steel ingots, and 307,850 against 309,130 tons of rails, plates and other finished steel products.

ANALYTICAL SEPARATION OF COPPER FROM CADMIUM.—G. Borneman described ("Chemiker Zeitung"), a method of separation of copper from cadmium by means of oxalic acid. The moderately concentrated solution is made slightly acid with HNO₃ and then heated to a boiling point and a boiling solution of oxalic acid (saturated in the cold) added in quantity slightly greater than that necessary to precipitate the copper present. The mixture is placed on a boiling water-bath and left to stand until the superlatent liquid is perfectly clear. The liquid is then carefully decanted on to a filter, after the addition of a little nitric and oxalic acid. The precipitate is washed with the acidulated water and finally with boiling distilled water. The precipitated copper oxalate is dried, freed from the filter paper and placed in a Rose crucible. The ash of the filter paper is added to the bulk of the precipitate, a little sulphur is added and the whole calcined in a current of hydrogen. The cuprous sulphate is then weighed. Cadmium is determined in the filtrate in the usual manner.

A FRENCH COLLIERY EXHIBIT AT PARIS.—A "grand prize" has been awarded to the Bureau du Service des Mines of the French Ministry of Public Works for the exhibit at Paris. The Bureau exhibited a large collection of statistical publications; graphic diagrams showing the progress of mining and metallurgy, and also seven large plates prepared especially for the Exposition. A map of France showing all the mines, open-workings and peat-bogs worked in 1898, plotted to a scale of 1:500,000, while indicating the nature of the mineral substances, gives the situation of 501 mine concessions, including 281 of coal, 22 of asphalt and bitumen, 75 of iron, 72 of other metalliferous ores, 10 of iron pyrites, and 46 groups of iron-ore open-workings. The size of the letters forming the names of the mines is in proportion to the output; and various tints distinguish the substances extracted that are classed in eight categories. The output of the mine groups is represented graphically by circles of 1 cm. diameter (representing 10,000 tons) and upward.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

DRAWBACK ON COAL IMPORTED IN AMERICAN STEAMSHIPS.

—A circular just issued by the Treasury Department says: "The drawback on coal under the provisions of paragraph 415, act of 1897, is limited to American vessels propelled by steam engaged in trade with foreign countries or in trade between the Atlantic and Pacific ports of the United States, and it is with the vessel, through its proper representative, master, owner or agent that the department must deal."

LIABILITY WHEN OIL IS TO BE PRODUCED OR LEASE NULL AND VOID.—A lease of realty for operating for oil or gas, by which the lessee is to deliver to the lessor a part of the oil produced and to pay a certain sum for the gas, but it is to be null and void unless a well is completed within a year, or unless the lessee shall pay a specified amount quarterly in advance for each additional three months such completion is delayed, does not bind the lessee to pay any rent for the land or for delay in commencing to operate for oil or gas, as the only consequence would be a forfeiture of the lease.—*Snodgrass vs. South Penn Oil Company* (35 Southeastern Reporter, 820); Supreme Court of West Virginia.

DUTY ON CYANIDE OF POTASSIUM.—The commercial designation or denomination of an article in the markets of the country when the law was passed will control its classification without regard to its scientific designation, or the material of which it may be made, or the use to which it may be destined or applied. The article commercially known

graph 121, the board holds that it is dutiable under said paragraph and not under paragraph 569.—*Protest of Balfour, Guthrie & Company* against decision of the collector of customs at Portland, Ore.; United States Board of General Appraisers.

PREVENTING FALLS OF ROOF IN COAL MINES.*

The Compagnie des Mines de Houille de Courrieres is a company working collieries near the town of Lens, in the Department of the Pas-de-Calais, France, and employing 6,998 persons, of whom 5,794 work below ground. It possesses 44 seams of coal, with a total thickness of 46.6 m. The average thicknesses of the seams of the three kinds of coal worked are respectively: 82 cm., 87 cm. and 1.10 m. The annual output is now about 2,000,000 tons. The undertaking is therefore sufficiently extensive to furnish the average data of real importance. The precautionary measures adopted at Courrieres consist (1) in systematic timbering, and (2) in supplying each worker at the face with three iron bars, 35 mm. square and 1.25 m. long, and compelling him to make use of these bars to form a sort of temporary shield in advance of the last row of timber props. When another row of props has been put in, the bars are withdrawn and then driven on in advance beyond the new set of supports. They are placed about 0.35 to 0.50 m. apart and fixed securely by wedges. As the work proceeds, the temporary protecting shield must be pushed on; the men are now so practiced that it takes them very few minutes to knock out the wedges, drive the bars forward, and wedge them up again. About 6,000 bars are in daily use at the Courrieres Collieries. If they get bent, which not infrequently happens,

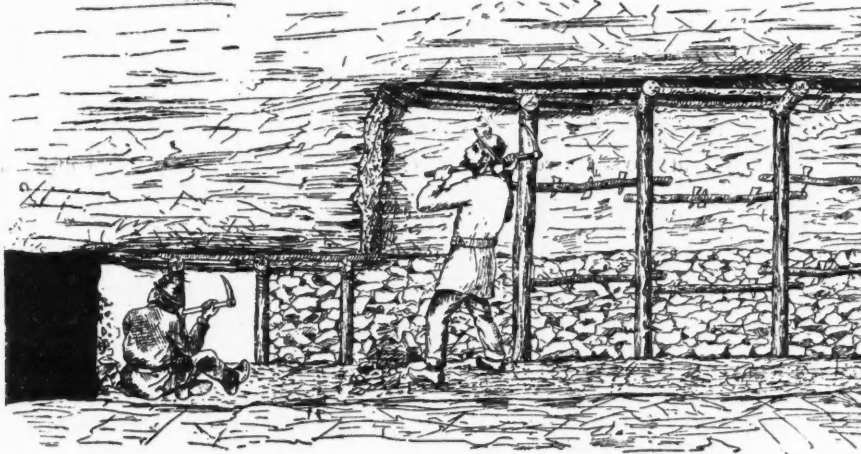


FIG. 1.
PREVENTING FALLS OF ROOFS IN COAL MINES.

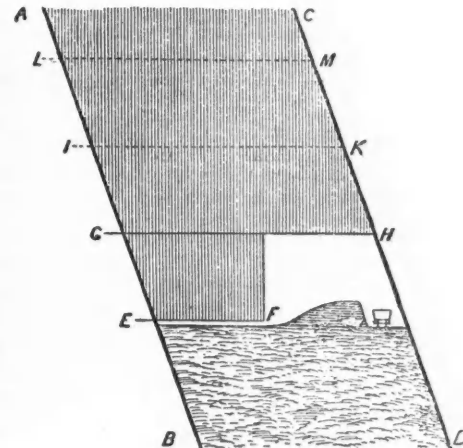


FIG. 2.

as cyanide of potassium, though containing an admixture of cyanide of sodium, is dutiable under paragraph 66, tariff act of 1897, as "cyanide of potassium," at 12½ per cent. ad valorem, and not as a chemical compound or salt at 25 per cent. under paragraph 3. While there is a pure potassium cyanide, the ordinary commercial preparation often contains impurities, and especially a mixture of sodium; and paragraph 66 was not intended to be restricted in its operation to the pure article.—*Protest of Robert Crooks & Co.* against the decision of the collector of customs at New York; United States Board of General Appraisers.

MINING LAWS OF MONTANA AS TO CO-TENANT.—The laws of Montana (1899, page 134) authorizes a non-joining co-tenant of mining property to recover his share of the net profits of the mine, or his proportionate share of all ores in the dump, on payment or tender of the costs of mining same in a miner-like manner. The court held that, where a co-tenant wrongfully worked in a mine through a shaft from another vein, in which the other co-tenant had no interest and to which he had no right of access, the latter was entitled to an injunction pending trial, restraining the other from continuing to work such mine, though he failed to tender his proportionate share of the cost of mining the ore extracted, since such tender was excused by the other's inability to ascertain what ore was taken out legitimately so as to estimate the amount of the tender.—*Butte & Boston Consolidated Mining Company vs. Montana Ore Purchasing Company* (60 Pacific Reporter, 1,039); Supreme Court of Montana.

DUTY ON BASIC SLAG.—Basic slag is dutiable under the provisions of paragraph 121, act of July, 1897, at the rate of \$1 per ton, and is not entitled to free entry as a substance used only for manure, under paragraph 639. The merchandise is described on the invoice as "Thomasmeal." It was returned by the appraiser as basic slag, ground, and assessed for duty at \$1 per ton, under the provisions for basic slag, ground or unground, in paragraph 121 of the act of July 24, 1897. It is claimed to be free of duty under paragraph 569 of said act as "a substance used only for manure," or under paragraph 639 of said act as phosphates. An analysis of the official sample in the case by the United States chemist discloses the fact that the merchandise is basic slag, containing 16.78 per cent. of phosphoric acid. It is, therefore, not phosphates, and not free of duty as claimed under paragraph 639. The importers introduced testimony to show that they used the article for fertilizing purposes, but inasmuch as basic slag, ground or unground, is provided for in para-

they can easily be straightened by the smith; on the other hand they rarely break, because if a great amount of bending indicates an unusual pressure of the roof, additional timber props are put in. Consequently the consumption of iron bars is trifling.

The two standards by which the efficacy of the Courrieres methods may be gauged, are the mortality rates from falls (1) per 1,000 persons employed underground, and (2) per 1,000,000 tons of mineral extracted. The Courrieres death rates show a reduction in the death rate from falls to the extraordinary low figures of 0.15 per 1,000 persons employed and 0.39 per 1,000,000 tons of minerals raised. These are not figures for one lucky year, but are averages for a period sufficiently long to warrant the assertion that they are not due to chance. Judged by either standard, the mortality in Great Britain from falls of ground is five times as great.

The next point is to determine what share in the splendid improvement at Courrieres belongs to each of the two separate remedies. Systematic timbering with increased supervision was introduced in 1880, and after trials in 1889 the use of the iron bars was made obligatory in 1890. It appears, therefore, that systematic timbering strictly enforced reduced the death rate per 1,000 persons to one-third in the 10 years 1880-1889, and that the employment of iron bars has now brought it down to one-fifth of what it was in the decade 1870-1879. The Courrieres authorities consider that their present freedom from accidents by falls is largely due to this latter preventive measure. The brilliant results at Courrieres afford ample proof of the value of the precautions. The report of the British mine inspectors calls attention to the methods adopted at Courrieres, and recommends their general adoption.

The accompanying sketch, Fig. 1, shows the method of using the iron bars in the workings.

Fig. 2 shows an improved method of working a slate mine adopted at Labassere in the Pyrenees. A B represents the floor (geologically) of the bed, and C D the roof; the thick line, G H, denotes a horizontal groove cut by the wire saw, E F, part of a previous similar groove, and the dotted line, I K and L M, future cuts. The slice, E F G H, is worked away as shown, and the vacant space is filled up with rubbish; about one-half of this is furnished by waste produced in process of getting the blocks of slate, while the remainder is sent down from adjacent open quarries. When the filling is complete a horizontal cut, I K, is made, and the slice, G H K I, worked off in a similar fashion, and so on. Not only are the workings safer, but there is far less loss of valuable rock.

*Abstract from article in the London "Colliery Guardian," September 21st, 1900.

A NEW COKING COAL-FIELD.

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

One of the most remarkable coal seams in this country is that which lies in Richie County, West Virginia. This section is the seat of a great gas and oil belt as well as of this excellent coal seam. There are two gusher pools as well as some of small caliber in this section. Some time before the Civil War the coal oil industry was an important one about Clarksburg, which town is the center of this new coal-field. The advent of petroleum coupled with some trouble in the operation of the coal mines put an end to that industry long ago.

The peculiarity of this coal seam lies in the fact that the vein does not lie horizontally as is the case with most coal seams, but stands perpendicular. It has a width of about 50 ft. at the surface and is of an unknown depth. Already it has been worked to the fifth level, a distance of about 150 ft. At that depth much difficulty was experienced from caving and for a time operations were abandoned. The coal contains more oil than any others known. It is black, but not shiny, and is much softer than ordinary bituminous coal and is much more easily lighted. A lump held over an ordinary lighted match will take fire readily and burn like a pine knot.

Railroads traverse the district in every direction. Within 33 miles of Clarksburg there are now several prosperous towns which owe their existence to the development of the last decade. In this district not less than 25 coal mines are operating with modern appliances and all told they support a population of 25,000.

Ten years ago John Mason and Captain Prichard sold large tracts of coal lands between Clarksburg and Fairmont to a syndicate headed by Senator J. N. Camden. They had taken options on these lands for 15 consecutive years and all this time their faith in the future of this section in coke and coal remained unshaken. The Camden Syndicate has built the Monongahela River Railroad, which is now operated by the Baltimore & Ohio, and the first plant was located a few miles below Fairmont. This concern is now operating three tipples with a daily capacity of 3,000 tons, much of which is manufactured into coke at the plants of the syndicate. Since that time the Briar Hill Coke and Coal Company, the Riverdale Coke Company, Solon & Lowrey and a dozen other operators have entered this field and the output for the first half of 1900 reached 251,900 tons. As yet this coal and coke field is only beginning its development. There is excellent coking coal in all the adjacent counties and before many years this and other coke-fields will doubtless be large shippers.

THE CHEMICAL PRODUCTION OF ITALY.

The following official statistics of the chemical production of Italy in 1899 are given in the "Rassegna Mineraria." The figures are in metric quintals, of 100 kilograms each:

	Quintals.		Quintals.
Sulphuric acid.....	1,654,916	Iron oxide	4,000
Nitric acid.....	23,366	Lead oxide	300
Hydrochloric acid.....	74,435	Minium	27,325
Liquid carbonic acid.....	986	Letharge	12,900
Boric acid, refined.....	1,291	Zinc oxide	6,800
Alum	9,450	Bichromate of sodium.....	8,200
Sulphate of alumina.....	23,300	Bichromate of potash.....	1,950
Sulphate of sodium.....	53,550	Lead acetate.....	1,906
Sulphate of copper.....	77,945	Arsenious acid.....	1,209
Sulphate of iron.....	14,722	Ferro cyanide of calcium.....	1,543
Sulphate of magnesia.....	15,240	Carbide of calcium.....	6,600
Sulphate of ammonia.....	14,358	Rock salt	3,400
Sulphide of carbon.....	30,832	Corrosive sublimate.....	567
Phosphate of sodium.....	3,200	Gunpowder	11,932
Glauber salts.....	19,397	Fireworks	296
Carbonate of lead.....	47,270	Explosives	8,297
Borax	7,085	Glycerine	412
Nitrate of potassium.....	9,000	Phosphate and fertilizers.....	2,773,150
Sodium silicate.....	53,600	Oxygenated water.....	12,950

The explosives named include 4,214 quintals ordinary blasting dynamite; 3,829 quintals smokeless powder; 254 quintals of various explosives. The phosphates included 2,105,000 quintals mineral phosphates; 434,000 bone phosphate; 224,150 various fertilizers, and 10,000 quintals basic slag.

The total value of the chemical products enumerated was 51,505,591 lire (\$9,940,579), against 43,380,660 lire (\$8,372,461) in the preceding year; showing a total increase of 8,124,931 lire (\$1,568,118), or 18.7 per cent. last year.

THE NEW REPUBLIC STEEL MILL AT YOUNGSTOWN.

The Republic Iron and Steel Company has recently completed a new steel plant at Youngstown, Ohio, which has several points of interest about it. The plant was designed by S. V. Huber, of Pittsburg. It is located on a tract of land lying between the railroad and the Mahoning River, and the equipment of tracks, trestles, storage bins, etc., is well arranged. There are two main switches, one on each side of the mill, and all material brought in—pig iron, limestone, coal, etc.—enters the yard through these switches, each car passing over a track scale before going to its proper bin.

The first building at the end of the plant is the cupola house, which is a steel structure 72 by 40 by 69 ft., erected by the Youngstown Bridge Company. It consists of three floors, connected to converter by a platform running from the first floor. There are four cupolas, 24 ft. high by 8 ft. 7 in. diameter. Three of them were brought from Springfield, Ind., and one was erected by the Meehan Boiler & Construction Company. They have a daily capacity of approximately 1,000 tons. The ladle cars are propelled by means of a cable attached to a Lidgerwood hoist operated by a General Electric Company 800 dust-proof motor.

The converter building is a steel structure 121 by 60 by 50 ft. high, erected by the Penn Bridge Company, Beaver Falls. This building contains scrapping floor, ladle and manganese platform, pouring platform and pulpit from which the hydraulic 10-ton crane is operated. The 25-ton converters are of the following dimensions: 11 ft. 7 in., extreme length; 7 ft. 0½ in. diameter, with opening of 3 ft. 8 in. In this build-

ing is installed a 5-ton overhead electric traveling crane, built by the Case Manufacturing Company, Columbus, O. The runners were furnished by the Meehan Boiler & Construction Company, which also supplied the manganese furnace. The stripper building is a steel structure 30 by 60 by 70 ft. high, and contains besides ingot extractor, the hydraulic manipulator and pulpit from which levermen operate the extractor. The pit furnace building is also a steel structure 114 by 75 by 55 ft. high. Both were erected by the Pottstown Bridge Company.

The blooming mill is 204 ft. long, and varies in width from 40 to 99 ft. by 38 ft. high; it was built by the Penn Bridge Company, Beaver Falls, and is capable of producing approximately 10,000 tons of blooms, billets and slabs every 24 hours. At present this mill is designed for rolling from 4 in. to 9½ in. steel billets, and slabs from 6 to 14 in. The bloom rolls are operated by a Porter-Allen reversing engine, 24 by 48 in. coupled.

Roller tables A and B were furnished by Heyl & Patterson, Pittsburg, Pa., and tables D and E by McGill & Company, Pittsburg. Tables D and E are operated by a Mackintosh & Hemphill horizontal engine; table B by an Otis horizontal engine, while table C is operated by a Siemens & Halske 30 H. P. motor.

A 10-ton hydraulic crane is installed close to the bloom rolls for the purpose of facilitating repair work. Several other smaller cranes are installed at other parts of mill where most convenient for similar purposes. There are also situated at different parts of mill pulpits from which levermen operate the tables and other machinery. Slabs and billets are removed from table D and E to another device known as E transfer. The hydraulic bloom shears were furnished by the Lloyd-Booth Company, and steam shears were built by Mackintosh, Hemphill & Company, of Pittsburg. Billet shears are operated by a vertical engine built by Mackintosh, Hemphill & Company, which also operates the billet conveyor.

At the southwest end of the mill is a circular narrow gauge track, upon which are placed a continuous train of cars. As the material is cut at shears it is transferred to these cars by means of a billet conveyor. These cars are operated by hydraulic pressure, and as the loaded ones reach a certain point in the yard, a crane picks up the body of car and deposits the contents in railroad cars for shipment.

The boiler house is a steel structure, 215 by 45 by 36 ft. high, erected by the Columbus Bridge Company. It contains five Heine boilers, 250 H. P. each, and five batteries of Sterling water-tube boilers, 350 H. P. each—total capacity, 3,000 H. P.

The gas producer building is steel, 71 by 28 by 34 ft. high; it contains four gas producers of latest and most approved make, erected by Alex. Laughlin & Company, fitted complete with reversing valves and all accessories.

The blowing engine and pump house is a brick building 109 ft. 10½ in. long by 55 ft. 3 in. wide by 53 ft. high, erected by Thomas Lightbody. In this building are installed a 225 H. P. compound Buckeye engine, direct connected to a generator for generating necessary electrical power and lighting throughout the mill.

The three blowing engines which furnish blast to converters are Porter-Allen vertical type, 36 and 48 by 48 in. The three Baker blowers which furnish blast to cupolas are operated by a Dick & Church tandem compound, condensing automatic, cut-off engine 13 and 24 by 18 in., furnished by Phoenix Iron Works Company, Meadville, Pa.

There are also in this building two Gordon pressure pumps and two Wilson-Snyder pressure pumps for pumping water into the auxiliary tank which supplies hydraulic mains, etc. In the basement are four Gordon boiler feed pumps for pumping water to boilers. The heaters and separators are of the Harrison & Cochrane type, furnished by F. R. Dravo & Company, of Pittsburg. At the west end of the building is a Siemens & Halske 15 H. P. motor for operating drill presses used for taking samples of pig iron and Bessemer steel.

The machine room is brick, 61 ft. by 73 ft., 42 ft. high. It contains master mechanic's office, tool room, and a full equipment of machine tools needed.

The other buildings are a pump house, 35 by 21 ft. and 16 ft. high—containing pumps of a capacity of 30,000,000 gals. daily, which furnish the water needed for the plant; and an office building, which has on the first floor rooms for the superintendent, the engineer and the accountant's department. On the second floor is the laboratory, which is completely equipped for all the work of the chemists.

MINERAL EXPORTS OF NEW CALEDONIA.—The official statement of exports from New Caledonia for the first and second quarters of the present year is as follows, in metric tons:

	First quarter.	Second quarter.	Half year.
Nickel ore.....	15,102	27,213	42,315
Cobalt ore.....	229	515	744
Chrome ore.....	3,287	1,381	4,668

Most of the shipments were made to European ports, or to Sydney, N. S. W., for transshipment. One cargo, of 2,338 tons of nickel ore, was cleared for New York. One vessel, carrying 3,442 tons of nickel ore and 179 tons cobalt ore, which sailed from Thio for Glasgow in February, is reported wrecked, none of the cargo being saved.

ERIE RAILROAD COAL TRAFFIC.—The report of the Erie Railroad Company shows that the total coal carried during the year ending June 30th, 1900, was 12,701,256 tons. This tonnage was made up as follows:

	1899.	1900.	Increase.	Per cent.
Anthracite coal	6,031,718	6,687,301	655,583	10.9
Bituminous coal.....	4,010,305	4,432,434	422,129	10.5
Coke	1,321,617	1,581,521	259,904	19.7
Totals	11,363,640	12,701,256	1,337,616	11.8
Ton-miles coal	1,645,040,334	1,898,166,221	253,125,887	15.4
Average haul, miles.....	144.8	149.5	4.7	3.1

The average rate per ton-mile on this coal was 0.457c. last year, which compares with 0.437c. in the previous year, showing an increase of 0.020c., or 4.6 per cent. The cost of moving coal is not given separately, but the average for all freight was 0.397c. per ton-mile. Coal formed 47 per cent. of the total freight handled.

THE GREAT STORM AT NOME.

The following graphic account of the great storm which wrecked a large part of the city of Nome—a condensed description of which was given in our news columns—is written by Mr. Winthrop Packard, correspondent of the New York "Evening Post." Its date is September 13th:

"The loss of property from the ten days' gale which culminated at midnight last night in a tidal wave and flood will foot up \$500,000. Nearly 1,000 people are homeless and destitute, and though the lives lost, or known to be lost, are few, it is probable that when the returns are all in this number will be increased. A half-dozen schooners are wrecked on the beach, the monster barge 'Skookum' is a total wreck, and the sea is swept clear of barges, lighters, and tow-boats. The lower end of Front Street, where it borders on Snake River, is swept completely away, and the houses which bordered it on either side are splinters or missing entirely. The seaward side of Front Street for its entire length is more or less damaged; some saloons and business houses are entirely wrecked, while others are loosened upon their foundations, or have had the rear portions of them pounded in by the sea. The scene along the beach is an astonishing one. Already the waters are receding, and the broad space which all the season long has been crowded with tents and merchandise of all sorts, which was furrowed and heaped in all directions by beach-miners, is now as level and as smooth as if there had never been any gold in Alaska, and the great Nome rush were but a figment of the imagination.

"The beach is not depopulated, however. Instead it is lined with thousands who watch the roaring surf, and rush shoulder deep into it for the things that the sea has torn from the beach in great gulps and is now casting back to it piecemeal. At the turn of the tide last night 10,000 tons of coal went to sea from the various coal piles. It is coming back now in lumps that are already rounded and smooth from the whirl of the surf. This coal was valued at \$30 a ton when it went out. This morning it is worth \$80, and the probability of a coal famine makes its recovery worth while. All the large lumber-yards of Nome were on the sea beach, and some of them went out with the tide completely. This lumber is now strewn up and down the coast for miles, and the thousands who line the beach are ducking, and diving, and risking their lives for it as the sea plays with boards and timber in the treacherous surf. Provisions, clothing, supplies of all sorts that go to make life endurable in a mining camp are flotsam to the tides and jetsam to the breakers that alternately cast them up and snatch them away again. Meanwhile the owners of lumber patrol the beach with soldiers, and try to identify their boards and timber and take them from the beach-combers who have risked their lives to rescue a few poor sticks. Much of the timber is branded and no doubt is legally claimed. But the lumber merchant is apt to be not over particular. If, with the soldiers at his back, he can bluff the beachcomber into giving up his little pile, he is likely to take it, brand or no brand. The beachcomber has no redress but his gun, and against that the soldiers are a sufficient guarantee.

"Over at the Nome River, 3 miles east of the town, the waters carried away the bridge and many houses which stood near it, but the Snake River bridge, in the heart of the city, still stands, though the waters lap at the logs of the roadway across it and are steadily eating away the sand from about the piling at its eastward end. It may stand if the weather continues to improve.

"The storm began on the 4th, and with one or two slight lulls has increased in violence for 10 days. Bering Sea forced the waters higher and higher along the Norton Sound shallows and up on the beach at Nome. Yet the rise was gradual. Had it been sudden, the loss to life could but have been appalling.

"East Nome, built on a long ancient sand-bar that rises high above the ordinary high tide, still stands, though the little lagoon behind it joined hands with the sea and left only the highest part of it untouched by the turbulent waters. The highest part of this sand-bar is occupied by the buildings of the Corwin Company, and the surf scattered these on the seaward side and cast driftwood to the doors of the office. Directly in front of this on the verge of the beach was a huge tent occupied by a large teaming outfit, and farther toward the sea was another occupied by a herd of some 30 milch cows. Toward 10 o'clock of the night of the 12th the bellowing of these cattle attracted the attention of the Corwin's night-watchman, who roused the owner. And then ensued a scene of Homeric confusion. The seas were already roaring and hissing through the frail tent that bent and swayed in the wind. The cattle were fastened by the neck in the stanchions, and were alternately smothered in foam and crushed seaward by the undertow of the receding wave. One by one they were loosened, by men waist-deep in the swirling waters, and led to the higher ground, where they collected and drifted before the gale up into the hills. Meanwhile tents which had been left in reach of the surf began to fall, and people from them rushed with their few belongings back to the higher ground, where their more fortunate neighbors gave them shelter. It was the same all up and down the beach, and many of the tent people got out with only the clothes which they had on. But it was in and around the western end of the town that the more tremendous scenes of the disaster were enacted.

"Here the turbulent brown flood of Snake River swings when it is near the beach, and runs along for an eighth of a mile parallel with it, leaving a long sand-bar on the seaward side. Then it turns seaward again and breaks through the bar, leaving a little of it on the east side too, the two sand-spits pointing toward one another like teeth at the very mouth of the river. When the rush reached Nome this spring, these sandspits became covered with tents that have since been succeeded by frame houses in a large measure. Moreover, the main street of Nome came to be extended, and ran along the bank of the river on the inland side, and was lined with business houses, two and three stories high, some of them, and rather substantially built.

"Early in the week a tide came into this street and flooded it and washed under the pile-foundations of the houses. But it went down

again without much damage, and when, on the night of Tuesday, the 12th, it again filled the street, the owners of the houses did not think it necessary to remove their goods. During the night, however, came the flood. The rising waters of the river lifted these houses from their foundations, the lighters and river steamers moored alongside them crushed into them, and the whole swept seaward with the resistless rush of the roaring current of the river. Down they swept in the darkness and storm to the river-mouth. There the incoming tide met them with the blows of the breakers and whirled them back again, crushed by the waters, grinding and crashing one upon another. The sandspits were flooded, and the buildings and lumber and supplies of all sorts stored there joined the houses from the bank and whirled with them back again till they were ground into splinters that choked the river-mouth as day broke. Then the onlookers could not distinguish either houses or boats or lumber. All was one vast whirling mass of white splinters that still spun in the whirlpool at the mouth of the river.

"So far as definitely known, no lives were lost, but there were scores of narrow escapes, and hundreds of people watched their all swept seaward in the darkness and storm, either to be seen no more or to come back again in the whirl of the waters an unrecognizable mass of splinters. The western end of the main street of Nome is no more. It is so completely wiped out that you find it hard to believe that it was ever there. On its landward side a few stranded roofs and wrecked sides of buildings remain, and it is a question whether they will not go out with the next tide. The once populous sandspits, too, are bare save for wreckage and the hulk of the derelict 'Catherine Sudden,' which came ashore in the gale and lies broken in halves on the very highest part of one spit. Indeed, the river has swept away a good part of the spit toward the town, and rolls seaward through a broad mouth where once one might cast a stone across it. The river is steadily wearing away the larger, more eastern sandpit, and this morning a row of houses that had thus far withstood the gale sank into it and were whirled away, adding probably \$10,000 to the money loss already sustained. Farther up the beach to the eastward the tracks of the Wild Goose Railroad are washed away, and all along here the damage is great.

"No doubt 20,000 people will winter in Nome and the minor camps tributary to the northern city, but at least 20,000 more will go out or are already on their way out, and the rush out, while it does not rival the rush in, will be a great one. A half-dozen great steamers were in the roadstead before the storm, loading passengers, some with nearly their full complement aboard. These have put to sea to ride out the gale. When they return it is a question how passengers are to be got aboard. The coast is bare of lighters and towboats, and the best that can be found for loading will be small boats and a few whale-boats. At this time of year the days on which a small boat can go to and fro through the surf are few indeed, and much delay and hardship will be the inevitable result.

"With the continual rain for weeks, and the high water of the flood, the streets of Nome are well-nigh impassable. Soft mud is waist deep in many places almost in the heart of the city, and hip-boots are an absolute necessity. Cartage is almost impossible, for a team of horses can pull little more than the weight of the wagon, and are frequently mired. Everyone is looking anxiously for the frost which is now due, and which will make this wild morass passable."

IRON ORE IMPORTS OF GREAT BRITAIN.—Imports of iron ore into Great Britain for the eight months ending August 31st were 4,417,749 long tons, of which 3,866,948 tons (87.5 per cent.) came from Spain. The total in the corresponding period of 1899 was 4,916,880 tons; showing a decrease of 499,131 tons, or 10.2 per cent., this year.

DETERMINATION OF PRECIOUS METALS IN ELECTROLYTIC SLIMES.—A. Holland ("Annales de Chemie Analytique," VI., page 23), has investigated the residues containing silver, gold and copper and other metals separated from copper anodes in the electrolytic refining of that metal. He found these slimes to contain from 25.81 to 46.58 oz. silver, 0.0337 to 0.1504 oz. gold and from 18.47 to 24.04 per cent. copper. For the determination of the gold 12.5 g. of the dried and pulverized deposit were carefully heated in a crucible with 50 g. of litharge, 10 g. of niter, 25 g. of calcined soda and 15 g. of fused, pulverized borax to quiet fusion, then a mixture of 20 g. of litharge and 0.4 g. of charcoal added, and the determination proceeded with in the usual manner. For the determination of silver and copper, 5 g. of substance were heated in a porcelain crucible in a current of dry chlorine. From the residue the copper was dissolved by nitric acid and precipitated electrolytically. The silver chloride is dissolved by potassium cyanide solution and deposited by electrolysis during 24 hours with a current of 0.5 ampere.

COAL TRADE OF FORMOSA.—United States Consul J. W. Davidson says that the local consumption of coal, owing to the absence of large factories, is small. The railway, the government factories for camphor and opium, and the coasting steamers are the only large customers. This demand is supplied entirely by the local mines, there being no import of coal. There is exported from Formosa some 18,000 to 20,000 tons of coal a year, valued at 75,000 yen (\$37,500). Much of it is in the form of dust, and it is all of a quality inferior to foreign steamer coals. The annual amount consumed locally is estimated at 18,000 tons.

There is a great abundance of coal in the island. From Kimpauli, in the extreme north, to the mountain range to the rear of Pangliau (Borio), in the far south, coal abounds. East and west, it probably exists in some places practically from coast to coast, and even in the flat, barren isles of the Pescadores coal is found. Much of it is in small seams abounding with faults and fissures. Mining on a large scale is practicable only in a few places.

The coal mines now in operation are located entirely in the north, and are in the hands of either Japanese or natives, no foreigners being interested in the business. The total output from both Japanese and Chinese mines reaches about 3,000 tons a month.

THE EFFECT OF CONTRACTIONS IN AREA OF PASSAGES IN MINE VENTILATION.*

By Paul Petit.

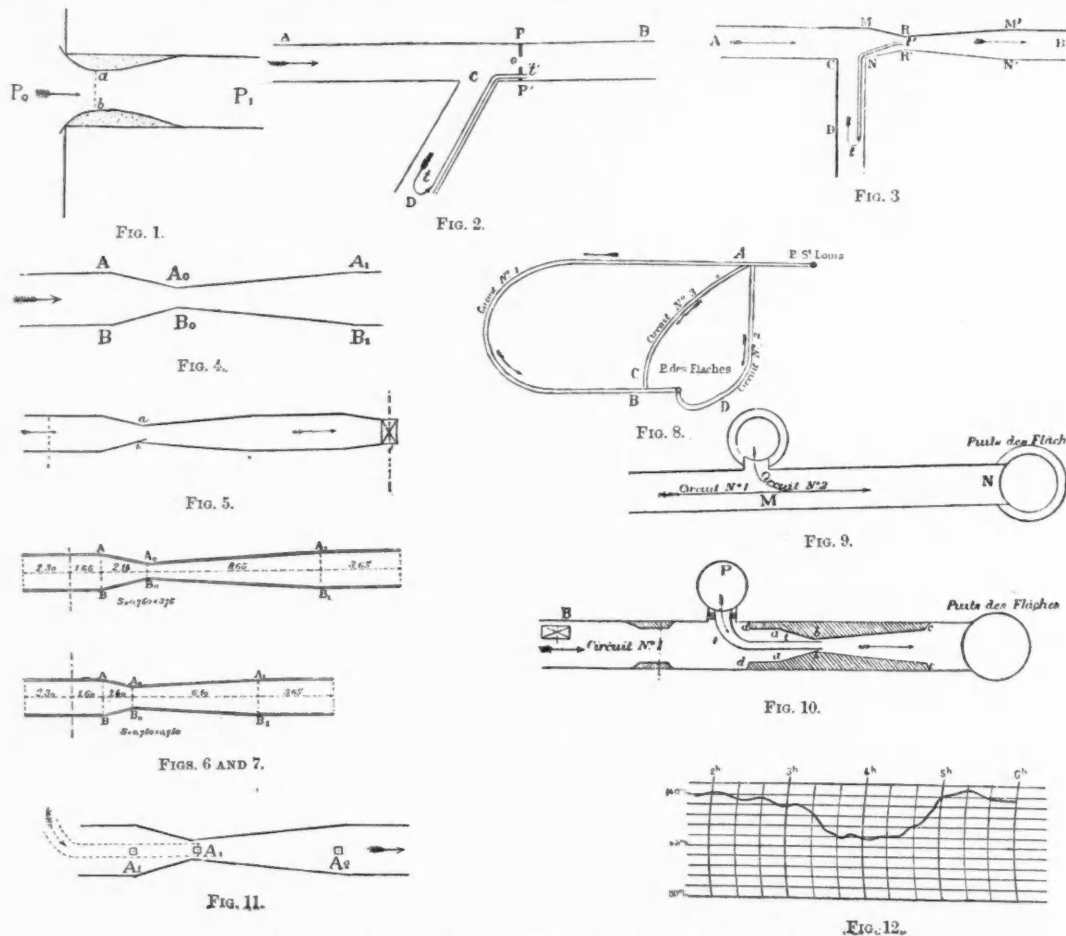
It is well known that when a fluid passes from a receptacle subject to a pressure P_0 , into a space subject to the pressure P_1 , through a cylindrical contraction, the stream becomes contracted after passing the orifice, expands progressively, attains, in swelling, the inside of this contraction, if its length be sufficient, and flows off while filling out the whole sectional area. With reference to Fig. 1 of the accompanying diagrams, it is proved that inside the opening near the contracted section, there is a pressure lower than that of P_1 ; and the partial vacuum produces a suction which in some measure attracts the fluid contained in the receptacle, and greatly increases the speed of outflow. When for the cylindrical contraction is substituted a conical convergent, followed by a conical divergent one, the same effect though amplified is produced; and in the contracted section, a, b, a considerable diminution of pressure is observed. The angles at the summits of the convergent and divergent cones giving the co-efficients of maximum expenditure have been found experimentally to be 30° and 7° , respectively. These properties of contracted openings have received many important applications; and Guibal greatly improved the useful effect of his fan by fitting it with a divergent diffuser, which gradually reduces the speed of the air leaving the wheel, or revolving portion.

Struck with the considerable suction that can be set up by a suitably arranged series of contractions, the author asked himself whether it

this difficulty that the author has, after conclusive experiments, brought into general use air-pipes of very large sectional area for ventilating all the important shunt-circuits in the fiery mines under his direction. What is called secondary ventilation, including production of the shunt current by means of a special appliance, separate from the main ventilator mounted on the outlet orifice, depends upon the same considerations; and the secondary fan produces on the spot an active depression necessary for giving motion to the air in the shunt-circuit, without affecting the main current, which continues to traverse a circuit whose equivalent orifice is not diminished.

Now, bearing in the mind the properties of convergent-divergent contractions, whether one only or a series be used, can the engineer reckon upon obtaining a local depression by making the line of pipe, $t t'$ (see Fig. 2) terminate, not behind a wicket door, $P P'$, but in the small section of a convergent-divergent contraction inserted in the main circuit? In Fig. 3, which illustrates the author's idea, A B and C D are against the man airway and shunt circuits respectively; but the wicket door of the last figure is replaced by the convergent-divergent contraction M N, $M' N'$ into the smaller section, R R', of which gives the line of pipes, $t t'$, serving to ventilate the face of the drift or heading, C D. For ascertaining the advantage that may be obtained from such an arrangement in actual mine working the author carried out a great many experiments of which he describes the object and results.

Referring to Fig. 4, if A B and $A_0 B_0$ be two lengths of an airway having the same sectional area, connected together by a convergent-divergent contraction of reduced section $A_0 B_0$, and if the contraction be supposed to set up neither friction nor disturbance, Bernoulli's theorem



EFFECT OF CONTRACTED PASSAGES ON MINE VENTILATION.

could not be turned to good account for producing local depression at special points in certain circuits of mine workings. Now, if the lowering of pressure caused by a wicket between its up-stream and down-stream faces be unimportant if freely consented to, such is no longer the case if the fall be required for circulating an air-volume of given intensity through a shunt circuit; and this will be understood by reference to Fig. 2, in which an exploring drift, C D, is supposed to be branched off from a main airway, A B. This branch is supplied by a secondary air-current taken off the main current, for ventilating the face, D, being returned to the general airway, A B, beyond a wicket door, P P', which receives the end of the air-pipe line ventilating the drift. The opening, o, must be regulated so as to produce, between the up-stream and the down-stream faces of the door, P P', a difference of pressure corresponding with the loss of load sufficiently and necessary for the line of pipes, $t t'$, to deliver the air-volume considered necessary for ventilating the face D. It will readily be supposed that this method of distribution reduces the importance of the main current, by throttling the equivalent orifice corresponding with the original circuit, and so much the more as the line of pipes, $t t'$, opposes greater resistance for passing a given volume of air.

It is in accordance with these considerations, and for counteracting

may be applied to the flow of air between the sections A B, $A_0 B_0$ and $A_1 B_1$; and it may be considered that the total energy of the fluid remains constant—in theory at least—though in practice this is not the case. In the first place the angles of divergence and convergence, determined empirically, give rise to eddies; and secondly, the friction of the air along the sides may attain a value that cannot be ignored.

The author proposed to measure, for variable air-volumes, (1) the total loss of load, h , required by currents of determined intensity for traversing the convergent-divergent contraction from A B to $A_1 B_1$, and (2) the suction, or partial vacuum, H, that prevails in the contracted section, $A_0 B_0$. If the surfaces were perfect, h would be zero; but actually this is not the case, and the value of this loss of load measures the degree of imperfection caused by the friction and disturbances. The contraction A B, $A_0 B_0$ and $A_1 B_1$, requires, for being traversed, a depression h ; and, if no contraction were interposed between A B and $A_1 B_1$, the loss of load would have a value of h' less than h . On the one hand there is a loss of energy $h-h'$; and on the other there is a gain in the depression produced near the contracted section H. Actual experiment will show whether one of these terms is greater than the other.

All the tests were carried out in the yard of the stores department; and indeed such experiments gain greatly by being made on the surface, where all the observations can be taken with the utmost exactitude. The circuit to be traversed by variable air-currents was consti-

*Abstracted from paper read before the International Conference on Mining and Metallurgy at Paris.

tuted by large wooden caissons of rectangular cross-section, 1.5 m. by 0.75 m., the large side of the rectangle being placed horizontally. The upstream element had a gauging station (indicated by a dotted line in Fig. 5, which shows the general arrangement), with a tablet for regulating the position of the anemometer in the same manner as that already described and illustrated; and the down-stream element was put in communication, by a suitable funnel, with the inlet of a small Rateau fan producing currents of different intensities. These two elements were connected together by a convergent-divergent contraction, such as can be easily put together in the underground workings of a mine. This connection was made roughly, without the angles being rounded off at the intersection of the convergent with the divergent part (as they should have been theoretically); and also the reduced section a b was obtained by the convergence of only the two lateral faces of the caissons, the upper and lower sides of which remain horizontal, so that the height of the adjustage in the reduced section was the same as that of the two elements it connects, the width only being diminished. This defective arrangement was made purposely, in order that the experiments might be carried out under conditions that can always be obtained without difficulty.

The experiments were made with two types of contracted passage, shown in Figs. 6 and 7, the elements connected being of the same sectional area. With each of these types two series of observations were made, in the first of which the circuit was studied as represented diagrammatically above, the loss of load being measured between the section A B and A₁ B₁ as also the suction at A₀ B₀; and in the second series a shunt circuit, constituted by a line of metal pipes, elliptical or otherwise, that was made to give into the narrowed section A₀ B₀ was branched off from the main airway. At the other end, up stream, of this line of pipes, was placed a wooden caisson of suitable dimensions in which the volume of air drawn in was gauged in the manner already described.

The elements connected by the addition, and also the addition itself, are made of tight match-boarding, their joints being made very carefully. Previous experiments having proved a perfect concordance between the values found for the air-volume measured in the up-stream element A B, and the down-stream element, A₁ B₁, the whole circuit was regarded as absolutely air-tight, so that it was judged sufficient to gauge the volume in the up-stream element, which was done; and a valuable check was afforded by registering the number of revolutions made by the fan.

For ascertaining the total loss of load between the station A B and A₁ B₁, it might have been sufficient, in the first series of experiments, to take the water-gauge by a straight tube indicating the static pressure; but in the second series the air-volume that passes at A B becomes augmented when traversing the contracted section, A₀ B₀, by the volume brought up by the line of pipes in shunt circuit, so that the speed below may greatly differ from that above. In order to save the necessity for correcting the results of observations, the author preferred, for measuring the pressures, to use none other than the Pitot tube facing the air-current.

After detailing the many and careful experiments on the surface and discussing their results, the author goes on to describe the underground applications.

With a view to intensify the air-current of a shunt circuit the author made a practical application of the principles he enounces at the Saint Louis Division of the Saint Etienne collieries, which is ventilated by an exhausting fan, erected at the mouth of the Puits des Flaches, the Saint Louis shaft being the downcast.

The Saint Louis Division comprises three circuits represented diagrammatically by Fig. 8, Nos. 1 and 2, of which the ends B D give into the air-shafts at different heights, serving to ventilate the workings; and No. 3, comprising a branch which supplies the advance of the Puits des Flaches (that is being deepened under a rock mass), debouching at the point C, at the same level as the end of B, of circuit No. 1 in the general return air-current.

The ventilation of the preparatory working on No. 3 branch is effected by iron pipes of circular section 1 m. in diameter, Fig. 9 showing the connection of circuits 1 and 3 with the Puits des Flaches. As the length, M N, of the working, common to the two circuits 1 and 3, was not used for haulage or bringing up gob material, it was very suitable for receiving a convergent-divergent addition, put in for utilizing the force of the main current No. 1 in order to intensify the ventilation of the preparatory working branched off from circuit No. 3.

Referring to the diagram (Fig. 10) which shows the general arrangement, in the reduced section, b b, of a convergent-divergent contraction debouches a pipe of 75 cm. diameter, connected by a bend with the downcast shaft, P. The contraction is constituted by four removable panels formed of match-boarding, the convergent and divergent parts being connected at the cross-section plane, b b; and the angles are, for the convergent portion 30°, and for the divergent 7°. The contraction proper is prolonged by a wooden caisson, d d, of rectangular section, which is fitted by shouldering to the sides of circuit No. 1; and the air-current is forced to enter the contraction by earth banks carefully rammed. The sectional area at a a is 2.438 square metres, at b b 0.45 square metre, at c c 2.88 square metres.

The programme of tests comprised three series of observations, the first of which was for determining the respective intensity of the three currents, 1, 2 and 3, both before the putting in of the contraction and after its removal; and its data served to determine the distribution of the air volumes and of the equivalent orifice for the whole of the mine. The object of the second series was to thoroughly study the effect produced by interposing, between the points, M and N, the above-described contraction, and consequently to determine the new distribution of the air-current between the three circuits under consideration. In the third series it was proposed, after removal of the convergent-divergent passage, to obtain, in No. 3 circuit, by the means usually employed, the setting-up of artificial resistances in circuits 1 and 2—an air-volume of equal intensity to that obtained by the contraction. Under such conditions collective observations on branches 1, 2 and 3 made known the total air-volume traversing the mine.

Three gauging stations, at the ends, B, C and D, of each circuit shown in Fig. 8, permitted three groups of observers to gauge the current simultaneously. Each anemometric measurement occupied 160 seconds, the instrument remaining 10 seconds in the middle of each of the 16 equal compartments into which the stations had previously been divided; and, for avoiding all accidental disturbance due to the opening of air-doors, the observations were only made after the day shift had gone up.

The Murgue differential gauge was let down into the mine and mounted on its table at the point B of circuit No. 1 (see Fig. 10) about 6 m. from the mouth, d d, of the contraction; and across the earth bank, which prevents the air-current from circulating in the space left between the air sides of the contraction and those of the working, there was inserted an iron pipe 2 m. long and 4 cm. in diameter. This pipe was traversed by india-rubber tubes connected at one end with the gauge and at the other with brass tubes for taking the pressures, which were measured at the three stations, A, A₁ and A₂, marked in Fig. 11. A straight tube was used, giving the load of static tension or pressure; and three zinc inches, 10 cm. by 6 cm., were let to the upper face of the addition at the points A, A₁ and A₂, while a longitudinal groove of 1 cm. ($\frac{3}{8}$ in.), made in the thickness of the wood, permitted the static pressure to establish itself in the niches.

During the observations the water gauge produced by the exhaust fan on the surface decidedly increased between 3:30 and 4:30 a. m., attaining the mean of 44 mm., as shown by the diagram, Fig. 12; and the following table shows how the air-current was distributed between the three circuits for each of the three regimes: (1), free circuits without contraction; (2), circuits with contraction; and (3), circuits 1 and 2 being obstructed by resistances for affording in the shunt circuit a current of intensity equal to 5 cubic metres.

Designation.	Circuit	Circuit	Circuit	Whole of mine.	W. G. produced by fan.
	No. 1.	No. 2.	No. 3.		
	Cu. m.	Cu. m.	Cu. m.	Cu. m.	Mm.
1. Free circuit.....	10.824	9.527	3.684	24.035	40
2. " with contraction.....	8.563	9.034	4.989	22.586	40
3. Circuits 1 and 2 obstructed by resistances.....	8.788	5.814	5.034	19.636	44

It will be seen from this table collectively what great effect is produced, and also the superiority of this method over ordinary wicket-doors. For increasing by 1.316 cubic meters, the air-volume in the branch the loss in the total volume traversing the mine is 1.449 cubic metres with the contraction, and 4.399 cubic meters with the ordinary doors, for active water gauges which vary from 40 mm. to 44 mm.

The mean total loss of load absorbed by the contraction does not exceed 4.5 mm. of water; and it is a remarkable circumstance that an air-current can thus be throttled so as to pass 8.55 cubic meters or air across an orifice of 0.45 square meter without more energy being dissipated, this result proving that the angles have been well determined for the convergence and divergence. In fine, 12.625 mm. of the load at the mouth of the contraction is lost at its smaller section; and only a fraction thereof, 7.55 mm. is recovered between the contracted section and the terminal section of the divergent portion. The conclusions drawn are:

1. The convergent-divergent contraction cannot be adapted to all ventilating arrangements indifferently, as it only acts by aspiration.
2. The convergent-divergent contraction, substituted for the time-honored wicket-door, constitutes a great improvement, since it permits of intensifying the air-current of a shunt circuit, by reducing the equivalent orifice of a mine in a far slighter proportion.
3. This conclusion is based on the results of an actual test made underground with all necessary precaution, thus confirming the deductions drawn from experiments carried out with great care on the surface.
4. If such a length of airway as that described be not available for receiving the contraction, a lateral airway can always be driven for the purpose, and protected by two interlocked doors, leaving between them the space of a set of tubs, the expense of such a work being largely compensated if it be required to ventilate a long blind driving by a split from the main air-current.

SOME NOTES ON DEEP MINING.

In a paper read by Dr. E. Naumann at the recent International Congress of Boring Engineers at Frankfort, Germany, he referred at some length to the limitations of depth in mining. The difficulties of hoisting, he said, increased with the depth. At present the practicable limit of winding with ropes is fixed at 1,800 m. Nevertheless, we are by no means restricted to this system for future use, since, even as long ago as 1876, the pneumatic system was introduced at a mine in the Saone-et-Loire, France, over 20 years ago—and described at that time in the "Engineering and Mining Journal"—for raising from a depth of over 600 m.; and this system has latterly been highly recommended by Fr. Simmersbach, Manager of the Bochum Boring Syndicate. In place of the expensive pipes, it is proposed to employ wire-glass linings. Strongly compressed air will be used, without any suction.

Another proposed system makes use of electricity—as first suggested by Mr. A. C. Lane, in Volume IV. of "The Mineral Industry"—thus dispensing with the winding rope. The electromotor is attached to the hoisting cage, and is easily connected with the power station by means of a conducting cable. The cage is fitted with cog-wheels which engage in a rack. There is every probability that by this, or other similar means, the difficulties—and perhaps also the expense—of raising mined products from great depths may be very considerably reduced; though at present no confirmatory decision can be pronounced, practical experiments and their results being requisite before this can be done. However, electricity is probably destined to produce a fundamental change in the technology of winding appliances.

Dr. Naumann summarized the conditions of deep mining as follows: 1. The determinations of the geothermic conditions at various places furnish very divergent results, so that in many parts of the earth there appears no need to fear any rapid increase of temperature. Thus, for instance, at the Calumet & Hecla the rise in temperature is 1° C. per

122 m., and according to measurements taken by Seymour the standard in the Transvaal is 112 m. per 1° C.

Man can stand somewhat high temperatures, provided the air is dry. The highest temperature at which work can be performed in mines is reported to be 37° C. The very highest temperature at which work is possible at all, is that prevailing in the brewhouse, and is about 80° C.; but in this case the duration of exposure is very short. Again, the stokers on ocean liners have to bear a fearful heat in the tropics. Shortening the working shifts affords another means of rendering work possible.

3. The high temperature prevailing at great depths can be considerably modified by the use of suitable methods of ventilation. Hence, taking all things into consideration, the increased temperature does not form any absolute barrier to further penetration into the depths.

On the subject of cost the author said that it was only in extremely favorable cases that working at the utmost limit of depth would be practicable, the quantity and not the richness of the available ore being the determining factor.

THE BURNETT & NEWBEGIN WASHER.

The accompanying illustrations show a washing machine for minerals devised by Messrs. Burnett & Newbegin; Mr. H. T. Newbegin, of Newcastle-upon-Tyne, England, being the agent for its introduction. In this system the mineral to be treated is crushed and sized in the usual way, one washer being used for each size. The general arrangement of a plant would differ little from that of an ordinary washer.

Fig. 1 shows a diagrammatic section of the patented machine. It consists of an endless trough-shaped belt, having upturned sides, H, H, and a perforated bottom portion, H', across which transverse ribs or dams are fitted, to prevent the mineral from being carried away with the refuse. This belt is supported at each end upon wheels or drums, the upper portion of it being arranged to pass over the water chamber D. At each end draining screens J and K are provided, through which the water used in the washing is drawn off. An outer framework L is provided, which also forms a receptacle for the waste water. The action of the machine is as follows: From the hopper B, through a regulating slide P, and over a jigg tray S, the mineral is distributed on to the perforated surface, H', of the belt, which is traveling in the direction indicated by the arrow, that is, towards J. From the

ported upon the wheels A and A', which revolve on shafts working in suitable bearings, is the endless trough-shaped belt H, on the upper surface of which the mineral to be washed is distributed. This belt is so constructed that it passes over the open portion of the water chamber D in such a manner that all the water supplied through the inlet D' is compelled to pass upwards through the perforated surface of the belt H.

The machine is set at an inclination so that the water coming upward through the belt H flows along its surface toward K, carrying with it the refuse contained in the unwashed mineral; while the upper surface of the belt H moves in the direction indicated by the arrow, carrying with it the clean mineral from which the refuse has been removed and depositing it upon the screen J. At G a spray pipe is provided to wash off any particles which may adhere to the upper surface of the belt H. The belt H is driven at a slow speed by means of the gear wheels N and the pulleys C. At F a delivery plate is provided to convey the refuse from the moving belt on to the screen K. The open-work surface of the belt H' is closed by a plate on the under surface, between the end of the water chamber D and the delivery plate F, except at E, where a sliding tail plate is provided, so that a portion of the

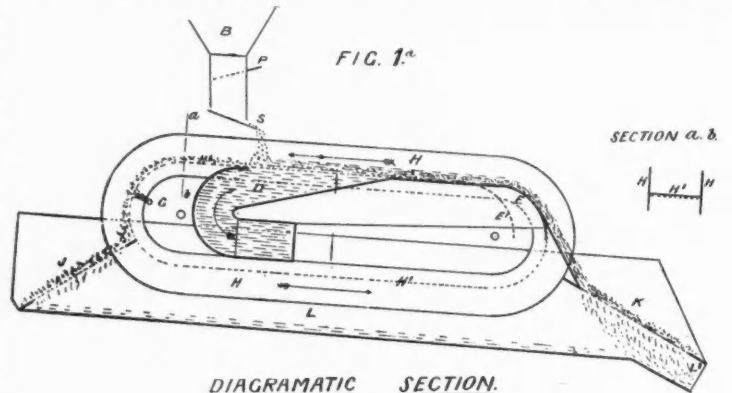
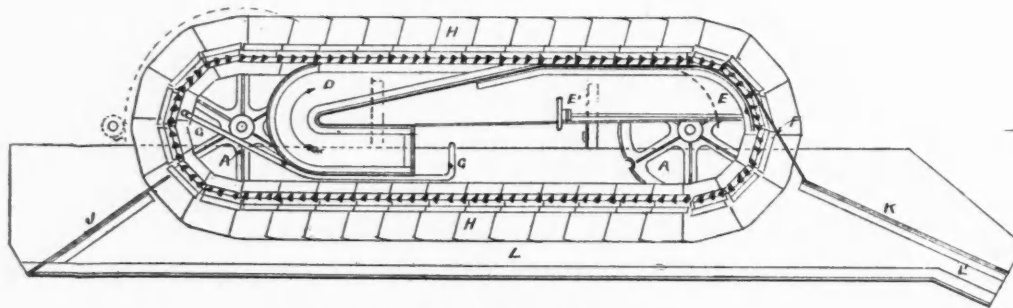
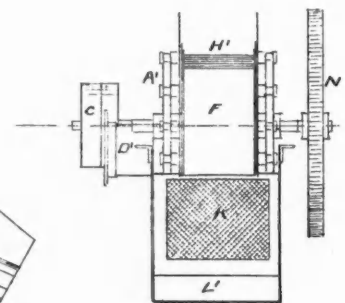


FIG. 3.



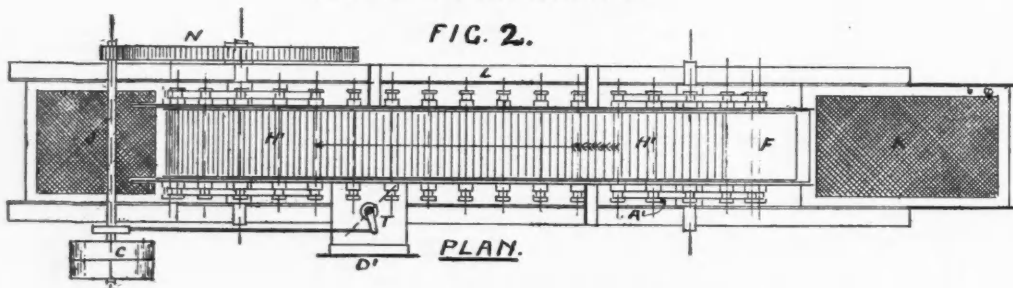
LONGITUDINAL SECTION.

FIG. 4.



END VIEW.

FIG. 2.



PLAN.

THE BURNETT & NEWBEGIN CONCENTRATOR.

water chamber D water is forced through the perforations in the belt at a pressure sufficient to lift the lighter impurities. The belt being set at a suitable inclination toward K, the water flows in that direction, carrying with it the impurities, while the heavier mineral remains on the belt, retained by the dams, and is carried in the opposite direction and delivered at J. At K and J the water is drained off, and passes away at L'. At G a spray pipe is provided to wash off any mineral which may adhere to the perforated surface of the belt. The water, which is forced through the perforated surface of the belt from the water chamber D, may be either supplied at a uniform pressure sufficient to lift out the lighter impurities, or it may be pulsed by means of a throttle valve fitted in the supply pipe and mechanically opened and closed by means of an eccentric fitted to the counter shaft which drives the belt.

Fig. 3 shows a longitudinal section, Fig. 4 an end elevation of the refuse delivery end, and Fig. 2 a plan of the washing machine. Referring to these figures, L is a trough-shaped framework forming the body of the machine; into this are fixed a draining screen for the washed mineral at J, and a similar one at the opposite end K for the refuse. At L' a sprout is provided, through which the water used in the washing passes away. Within this framework, and supported upon suitable brackets, is the water supply chamber D, open at the top, and having the water inlet pipe D'. Above and below this chamber, sup-

ported upon the wheels A and A', which revolve on shafts working in suitable bearings, is the endless trough-shaped belt H, on the upper surface of which the mineral to be washed is distributed. This belt is so constructed that it passes over the open portion of the water chamber D in such a manner that all the water supplied through the inlet D' is compelled to pass upwards through the perforated surface of the belt H.

The belt is composed of a number of links attached together by means of sleeves, which rest upon the supporting wheels. Each link consists of four parts, a link proper, formed with cross bars, set at an angle so as to more perfectly direct the water in an upward direction, and having a gudgeon at each corner, by means of which the adjoining links are attached together by the sleeves. Two sheet iron sides are arranged so that those of the adjoining links overlap, forming a watertight trough on the top side of the belt, and gripping the sides of the water chamber on the under side. Upon the upper surface is laid one or more thicknesses of wire gauze, which forms the perforated surface upon which the mineral to be washed rests, and through which the water which lifts the refuse from among it comes. This gauze is held in place by means of loose grids. The cross bars of these grids form dams or obstructions which prevent the mineral from being washed along the surface of the belt. The gauze is made in two thicknesses, the upper piece being coarser in mesh than the lower one, so as to prevent it from

wear. The gauzes, being in small pieces, may be easily renewed. The joints between the different links of the belt are so arranged as to prevent any particles of mineral from interfering with their free working. The whole of the machine is of metallic construction.

The advantages claimed for this system are that the first cost is lower, and the machines being slow moving and of simple construction are less liable to get out of order than jig washers. As the mineral treated is disposed in a thin continuous layer, the water has at once free access to every particle, and the refuse can be removed rapidly and cheaply. There being no back stroke of the water, as in a jig washer, it is possible to wash very finely-crushed minerals. The washer itself forms a conveyer and delivers the washed mineral at one end and the refuse at the other, thus doing away with hand labor or mechanical conveyers.

ABSTRACTS OF OFFICIAL REPORTS.

Empire Steel and Iron Company.

The first report of this company covers the half-year ending June 30th, 1900. The gross earnings are not stated; the profits were: Iron sold, 58,301 tons, average profit \$2.90, total \$169,033; ore sold (\$1.73 per ton), \$49,747; coke sales, profit, \$89,632; stores, rents, etc., \$18,702; total, \$327,114. Payments were, for taxes, insurance, etc., \$6,476; dividends on preferred stock, \$70,874; total, \$77,350, leaving a surplus of \$249,764. The surplus of current and cash assets over liabilities on June 30th was \$303,084.

The report says: "The results of the operations of this company for the first six months of the current year are herewith submitted in condensed form, and we trust will be found satisfactory.

"In addition to the sum of \$32,961 already charged against earnings of the first six months and passed to credit of extraordinary repairs and renewal fund, the directors have authorized a further reservation of not exceeding \$140,000 for the purpose of reducing the values of stocks of pig iron and raw materials to meet the changed conditions in the iron market.

"For the months of July and August, 1900, the results are quite satisfactory, and indicate clearly our ability to meet the new basis of cost necessary to market our output profitably against strong competition and after a most severe decline.

"There have been valuable and extensive improvements added to the company's mines and furnaces, the effect of which will be felt in cost reductions. The stock of pig iron on hand September 15th was 20,675 tons and unfilled orders, 23,684 tons. Current orders are in excess of the current make. It is intended, therefore, to shortly blow in one or two additional furnaces.

"It may be noted that the Victoria Coal and Coke Company, the bonds of which were guaranteed by the Empire Company in order to furnish reliable coke supply for Victoria furnace, earned its fixed charges for the entire year (\$21,000) in the first four months of operation. In the above figures no account is taken of the earnings of the Crane Iron Works, about 75 per cent. of which company is owned by the Empire Company. The earnings of the Crane Company at present seem to promise for the year about \$60,000."

Breece Mining Company, Colorado.

The report of this Leadville company for the year ending September 30th shows receipts as follows: Rental under leases, \$72,594; interest, \$606; total, \$73,200. Payments were as follows: Salaries and office expenses, \$4,433; dividends, Nos. 7, 8 and 9, \$30,000; total, \$34,433, leaving a balance of \$38,767. Adding \$20,467 brought forward from previous year, left a balance of \$59,234 on hand at the close of the year.

The report of President Willis A. Barnes says: "The royalty received on ores output from your mine has been quite satisfactory for the past year. For the three months prior to June 1st, the date on which we had expected to pay a dividend, the receipts of royalty had not been, in the opinion of your management, sufficient to justify the payment. It was, therefore, deemed better for the interests of stockholders that the surplus should be allowed to accumulate to meet such necessities as might arise. During the latter part of July a new body of ore was discovered; this ore was of better grade and the royalties proportionally larger. I am advised that this ore body was not very large and is now about exhausted. There are, however, several known bodies of ore in sight, but just how extensive they are, or what value per ton the ore will carry, cannot be determined until it taken out and sent to the smelters. The stamp mill has not been working, as the lessees have not yet been able to handle the low-grade ore with any profit.

"Very extensive development and exploration work has been carried on during the year by the lessees, and a large sum of money has been expended. The lessees have stated that it is their intention to sink shaft No. 1—now about 700 ft. deep—to the greater depth of about 1,500 ft., and to accomplish this they are now putting machinery in place. I am advised that the lessees will thoroughly exploit the property at various depths as the shaft is being put down. The business of mining by the lessees on your property has been skillfully conducted; their management is of the best character, and this same skill will be extended during the coming year in the effort to thoroughly exploit the property beyond the present development. The management of your affairs at the home office during the past year will be extended over the coming year. The average value of ore has been \$29 per ton; the average royalty received has been 19 per cent."

Buffalo, Rochester & Pittsburg Railway Company.

This company owns lines from Buffalo and Rochester in New York through Western Pennsylvania to Pittsburg, with branches to Clearfield and New Castle. It controls a large area of coal lands and 85 per cent. of its traffic is in coal and coke. The report for the year ending June 30th, 1900, shows that the gross receipts were \$5,012,135, and the working expenses \$2,888,610, leaving \$2,123,525 as net earnings. Payments for interest on bonds and rentals were \$1,110,573; additions to property,

\$138,269; dividends (4 per cent.) on preferred stock, \$240,000; total, \$1,488,842, leaving a balance of \$634,683. From this \$308,708 was appropriated for payment of bonds and new constructions, leaving \$325,975 to be added to surplus. As compared with the previous year there was an increase of 31.8 per cent. in gross earnings, and 56.1 per cent. in net earnings.

The total freight traffic was 6,641,744 tons moved an average distance of 136.16 miles, making 904,350,661 ton-miles, an increase of 17.4 per cent. over the previous year. The coal and coke traffic was as follows:

	1899.	1900.	Increase.
Bituminous coal carried.....	4,257,679	4,561,172	303,493
Coke carried	579,382	592,507	13,125
Total tons	4,837,061	5,153,679	316,618
Bituminous coal ton-miles.....	579,519,886	675,411,618	95,891,732
Coke ton-miles	61,661,229	77,585,579	15,924,350
Total ton-miles	641,181,115	752,997,197	111,816,086

Bituminous coal constituted 75 per cent. of the total freight business and coke 8.6 per cent. Of the remaining 17.4 per cent. a considerable part consisted of iron ore, limestone, pig iron and finished iron and steel. The average receipt per ton-mile was 0.47c., an increase of 0.06c., or 14.6 per cent., over the previous year. The cost per ton-mile was 0.25c. and the profit 0.22c. The average train load was 419 tons, an excellent result, considering the nature of the traffic. In six years this average train load has been increased 149 tons, by improvements of the road and equipment and growth of business.

The report says that the operation of the Rochester & Pittsburg Coal and Iron Company for the fiscal year showed a surplus of \$184,919 available as additional working capital, after deducting from the net earnings, \$88,547 principal of bonds paid off, and \$230,761 expended for mining machinery, buildings, equipment, development of mines and sundry miscellaneous items. The Cowanshannock Coal and Coke Company, which owns about 7,000 acres of coal lands, operates mines situated on this road which are capable of furnishing a large tonnage.

Colorado Fuel and Iron Company.

This company owns extensive tracts of coal and iron lands in Colorado, and operates coal and iron mines, blast furnaces, steel works and rolling mills. Its capital account includes \$2,000,000 preferred stock; \$23,000,000 common stock, of which \$17,000,000 has been issued and \$6,000,000 is in the company's treasury; \$5,993,000 bonded debt.

The report for the year ending June 30th, 1900, shows results from the different departments as follows:

	Earnings.	Expenses.	Net earnings.
Fuel department	\$5,105,302	\$3,967,607	\$1,137,695
Iron department	4,928,651	3,540,805	1,387,846
Denver Retail Department.....	266,042	246,865	19,177
Pueblo Retail Department.....	44,976	43,166	1,810
Miscellaneous	5,058	.....	5,058
Totals	\$10,350,029	\$7,798,443	\$2,551,586
Less management expenses.....	.....	.....	201,905
Net balance .....	.....	.....	\$2,349,681

The gains made last year were remarkable and reflected the active condition of trade. The increase in gross earnings were \$2,185,220, or 26.3 per cent.; in operating expenses, \$846,685, or 12.2 per cent.; in management costs, \$46,946, or 30.3 per cent.; leaving a gain of \$1,291,590, or 122.1 per cent., in net earnings.

To the net earnings as above there is to be added \$44,995 income from securities, making a total of \$2,394,676. Payments included \$872,182 for interest, sinking and insurance funds; \$270,844 for depreciation and adjustment of various accounts; \$320,000 dividends on preferred stock; a total of \$1,463,026, leaving a balance of \$921,650. The balance brought forward from previous year was \$593,694, making a total surplus of \$1,525,344 at the close of the year.

The output of the coal mines for the year was 3,371,675 short tons, of which 86,241 tons were consumed at the mines, 147,370 tons consumed by the iron mills and 782,965 tons converted into coke, the balance being sold. The coal production showed an increase of 212,569 tons, or 6.7 per cent. over the previous year. The coke production was 503,881 short tons, an increase of 46,858 tons, or 10.3 per cent. Of this coke 145,675 tons were consumed by the iron mills. The average consumption of coal in the coke ovens was 1.55 tons per ton of coke made.

In the Iron Department there were 284,340 tons of iron ore and 86,525 tons of limestone mined and quarried. The total production of iron and steel is given at 592,580 tons. No details of this production are given and there is apparently some duplication, the pig iron made and used in the steel works being counted, as well as the finished product. Sales of iron and steel reported were 141,426 tons, and stocks at the close of the year, 27,031 tons.

The directors' report says: "In September, 1899, the stockholders authorized the increase of the capital stock of the company to \$25,000,000, the increase consisting of 120,000 shares of common stock, par value \$100 each, a total of \$12,000,000. The stockholders also authorized the board of directors from time to time to issue the \$12,000,000 of common stock for cash or in payment for property, or in payment for improvements or developments. In accordance with this authority the board entered into a contract for the sale of 60,000 shares of the common stock, par value \$6,000,000; the consideration for the sale of such stock being an agreement to build certain proposed improvements at the mines and steel works of the company and to make certain cash payments.

"As stated in the circular issued to the stockholders under date of September 5th, 1899, the whole of the new common stock would be required to carry out the improvements proposed. Conditions were such that the contract for the first 60,000 shares of stock were made on terms very favorable to the company, but under existing conditions it has not been possible to make a favorable contract, payable in stock, for the remaining improvements which have been planned. In order to secure the full benefit from the improvements already under way it will be necessary to continue and as fast as practicable carry out, all of the improvements originally contemplated. For this reason it has been deemed

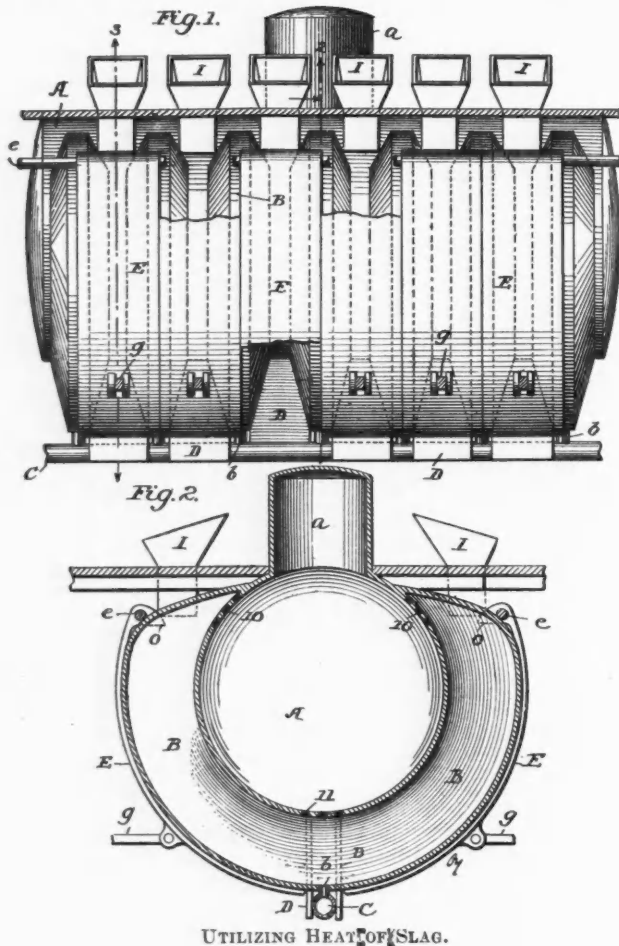
advisable to conserve the company's cash resources and not to distribute all of the current year's earnings in dividends to the preferred and common stockholders until arrangements can be made for disposing of the remaining authorized common stock of the company. The balance to the credit of profit and loss account at the close of the business year, \$1,523,344, is sufficient to pay the accumulated dividends on preferred stock and 6 per cent. on the outstanding \$17,000,000 of common stock and this surplus will be available for dividend purposes when stock can be sold to complete the steel works and other improvements which have been undertaken.

"From the present outlook the net earnings for the six months ending December 31st, 1900, will probably show a considerable increase over the earnings for the same period last year, notwithstanding the reduction in the selling prices of iron and steel products. During the remaining six months of the coming year the company will have a largely increased output of iron and steel, which will help materially in maintaining the earnings, if prices of iron and steel continue to decline, a condition which, considering the prosperity of the country, and large demand for iron and steel, is not likely to exist."

THE WELLS SLAG HEATER.

The accompanying illustration shows a device for utilizing the heat of molten slag, which is described in United States patent No. 657,843, recently issued to James L. Wells, of El Paso, Tex.

In the accompanying drawings, Fig. 1 is a side elevation of a steam-generator embodying the invention, some parts being omitted to more clearly show the construction of other parts. Fig. 2 is a transverse section on the line 2-2 of Fig. 1. The machine has a series of chambers



UTILIZING HEAT OF SLAG.

on the exterior of the receptacle and partially surrounding it, one side of each chamber being movable for the purpose of discharging the slag and each chamber having a filling-aperture. These chambers may be formed in many ways and be of any desired shape, provided they be entirely on the exterior of the receptacle.

Referring to Figs. 1 and 2, it will be seen that the generator consists of a cylindrical portion or shell A, having the usual steam-dome a and a series of ribs or projections B. These ribs or projections are hollow and extend nearly around the shell A, and each is connected at its lower portion to a blow-off pipe C by means of a pipe b. They may be secured to the shell in any desired manner and will be in communication with the interior of the shell through openings 10 and 11, so that the water in the generator will circulate freely through them and the shell.

The ribs or projections B are spaced apart, preferably uniformly, and vertical filling-plates D are inserted in the spaces between them at their lower portions. These plates may be secured to the ribs in any approved manner and form a tight joint at their upper ends with the shell A and at their vertical edges with the opposing sides of adjacent ribs. Preferably two plates will be used, one on each side of the pipe C, and these plates form the bottoms of the slag-receiving chambers, while opposing faces of adjacent ribs and that part of the shell

A included between them will form three of the sides of such chambers. The other or front side must be movable, and, as shown, it consists of a curved plate E, hinged at its upper end to the ribs and so shaped that when closed its lower end will abut against the plate D and its inner face fit closely against the outer face of the ribs. Preferably there will be a separate front plate E for each chamber; but it is obvious that one plate may be used to close the fronts of all the chambers, or a series of plates may be employed, each adapted to close the fronts of two or more of the chambers. Also, preferably, there will be a projecting portion f on the plate to fit in between the opposing faces of adjacent ribs.

Some means must be provided to hold the plates E in closed position and also to open them, and one convenient way is to provide a fixed vertical guide-rod F for each plate, adjacent thereto, on which a pull-rod G is supported to slide vertically. The lower end of this rod is connected to a head or block, which is mounted to slide upon the guide-rod, and this head or block has one end of a link pivotally connected to it, and the other end of such link is pivotally connected to the front plate E. One pull-rod and link will be sufficient if the plate E is used to close only one or two chambers; but if used to close more than two chambers it will be better to employ more pull-rods and links.

For convenience in introducing the slag into the chambers a platform or floor may be constructed above the generator, as indicated by H, and a series of funnels, I, be supported in such floor or platform, one for each chamber. The upper ends of the chambers may be partially closed or be left entirely open, as preferred.

It will thus be seen that there is a series of heating-chambers on opposite sides of the generator and that three sides of each chamber are in direct contact with the water to be heated, thus affording a large area of heating-surface for the generator.

In operation molten slag is poured through the funnels sufficient to fill the chambers to a point just below the water-line of the boiler, and all or only a portion of such chambers may be so filled. After the slag has solidified and parted with most of its heat the plate E of each chamber will be swung open by elevating the pull-rod, and the mass will fall out of the chamber. This will be facilitated by the fact that the opposing sides of adjacent ribs flare outwardly and also by the fact that the slag contracts as it cools.

The hot-blast arrangement is of nearly similar construction, air taking the place of the water contained in a vessel like that shown in the illustration.

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.)

215.—Minerals from Georgia.—R. R.—No. 1, the brownish rock, is an impure quartzite. It is not especially suitable for making into whetstones. No. 2, the greenish rock, resembles slate, but has no slaty cleavage. It may grade into No. 1. It might be classified as an argillite. No. 3 is a fine-grained feldspathic conglomerate, somewhat weathered. Such rock is often called graywacke. It would probably become considerably harder and grayer in color with depth. No. 4 shows no galena. The yellow mineral is a copper-iron sulphide, chalcopyrite. Such rock may carry gold and silver in large amounts. Before thinking of putting up a stamp mill, have the property examined by an expert, and also extend development work enough to give you some idea of the quantity of ore or extent of the deposit.

216.—New Minerals from Greenland.—A recently published account of minerals collected in Greenland during 1897 by G. Flink is reviewed in the "American Journal of Science." The minerals were collected at Narsarsuk, on the Tunugelliarfik Fiord, in Southern Greenland, from a limited area. The country rock is syenite which has in spots a pegmatitic character. Among the more interesting known minerals of which full descriptions are given, may be mentioned parisite, eudidymite, epididymite, ægirite, arfvedsonite, catapleite, neptunite, elpidite. The new species described are nine.

Cordylite is a barium-parisite. It occurs in minute hexagonal crystals, club-like in form, and related in angle to parisite; hardness, 4.5; fracture conchoidal; specific gravity, 4.31; color, wax yellow. The composition is expressed by the formula $Ce_2F_2BaCaO_6$.

Ancylite occurs in minute orthorhombic crystals with strongly curved faces. Color, light yellow to orange or resin-brown; hardness, 4.5; no cleavage; specific gravity, 3.95. In composition it is a hydrated carbonate of cerium and strontium, for which the formula deduced is: $4Ce(OH)CO_3 + 3SrCO_3 + 3H_2O$.

Spodiophyllite resembles a chlorite; it occurs in crystals belonging to the rhombohedral system, combinations of the hexagonal prism and base; cleavage basal, micaceous; hardness, about 3; specific gravity, 2.633; color, ash- to pearl-gray. In composition it is a metasilicate related to ægirite; formula $(Fe,Al)_2(Mg,Fe,Mn)_2(Na_2,K_2)(SiO_3)_8$.

Tainiolite (Tainiolite) is a kind of mica occurring in elongated, colorless crystals with specific gravity = 2.86. An analysis gave: SiO_2 52.2, Al_2O_3 2.7, FeO 0.6, MgO 19.1, K_2O 11.5, Na_2O 1.8, Li_2O 3.8, loss 8.7 = 100. The loss is referred to water (hydroxyl) and fluorine.

Lorenzenite occurs in needle-like orthorhombic crystals, colorless to violet or brown; luster, adamantine; hardness, 6; specific gravity, 3.42. An analysis gave SiO_2 34.26, TiO_2 35.15, ZrO_2 11.92, Na_2O 17.12, K_2O 0.37, H_2O 0.77 = 99.59. The formula deduced is $Na_2(Ti,Zr)_2Si_2O_7$.

Leucosphenite occurs in wedge-shaped monoclinic crystals; color, white, inclining to grayish blue; luster, vitreous, on some faces pearly; hardness, 6.5; specific gravity, 3.05. An analysis gave: SiO_2 56.94, TiO_2 13.20, ZrO_2 3.50, BaO 13.75, Na_2O 11.14, K_2O 0.56, H_2O 0.31 = 99.40. The

formula deduced is $\text{NaBa}(\text{TiO})_2(\text{Si}_2\text{O}_5)_s$. The mineral seems to be related to eudidymite.

Narsarsukite occurs in tabular tetragonal crystals; color, honey-yellow to brownish gray; hardness, a little above 7; specific gravity, 2.751. An analysis gave: SiO_2 61.63, TiO_2 14.00, Fe_2O_3 6.30, Al_2O_3 0.28, MnO 0.47, MgO 0.24, Na_2O 16.12, F 0.71, H_2O 0.29 = 100.04.

Chalcolamprite occurs in small regular octahedrons, resembling pyrochlore; color, dark grayish brown inclining to red; hardness, 5.5; specific gravity, 3.77. An analysis gave: Nb_2O_5 59.65, SiO_2 10.86, TiO_2 0.52, ZrO_2 5.71, Ce_2O_3 (etc.) 3.41, Fe_2O_3 1.87, MnO 0.44, CaO 9.08, K_2O 0.38, Na_2O 3.99, H_2O 1.79, F 5.06 = 102.76 (deduct O) = 100.63. It is regarded as consisting of equal amounts of $\text{RNb}_2\text{O}_6\text{F}_2$ and RSiO_3 .

Endeolite is related to the preceding species, and like it, occurs in regular octahedrons, at first taken for pyrochlore. Color, dark chocolate-brown; hardness, 5; specific gravity, 3.44. An analysis gave: Nb_2O_5 59.93, SiO_2 [11.48], TiO_2 0.76, ZrO_2 3.78, Ce_2O_3 4.43, Fe_2O_3 2.81, MnO 0.37, CaO 7.89, K_2O 0.43, Na_2O 3.58, H_2O 4.14, F 0.69 = 100.29 (deduct O) = 100. The formula deduced is $\text{RNb}_2\text{O}_6(\text{HO})_2 + \text{RSiO}_3$.

Three new minerals from the nephelite-syenite of Julianehaab are described by O. B. Boeggild and Chr. Winther. These are:

Epistolite, a silver-white mineral described by Boeggild, resembles brucite in its tabular crystals and pearly luster on the basal cleavage; it is, however, monoclinic in crystallization. Color, white; hardness, 1 to 1.5; specific gravity, 2.885. An analysis gave: SiO_2 27.59, Nb_2O_5 33.56, TiO_2 7.22, FeO 0.20, MnO 0.30, CaO 0.77, MgO 0.13, Na_2O 17.59, H_2O 11.01, F 1.98 = 100.35 (deduct O) = 99.52. No definite formula can be obtained, as the material used was somewhat altered.

Britholite, described by Winther, occurs in pseudo-hexagonal crystals, related in composite form to aragonite. Color, brown, opaque; luster, greasy to vitreous; hardness, 5.5; specific gravity, 4.446. An analysis gave: SiO_2 16.77, P_2O_5 6.48, $(\text{Ce}, \text{La}, \text{Di})_2\text{O}_3$ 60.54, Fe_2O_3 0.43, CaO 11.28, MgO 0.13, Na_2O 1.85, H_2O 1.27, F 1.33 = 100.08.

Schizolite, also described by Winther, is characterized as a manganese pectolite. It occurs in columnar masses and prismatic crystals, with distinct cleavage. Color, pink to brown; hardness, 5 to 5.5; specific gravity, 3.089. An analysis gave: SiO_2 51.06, TiO_2 0.68, Ce_2O_3 1.47, FeO 2.79, MnO 12.90, CaO 19.48, Na_2O 10.71, H_2O 1.36 = 100.45. The formula deduced is $4\text{R}_2\text{O} \cdot 10\text{RO} \cdot 15\text{SiO}_2$, which does not agree very closely with that of pectolite.

217.—Specular Hematite.—C. D.—The glittering piece of rock is an iron ore, specular hematite. Such ore is of common occurrence in Upper Michigan and is usually high grade.

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.)

Scrap Mica.—Can you tell me of any commercial demand for scrap or broken mica? My mica deposit is near the international boundary, between the United States and Canada.—P. J. de S.

Answer.—An immediate answer is found in a bulletin just received from the Ontario Bureau of Mines, which says: "Inquiry has been received from the Mica-Boiler Company, 85 Anne Street, Montreal, P. Q., asking for dealers in scrap white mica in Ontario. This company handles 125 tons of scrap mica per month, making boiler and pipe covering, paying an average price of \$5 per ton for scrap mica at the nearest shipping point. Most of the product goes to the English manufacturing districts."

Molybdenite.—Is there not something mysterious about the rare metal molybdenum and its ores? I have written to the parties who advertise in the "Engineering and Mining Journal" and cannot get an offer per unit for ores. The only offer I have had is a fixed price for molybdenite carrying 56 per cent. metal. There are plenty of ores in this district carrying other metals, in which 5 or 6 per cent. molybdenite is found. Would it pay to separate this, and how can it be done?—J. B. C.

Answer.—There is nothing mysterious about molybdenum or its uses. The demand for the metal is small and the business of recovering it from its ores is in a few hands, which is doubtless the reason why you received only the offer you refer to. As the parties treating the metal can get all the ores they need without trouble, they do not care to make offers for any outside of those which best suit their purpose. As to the ores to which you refer, it would hardly pay to save the molybdenite, unless it can be separated by a simple process of concentration.

Prospecting Placer Deposits.—I have an area of auriferous gravel which I propose to work by hydraulicking it through a tunnel driven under it from a point some distance away where dump-room is available. But before going to the expense of this I should like information on the following two points at least: Are the gold contents sufficient throughout to pay for working, and what is the depth and location of the lowest point of the valley? The gravel is full of water; indeed, a considerable part of it is under water. The gravel near the surface carries gold, but I don't think it necessarily follows that this extends all through it. Very little information as to shape of valley can be gained from a study of the neighborhood. Is there any known means or appliance for acquiring this information, or how would you advise me to proceed?—W. F. C.

Answer.—It will, of course, be impossible to prospect your deposit by shafts or test-pits on account of the water. The best way probably would be to prospect it by drilling. An article on "Testing Flat Placer Deposits," which was published in the "Engineering and Mining Journal" July 14th, 1900, page 37, will give you some advice on this subject, and some results of experience.

Corundum.—Where is corundum mined? What are its uses? Where can I obtain information about it? Would a corundum mine be a paying proposition to go into?—F. J. T.

Answer.—Corundum is mined in the United States, chiefly in North Carolina and Georgia. Recently important deposits have been discovered in Ontario, and preparations have been made for working them on a large scale. The mineral is used at present chiefly as an abrasive. Other uses have been suggested, but are not yet actual commercial facts. You can obtain information regarding it from the volumes of "The Mineral Industry," and from a report on the Ontario corundum deposits, which was issued last year by the Ontario Bureau of Mines from its office at Toronto. From these you can get the data necessary to decide whether it would pay you to undertake the working of a deposit of this mineral. We cannot undertake to advise you on this point.

Barytes.—Where can I get information on the preparation of barytes—barium sulphate—for market? To what degree of fineness must it be reduced? Methods of bleaching, etc., etc.—F. C. H.

Answer.—There is no special treatise on this subject. The preparation of barytes, as mined, for market is a comparatively simple operation. In preparing the crude barytes for market it is usual to sort the lump ore by hand. It is then crushed to a coarse grain and then boiled with dilute sulphuric acid to remove the iron stains. It is then washed to remove acid, etc., dried and ground fine. It is usually sorted by "floating" in water, and graded according to its fineness. The finer it is, usually, the better the grade and price. The most common impurities are quartz or limestone, from rocks associated with the mineral. Iron stains are also frequently found, and detract from the value of the product, which should be as free from color as possible. See "The Mineral Industry," Volumes IV and VIII.

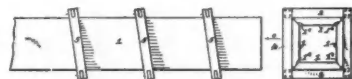
PATENTS RELATING TO MINING AND METALLURGY.

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 September 25th, 1900.

658,332. KNOCKDOWN FLUME. Abraham L. Adams, Bridgeport, Conn. An improvement in a knockdown flume having three or more sides provided with beveled meeting faces, combined with a binder adapt-



658,332.

ed to envelop all of said sides, means whereby force is applied to one or more of said sides to produce a resultant force at an angle to the initial force so as to crowd the remaining sides of the flume hard against the binder and thus firmly lock the whole structure together.

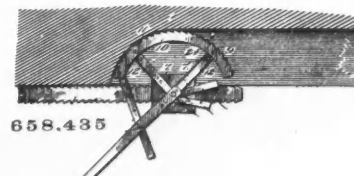
658,334. ROTARY PUMP. Henry A. Hancox and Robert J. Hancox, Sydney, New South Wales. In rotary pumps having an annular chamber and inlet and outlet passages, a radial slide reciprocating in said chamber between the said passages and provided with cavities and a central tubular stem, in combination with cams and levers for operating the said slide, a slide-block, a spindle attached to the said block and a spring encircling the said spindle, the said spring and spindle being within the said stem.

658,366. TUNNELING SHIELD. Cornelius G. Hastings, Chicago, Ill. A tunneling shield comprising a cylindrical shell vertical and horizontal cutting and division plates at the forward end thereof, floor plates extending rearwardly from the horizontal cutting and division plates and reinforcing strips secured longitudinally to the said cutting and division plates and floor plates.

658,407. CASTING PLANT. Maximilian M. Suppes, Elyria, Ohio. In a casting plant the combination with a casting car having a plurality of removable mold beds supported thereon, each of said mold beds having means at both ends and at one side for the connection thereto of hoist chains, of a hoist having two drums, means for operating said drums both conjointly and independently, two chains connected to one drum for connection with the ends of any one of the mold beds, and a single chain connected to the other drum and designed for connection with the side of a mold-bed.

658,408. APPARATUS FOR HANDLING AND CRUSHING COAL. Maximilian M. Suppes, Elyria, Ohio. In a coke plant, the combination with coke ovens, and a coal bin elevated above the said ovens, of a coal crusher mounted over the said bin to traverse the same, and coal-elevating and conveying mechanism arranged to deliver coal to the said crusher at any point in the range of its movement.

658,412. METHOD OF TREATING ORES. Gustaf M. Westman, New York, N. Y., assignor to the Arsenical Gold Reduction Company, Newark, N. J. The process of treating arsenical ores consists in melting



658,435

the ores by the passage of electric currents therethrough, thereby vaporizing the arsenic, cooling portions of the electrodes, maintaining portions of the electrodes intervening between the ore and the cooled portions in a melted condition and collecting the precious metals in such melted portions.

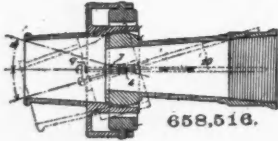
658,430. PULVERIZER. Charles H. Duisdieker, Pekin, Ill. The combination with a supporting frame, of a shaft having a plurality of pulverizing wheels, swinging boxings for the outer end of the shaft journaled to hollowed-out bearings suitably formed in the frame.

658,435. COAL DIGGER. William T. Ginn, Whiteside, Tenn. The combination with a guide-beam provided with a rack-bar extending longi-

gradually thereof, of a carrier slidably mounted on said guide beam, bearing wheels journaled in said carrier and adapted to travel along the guide beam, a cutter mounted upon said carrier and adapted to be oscillated thereon, a lever for oscillating said cutter, a connecting link extending from said lever to the cutter, whereby the stroke of the latter may be varied, and pawls for advancing the cutter at each stroke.

658,435. COMPOSITION FOR CONVERTING IRON INTO STEEL. Erhard Hardmeyer, Kokomo, Ind. A composition consisting of 100 parts albumen and 15 parts Epsom salts.

658,516. DEFLECTOR FOR HYDRAULIC NOZZLES. Joseph W. Smith, Weaverville, Cal. The combination with a hydraulic nozzle, of a spherical segment fixed to the outer end, a ring of larger diameter pivoted and turnable about said segment, a supplemental tubular



658,516.

nozzle having the rear end projecting between the two rings and slotted coincident with the pivot points of the outer ring, said nozzle having upon its rear lugs which extend outwardly and thence rearwardly substantially parallel with the sides of said slotted portion, and said lugs being also pivoted to the outer ring at right angles with the first-named pivots.

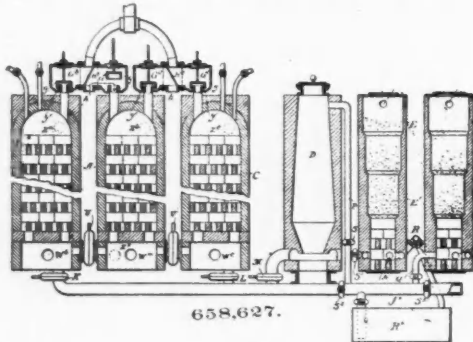
658,536. APPARATUS FOR TREATING ORES. Gustaf M. Westman, New York, N. Y., assignor to the Arsenical Gold Reduction Company, Newark, N. J. The combination of two horizontal electrodes of cast iron, and wrought-iron pipes extending within the body of each electrode for forming a cooling-fluid circuit, said electrodes being located in depressions in the bottom of the furnace, a horizontal bed between the electrodes for receiving the ore to be treated, a vapor escape flue in the upper portion of the furnace, and a tap extending from the bed of the furnace at a point between the electrodes for withdrawing molten metal therefrom.

658,576 and 658,723. APPARATUS FOR MAKING ALKALIES. Paul Naef, New York, N. Y. In apparatus for manufacture of alkali products and chlorine, and for treatment of liquids with gases, the combination of a chamber in which a solution of sodium chloride is to be saturated with ammonia, one or more carbonating chambers in which the ammoniated brine is to be treated with carbonic acid a cooling chamber for cooling the liquor from the carbonating chambers to separate ammonium chloride from said liquor, a chamber for treating the solid ammonium chloride with hot gas and a suitable oxide to produce ammonia, a pipe for conducting the ammonia from said chamber to the chamber for saturating brine and one or more furnaces for driving off chlorine from the chlorides, all the parts of the apparatus being connected to permit a flow through the same, in one direction, of the material being treated, and in intimate contact with a flow of gas in the opposite direction.

658,577; 658,724; 658,725; 658,726 and 658,727. APPARATUS FOR CRYSTALLIZING SOLIDS FROM LIQUIDS. Paul Naef, New York, N. Y. In apparatus for treating liquid with cold gas, for crystallization of solids, the combination of a crystallizing chamber having a series of cooling pipes therein, means for causing a cooling fluid to flow through said pipes, an inlet pipe communicating with one end of said chamber for introducing the liquid to be treated, an outlet pipe for flow of said liquid from the other end of said chamber, a settling tank to receive liquid from said outlet pipe, a gas cooler and means for continuously circulating gas through said cooler and crystallizing chamber, whereby the gas is repeatedly cooled in alternation with its passage through the liquid in said chamber.

658,589. APPARATUS FOR MANUFACTURING GAS. Henri Riche, Paris, France. A furnace, a heating chamber provided therein, a series of vertical flues in communication with said chamber, a vertical retort arranged in each of said flues and adapted to be heated externally, a conduit, a washing tank and connections.

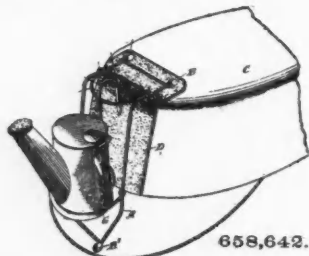
658,626; 658,627 and 658,628. PROCESS OF MAKING PURE CARBONIC ACID. Herbert S. Elworthy, London, England. The process of making



658,627.

carbonic acid by so highly superheating the specified oxidizing gas above the temperature of decomposition that it can compensate for the heat rendered latent in such decomposition, such superheating being effected by the intermittent passage of the said oxidizing gas over inert surfaces rendered highly incandescent.

658,642. SUPPORT FOR MINERS' LAMPS. Christian J. Heckel, Pittsburg Pa., assignor of one-half to Henry J. Pope, Etna, Pa. A support comprising a wire frame bent to fit upon a cap, and provided in



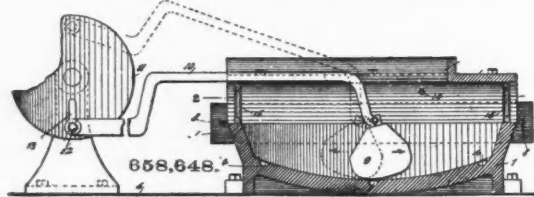
658,642.

its upper portion between the members thereof with an eye to receive the hook of the lamp, a guard projecting horizontally forwardly in front of the eye, and a socket on the lower portion.

658,632. PROCESS OF MAKING CUPRAMMONIUM SOLUTIONS. Max Fremery, Emil Bronnert and Johann Urban, Oberbruch, Germany. Process consisting in treating a mixture of copper and ammonia solution of 16 per cent. strength with air, the said mixture being kept at a temperature below 5° C.

658,635. PROCESS OF PREPARING FUEL. William M. Gillam, London, England. A process for enriching fuel, which consists in first heating the fuel under pressure to drive out its gaseous constituents without permitting them to escape into the atmosphere, then adding a hydrocarbon in a finely-divided condition to the said gaseous constituents under the said pressure, and finally permitting the fuel to cool under the said pressure, whereby the said hydrocarbon and gaseous constituents as well are absorbed by the fuel.

658,648. ORE CRUSHER AND AMALGAMATOR. Louis Jaques, Telluride, Colo. An ore crusher and amalgamator, comprising a mortar, a muller movable in the mortar, means for imparting a sliding and rocking movement to the muller, a boxing having a longitudinal



658,648.

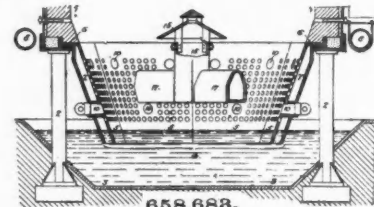
opening in its top and provided with upwardly-extending flanges at the sides of said opening, the said boxing being provided at each end with a screen, side strips on said boxing being adapted to engage over the sides of the mortar, the ends of the strips projecting beyond the ends of the mortar, and clamping bolts passing through the projecting ends of said strips.

658,653. PUDLING FURNACE. Simon P. Kettering, Sharon, Pa. The combination of an open-ended cylinder supported to rotate about its axis, means to rotate it, means to deliver molten metal into one end, means to supply fuel to the interior of the cylinder, a covered rotary pan into which the cylinder discharges the metal, and a stack leading from the cover of the pan through which the products of combustion pass from the cylinder.

658,656. DUMPING MECHANISM FOR CONVEYORS. Augustus L. Le Grand, West Pittston, Pa., assignor of one-half to John N. Thomas, same place. The combination with a conveyor bucket, of a supporting plate bracing the end of the bucket and engaging the side walls thereof, and a pintle extending from the supporting plate.

658,657. LOADING MECHANISM FOR CONVEYORS. Augustus L. Le Grand, West Pittston, Pa., assignor of one-half to John N. Thomas, same place. The combination with a conveyor comprising a series of independently-movable buckets, of a guard carrier, and guard plates carried by said guard carrier and bent into angular form to cause the angularly-related edges of said plates to take over the edges of contiguous buckets.

658,683. GAS PRODUCER. George W. Shem, Camden, N. J., assignor to the Camden Iron Works, same place. A gas producer having an ash hopper with double walls and intervening air chamber, the in-



658,683.

ner wall being perforated, and a sealing pit into which the ash hopper and the chamber between its double walls discharge, in combination with means for supplying air to the chamber between the walls of the hopper.

658,697. APPARATUS FOR BURNING LIQUID FUEL. John Boyle, Peabody, Mass. The combination of a burner, a source of fuel supply, and means operated by an increase of temperature of the burner, for diminishing the fuel supply.

658,698. ELECTRIC FURNACE. Charles S. Bradley, New York, N. Y., assignor to the Cyanide Company, Ampere, N. J. An electric furnace comprising means for delivering current to the furnace, a movable receptacle adapted to contain carbide-producing materials and to present different portions of such materials successively to the action of the current, and gas-delivering means adapted to deliver gas to the receptacle at a definite part of the movement thereof.

658,741. ELECTRIC WELDING MACHINE. Otto Parpart, Cleveland, Ohio, assignor by mesne assignments to the Standard Welding Company, same place. The combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to directly press respectively on the opposite edge portions of the butt joint of a tube, and two rolls tending to force said butt edges together by compression of the tube along lines of pressure angular to those of said conducting device.

GREAT BRITAIN.

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

Week Ending August 25th.

19,466 of 1899. ROASTING FURNACE. E. Petersson, Brussels, Belgium. A furnace for volatilizing arsenic, antimony and tellurium from sulphur ores.

19,684 of 1899. ROASTING FURNACE. C. T. Hennig, London. Calcining and roasting furnaces made in zigzag shape, each part having an internal screw conveyor, the object being to utilize all the heat of the gases.

19,556 of 1899. MAGNETIC SEPARATOR. C. F. Courtney, Broken Hill, N. S. W. A magnetic separator for use in connection with mixed zinc-lead sulphides.

3,776 of 1900. FURNACE CHARGER. A. E. Brown, Cleveland, Ohio, U. S. A. Apparatus for charging and discharging coke ovens and open-hearth steel furnaces.

9,892 of 1900. PHOSPHATE MILL. A. J. Sackett, Baltimore, Md., U. S. A. A mill for disintegrating phosphate rock.

12,006 of 1900. METALLURGICAL FURNACE. E. Kerr, Pittsburg, Pa., U. S. A. A melting furnace in combination with metallurgical furnace.

PERSONAL.

Prof. Henry M. Howe, of Columbia University, has returned from Europe.

Mr. Thos. Ellis, of Alameda, Cal., has returned to his properties in Oaxaca, Mexico.

Mr. E. S. Houghton, of Detroit, Mich., has been in Colorado to look after his mining interests.

Mr. Allan C. Washington was in Utah last week to attend the annual meeting of the Horn Silver Mining Company.

Mr. John Dern returned to Salt Lake City a week ago, after an absence in Europe of more than 6 months.

Mr. Isidore Davidov, of the Santa Barbara Gold Placer Mines in Colombia, S. America, is in New York City for a few months.

Mr. E. C. Rhodes, of the cyanide department of El Oro Mining Company, of El Oro, Mexico, has been in Pasadena, Cal.

Mr. F. G. Corning, of New York City, is to spend the month of October in Lower California, examining mining properties.

Capt. James Morrish, general manager of the Velvet Mines, has been on a visit to this group on Sophie Mountain, British Columbia.

Baron J. de Fontaineau, of Paris, France, has been visiting Bisbee, Ariz., the guest of Mr. James Douglas, of the Copper Queen mines.

Mr. R. H. Toll, mining engineer, of Denver, Colo., is in charge of the precipitation plant of the Esperanza Mine, at El Oro, Mexico.

Mr. W. Spencer, surveyor at the Golden Gate Mill, Mercur, Utah, is to take charge of underground work at the Cochiti Mine, Bland, N. Mex.

Mr. F. H. Husted, of the Guazaparez Mining and Milling Company, Chihuahua, Mex., recently went to New York to purchase a lixiviation plant.

Mr. H. A. Fennerty has been appointed general purchasing agent for the Carnegie Steel Company, of Pittsburg, Pa., succeeding Mr. George Megrew.

Mr. C. G. Rothwell, mining engineer at Florence, Colo., is now engaged in Republic, Wash., on professional business and expects to be there for a couple of months.

Mr. Richard Eames, Jr., mining engineer, has returned from Arizona, where he has been developing mining property, and is now at the Grand Hotel, New York.

Mr. J. Emery Harrington, of Boston, treasurer of the Great Eastern Gold Mining Company, operating the Melvin Mine, of Boulder County, Colo., has gone to Boston.

Mr. J. H. Kervin, late in charge of the Ontario, Utah, assay office, is chemist at the new smelting plant of the Bingham Copper and Gold Mining Company at Bingham, Utah.

Mr. James E. Beveridge, who has been superintendent of the South American Development Company in Ecuador for several years past, has resigned his position and returned to Salt Lake City, Utah.

Mr. E. B. Sawyer, who has been assayer with the De La Mar Mines Company at Mercur, Utah, has accepted a position as chemist and assayer at the Portland Mining Company's cyanide plant at Deadwood, S. D.

Mr. William Bind, formerly superintendent of the Blue Gouge Mine in El Dorado County, Cal., has returned from Chihuahua, Mex., where he has secured some valuable coal land concessions, which he intends to develop.

Mr. Benj. S. Buckman has returned from a 2 years' absence in Korea, and is now with the Oriental Consolidated Mining Company, which owns 3 quartz properties, with a total of 80 stamps, near Michigan Bluff, Cal.

Mr. H. W. Hardinge returned to Denver some days ago from a professional trip to the Wind River Range in Wyoming and left at once for the San Juan County, Colo., in order to examine some mining properties in that district.

Mr. Hudson H. Nicholson has returned from the Fra Cristobal Mountains, N. M., where he has been examining a mine for the American Mining Investment Company. He is now investigating a group of copper prospects in Boulder County, Colo.

Mr. N. H. Clark, of Oil City, Pa., a large stockholder in the Trade Dollar Consolidated Mining Company, has been visiting the company's property near Silver City, Idaho. He stated that the gross output of the mines this year will be about \$700,000.

Mr. T. G. Shaughnessy, president of the Cana-

dian Pacific Railway Company; Mr. R. B. Angus, Mr. E. B. Osler, Mr. W. H. Mathews, directors, and Mr. William Whyte, general manager of the Western Division, were in Rossland September 29th making an investigation into the mining conditions there.

Mr. W. E. Taylor has been appointed general manager of all the plants owned and operated by the Republic Iron and Steel Company. Mr. Taylor will continue to hold the position of vice-president of the Republic Iron and Steel Company, and his headquarters will remain in Chicago.

Mr. S. W. Osgood, a graduate of the Michigan College of Mines, and until recently with the Columbia and Mansfield mines at Crystal Falls, Mich., has gone to Copper Harbor to take charge of a manganese mine which is being developed there. He is succeeded at Crystal Falls by Mr. A. E. Michelson.

Capt. T. H. Trethewey, of Goderich, Ont., has accepted a proposition from the Marquis of Queensbury to accompany him to Siberia to examine several valuable mining properties in which the Marquis is interested. The party arrived at Moscow on August 25th en route to the prospecting grounds. Capt. Trethewey expects to be absent 3 months.

Mr. Frederick Bradley, consulting engineer and general manager of several of the Coeur d'Alene mines, who is also president of the Union Hill Mining Company, together with Mr. Hennen Jennings, of London, Eng., and Mr. William Mein, son of the late Captain Thomas Mein, recently visited Grass Valley, Cal. The object of their trip was to inspect the Union Hill Mine.

Mr. L. D. Barton, of New Albany, Ind., will arrive in Birmingham shortly to accept a position in the engineering department of the Sloss Sheffield Steel and Iron Company as assistant general manager under General Manager Priestly Toulmin at Birmingham, Ala. Mr. Barton recently resigned the position of superintendent of the Peoria, Decatur & Evansville Railroad. Mr. E. O. Hopkins, recently elected president of the Sloss Company, was in charge of the Peoria Railroad and Mr. Barton accepts the position with the Sloss Company at his request.

OBITUARY.

Capt. George S. Cartwright, of the 21st United States infantry, died of fever at Camp Columbia, near Havana, on October 7th. Capt. Cartwright took a lively interest in mining and had been connected with some mining ventures in Cuba.

James L. Morgan, senior member of the well-known chemical manufacturing firm of James L. Morgan & Son, New York, died at his home in Brooklyn on October 6th. He was born in Tuckahoe, Westchester County, N. Y., in 1821. In 1843 he started in business as a chemical manufacturer in New York City, and in 1899 retired. The business is now a branch of the General Chemical Company, of which his son, Mr. James L. Morgan, Jr., is treasurer.

Warner M. Newbold, superintendent of the South and North Division of the Louisville & Nashville Railroad and of the Birmingham Mineral Railroad, shot himself last week. Mr. Newbold was respected by iron and steel men throughout the South, his efforts in their behalf being felt in all quarters. It is believed grief over the death of his wife last year clouded his mind and led to his death. J. L. Welch has been appointed as Mr. Newbold's successor.

INDUSTRIAL NOTES.

The National Steel Company is shipping 1,000 tons of steel rails from its mills at Youngstown, O., to New Zealand.

The Lambert Hoisting Engine Company, of New York City, is to supply 4 electric mining hoists, to be used in the Deep Leads mines in Australia.

The Mine and Smelter Supply Company, of Salt Lake, recently filled an order for a Boise, Idaho, mining company for 4 Wilfley tables, 2 vanners and 4 ore feeders.

The Goodman Manufacturing Company, manufacturers of electric mine equipment, is building a large factory at the intersection of Halstead and 48th streets, Chicago, Ill.

The Simpson Manufacturing Company, of Winthrop Harbor, Ill., with Chicago office at 95 Dearborn street, announces that it has succeeded to the business of The Simpson Machinery Company, of Grand Crossing, Ill.

The Sterling Boiler Company, of New York, is at work on 32 boilers, to be placed in 2 large steamships, to be built by the Great Eastern Shipbuilding Company. The boilers will develop 250 H. P. each. The vessels will be 640 ft. long, 75 ft. beam and 64 ft. deep.

The Nordberg Manufacturing Company, of Milwaukee, Wis., is about beginning the erection of the additions to its plant planned some time ago. The company states that September was a satisfactory month and that orders have been booked even 18 months ahead.

The Sall Mountain Asbestos Company, Chicago, reports a large order for non-conducting covering from a Chicago concern. The company was incorporated about a year ago, and has almost trebled its original capacity for turning out steam pipe and boiler covering.

The Sullivan Machinery Company, of Chicago, Ill., states that it has opened a branch office at 101 S. Howard St., Spokane, Wash., which will be in charge of M. J. Ready. At this branch the company will keep in stock a complete line of its rock drills, diamond drills and supplies.

A Western paper states that the Consolidated Mercur Gold Mines Company has contracted with the Roessler & Hasslacher Chemical Company, of New York, for 400,000 lbs. of cyanide of potassium, which will be used in ore treatment at the Mercur Company's mill at Mercur, Utah.

The New England Structural Company, of Boston, Mass., has been awarded the contract for the steel framework for the engine and boiler house for the United States Steel Company, at Everett, Mass. The main building of the steel casting company's plant is 120 by 200 ft., and is nearly completed. Two 15-ton open-hearth furnaces are being built.

The American Bridge Company states that it has begun making very large shipments on account of the steel work for the subway in New York City. Already about 2,900 tons have been shipped and the material is now being sent in at the rate of about 100 tons per day. The total contract comprises about 80,000 tons of structural material, and is being manufactured at the Keystone plant of the American Bridge Company.

The Brown Hoisting Machinery Company, of Cleveland, O., has shipped to Egypt via Liverpool the first consignment of a plant which has been ordered by the Egyptian State Railways. The machinery is intended for a coaling station at Alexandria. A cargo of machinery of the same character is being shipped to India, where it will form the nucleus of an extensive coaling station at the Kidderpool docks, Calcutta.

John P. Campbell of Boston, Mass., has just been awarded the contract for the new buildings at Jamaica Plain of the Buff & Buff Manufacturing Company, manufacturers of engineering and surveying instruments. The plans call for 2-story brick structures, to be planned and constructed per the latest type of mill construction. An independent and isolated stone building is included to accommodate the precise graduating engines owned by this concern. C. R. Currier is the architect in charge.

The Wheeler Condenser and Engineering Company, of New York City, has booked the following orders for coaling towers: For the Newcastle-on-Tyne Electric Supply Company, a coaling tower of 2,000 H. P. capacity; a tower of 1,000 H. P. capacity for Platt Brothers' Hartford mills, at Oldham; another of the same size for the Bromley electric supply station, and another for the railway power house of the Southend Corporation. In the last two cases the orders include condensing plants, feed-water heaters, etc.

The Iroquois Salt Company, recently incorporated with a capital of \$75,000, which may be increased to \$100,000, will, it is said, operate entirely independently of the National Salt Company. The directors are: Walter B. Duffy, Rochester; A. E. Patton, Curwensville, Pa.; Harry Yates, C. H. Polly, Buffalo; Lucius W. Robinson, Punxsutawny, Pa.; Chester A. Carmichael, Charles A. Toan, Perry. Other stockholders are: Arthur G. Yates, Levi S. Ward, Rochester, and James H. Smith, Buffalo. The company, it is stated, will begin work on a large plant at Silver Lake.

The Edward P. Allis Company, of Milwaukee, Wis., has recently shipped to the Midvale Steel Company in Pennsylvania one of the largest electric cranes yet built. It has a 65-ft. span and a lifting capacity of 200 tons. It is to be used in the manufacture of armor plates for battleships. The company booked orders in September for some 15 engines, the most notable being 3 vertical cross compound direct coupled engines of 2,500 H. P. each, for the extension of the Sydney Tramway Power Station in Sydney, New South Wales.

TRADE CATALOGUES.

Baker County, Ore., its gold mines and other mineral resources are praised in an illustrated folder issued by the Oregon Railroad and Navigation Company of Portland, Ore. The folder contains a serviceable large scale map showing the location of all prominent mines.

Catalogue No. 2, a pamphlet of 168 pages, issued by the Joshua Hendy Machine Works, of San Francisco, Cal., contains a large amount of information about gold and silver quartz mining and milling machinery. The company states that it makes a great variety of machinery and is also agent for a number of prominent Eastern concerns making engines, boilers, etc. One of the features of the catalogue is the prospecting outfit for small mines. This includes a horse whim, ore bucket, one car, crusher, "Challenge" ore feeder, Hendy triple-discharge 2-stamp mill with screens and plates and a "Triumph" or Hendy-Norborn concentrator. The company states that it is prepared to furnish complete outfits for stamp mills, with 5 or 10-stamp batteries; also silver ore mills and cyanide and chlorination works. The catalogue contains some useful tables.

"What! Only 27 Revolutions?" is the odd title of a neat 20-page pamphlet issued by the F. L. Schmidh Company, of New York City and Copenhagen. On examination one finds that the title refers to the number of revolutions per minute required to reduce refractory substances in one of the company's Davidsen patent tube mills. This mill consists of a tub lined with stone or chilled iron and about half filled with Greenland quartz pebbles. It is made in two sizes, one requiring 27 and the other 60 H. P. The smaller size has a grinding capacity 3,500 to 6,500 lbs. of clinker per hour fine enough for 95% to pass a 10,000 mesh screen, such clinker having been previously ground to No. 20 mesh. For this preliminary grinding the Schmidh ball mill, which employs a smaller number of quartz pebbles, is recommended. This mill is made in 3 types, according to the coarseness of the material to be fed. It is equipped with an automatic feeder. A list of companies using Davidsen tube mills is given.

MACHINERY AND SUPPLIES WANTED.

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

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

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

GENERAL MINING NEWS.

Oil Production.—September was an eventful month in the Pennsylvania oil fields, showing the biggest amount of new production since 1891. A new well of the South Penn Company, 14 miles southwest of Weston, in Lewis County, W. Va., struck the oil sand September 22d and started flowing at a great rate. There being no adequate tankage available, much of the oil ran into neighboring streams. The well flowed at the rate of fully 6,000 bbls. a day and is the biggest gusher ever struck in West Virginia. Another gusher east of the Watsonville Pool in McKean County, Pa., flowed at the rate of 100 bbls. an hour, says the Oil City "Derrick."

There were 1,287 wells completed in the Pennsylvania and Trenton rock oil fields during September, 222 were dry and the new production was 25,453 bbls. daily. While this is a decline of 15 in number of wells completed as compared with the August figures, there is a gain of 5,069 bbls. in new production, largely due to the 2 gushers noted above.

On September 30th there were 554 rigs and 1,188 drilling wells under way in the fields, producing Pennsylvania and Lima oils, which is a decrease of 2 rigs and an increase of 36 wells drilling over the record at the close of August. This is a net gain of 34, which can be credited alone to operations in the Pennsylvania field, as Indiana and Northwestern Ohio presented an exact stand-off, one having a gain and the other a falling off of 15 rigs and wells drilling.

ALASKA.

(From Our Special Correspondent.)

Ebner.—This mill, in the Gold Creek Valley, back of the town of Juneau, has 5 additional stamps dropping, 15 in all. Two drills have been laid off in the stopes, so much ore being available that 2 easily keep the mill supplied.

Jualin.—This mine, at Berner's Bay, is producing steadily and has a 2-years' ore supply blocked out. A 12-drill air plant has been ordered and will be installed as soon as the snow falls. It will be placed alongside the mill.

Nowell.—This mill, at Sheep Creek, is shut down.

At Berner's Bay the mill is running half its stamps on ore from the Kensington. The Comet is shut down. The Hydraulic Mine in Silver Bow Basin is producing as usual. Mr. T. D. Nowell has just left Alaska for the East.

Alaska-Treadwell.—The long job of replacing the foundations of the 240 stamps in the old mill will be completed in another month. The 14 years of continuous use, with the constant moisture, had rotted much of the heavy mill timber. Replacement was almost like building a new mill, and has taken all summer.

ARIZONA.

Graham County.

Arizona Copper Company.—The Arizona & New Mexico Railroad from Clifton to Lordsburg is to be changed from 36-in. to standard gauge. The contract has been let to S. H. Buchanan, of El Paso. At the Longfellow larger ore bins are to be erected; also a 200-ton concentrating plant, which will do away with the heavy traffic over the Longfellow incline.

The old reduction plant of the company in Clifton is to be remodeled throughout and many parts made entirely new. A tunnel is to be driven under the works and into the mountains back of them where it will connect with a shaft from the top of the mountain; this shaft and tunnel, it is said, will be used as a dust chamber for all the furnaces as well as to conduct the smoke from the converters away from the town.

Mohave County.

(From Our Special Correspondent.)

Gold Road.—Fabulous stories are told of the richness of the mines in this new camp in the Colorado River range, 25 miles southwest from Kingman.

Maguire.—This group of mines, 3 miles from Kingman, will be worked with a 100-ton mill, for which the ground has been broken. There is an immense deposit of ore over which passes the Santa Fe Railroad.

Needles Smelter.—The new smelter at Needles, on which the miners of this county have counted much to save transportation charges, is still an uncertainty. Sampling works have been put in and much work done, but the stack is not yet in operation.

Occident.—A discovery of deep ore is reported in the workings of this mine at White Hills. Ore was found for the first 200 ft., but for 400 ft. more there was very low grade or no ore at all. For the last 100 ft. nothing but a seam went to show where a rich lead had existed. The shaft went on and at 650 ft. struck rich silver ore, which is being shipped by the carload. This will settle the question of sinking a vertical shaft which has been under advisement for some time.

CALIFORNIA.

The California Debris Commission will give a hearing on October 15th to the following new applications to mine by the hydraulic process: Dewey Consolidated Gravel Mining Company in the Homeward Bound, Evening Star and Morning Light mines, near Iowa Hill, Placer County, to deposit tailings in Indian Canyon; from Mary E. Ruth, et al., in the Buckeye Mine, near North San Juan, Nevada County, to deposit tailings in a worked-out pit; from the Ralston Divide Gold Mining Company, in the Pat Goggins and Blacksmith Flat mines, near Virner, Placer County, to deposit tailings in Long Canyon; from Nathan Gardiner, in the Sidney Placer Mine, near Igo, Shasta County, to deposit tailings in Sidney Gulch; and from A. W. Whitney and C. Y. Hepler, in the Miocene Mine, near Crescent Mills, Plumas County, to deposit tailings in Rush Creek.

Amador County.

(From Our Special Correspondent.)

Baliol.—The 40-stamp mill has started but is not running continuously on account of the short water supply. It is reported that W. H. Storms has been appointed superintendent.

Bunker Hill.—The shaft at this mine north from Amador City has been pumped out and re-timbered to 40 ft. below the 600-ft. level. The drift run on the 200-ft. to intersect the drain tunnel, which was driven in by the old company through the Mayflower ground from Rancheria Creek, is in 200 ft., following the contact. Some rich stringers were cut during the work.

Free American.—The new shaft at this mine, 6 miles up Sutter Creek, is down 100 ft., and a pumping plant has been put in. Sinking is to be continued to the 200 before cross-cutting.

Shenandoah.—The shaft at this mine near Plymouth has reached a depth of 500 ft., while drifts have been run on the 200, 350 and 500-ft. levels.

Calaveras County.

(From Our Special Correspondent.)

Lone Star.—Development work has started on this property, 2½ miles northwest from West Point, and a new shaft is to be sunk to a depth of 350 ft. The new reservoir on the Volcano Road, at Big Flat, has been completed and work on another one on the Mokelumne River, near McQuaide's, has been started.

Kern County.

(From Our Special Correspondent.)

A new vein, said to be 80 ft. wide, has been uncovered on the 900-ft. level. Average assays are said to be over \$10 per ton.

Yellow Aster.—The management of this company has decided to increase the milling plant at Randsburg to 130 stamps.

Lasson County.

(From Our Special Correspondent.)

Daisy Dean Mining Company.—This company has been organized with the following directors: Capt. J. H. Roberts, J. G. Jilson, Charles L. Crane, L. A. McIntosh, and B. P. McIntosh, for the purpose of working the Daisy Dean and other claims north from Hayden Hill. These claims, which are held under bond, have been developed to a considerable extent. The shaft is down 100 ft. on a vein of high-grade ore. There are 1,500 tons on the dump. An electric plant has been installed and the mill will start up soon. The erection of a cyanide plant is contemplated.

Mariposa County.

(From Our Special Correspondent.)

Buckeye Group.—Work on these 7 claims on Buckeye Creek, about 2 miles east of Bridgeport, and 22 miles from La Grange on the railroad, will probably be resumed soon. The property is developed by 4 shafts, 2 old ones down 75 ft. each on a 4-ft. vein and 2 new ones down 130 and 40 ft., respectively, on a 3-ft. vein. Four drifts have been run in the latter. The ore is free milling, yielding about \$10 per ton on runs made in the 4-stamp mill. The plant consists of a 4-stamp mill, rockbreaker, grizzly, 2 concentrators, etc. The hoist is operated by horsepower.

Nevada County.

(From Our Special Correspondent.)

Reddick.—On this gravel property on Selby Hill, about 2 miles north from Nevada City, the old Delaware Channel has been struck. The prospects are said to be rich, with several hundred feet of backs. Work is to be pushed on a large scale.

Placer County.

(From Our Special Correspondent.)

Azalea.—Work has been resumed on this mine near Blue Canyon, and after the timbering is done, drilling will be resumed. A full force will work day and night until the channel is reached.

San Bernardino County.

(From Our Special Correspondent.)

Parker Mining Company.—This company has contracted for a 25-stamp mill, to be erected on its property, 60 miles below the Needles, on the Colorado River. A force of men at the mine, 3 miles from the river, is getting out ore. Development work has been in progress for 2 years under the superintendency of T. M. Drennan, of Park City, Ariz., in the interests of his Chicago company. The ore is good grade.

Shasta County.

(From Our Special Correspondent.)

Mt. Shasta.—This group of mines, comprising the Mt. Shasta, Quaker, Manila, Nellie B., Annie Laurie, Aladdin, Lucknow, Tally Ho, Yellow Bird, Fawn, Holly, Wedge, Monitor and Lucky Boy claims, have been disposed of at commissioner's sale to satisfy a judgment held by R. R. Vair against the company for \$5,926, with costs and interest. The property was bid in by a representative of the plaintiff.

Siskiyou County.

(From Our Special Correspondent.)

Dewey.—Two cross-cut tunnels in the lower level of this mine, 8 miles from Gazelle, have exposed a large body of high-grade ore, 120 tons of which returned \$4,250 from the smelter at Keswick. This ore body is said to be almost 100 ft. wide.

Greenhorn Blue Gravel No. 2.—This mine, south of Yreka, has been pumped out and the broken parts of the old pump taken out for repairs. The management intends to drift back from the top of the deep gulch to find rich ground higher up.

McKean.—This mine, 3 miles from Callahan, is worked by a good force of men. A cyanide plant has been erected near the mine, and most of the ore will be worked by that process.

Montezuma.—This river claim at Callahan and several other claims on South Fork of Scott River are to be worked with a dredger by New York parties in the spring. Considerable preparatory work is being done.

Trinity County.

(From Our Special Correspondent.)

Forest Queen.—On this property, north of Nash Store, idle all summer, development work is resumed. A rich vein has been cut which is said to carry high values in free gold and sulphurets. Los Angeles parties are working the property.

Whitmore & Young.—This gravel property, comprising several thousand acres, situated on Oregon Mountain at the head of Democrat Gulch, is reported to have been sold to a San Francisco syndicate, which intends to build a 25-mile ditch to take water from Canyon Creek Falls, 6 miles above Dedrick. This property is known to be very rich, but requires plenty of water to work it to advantage.

Tuolumne County.

(From Our Special Correspondent.)

Green Consolidated Gold Mining Company.—This company erected a new hoist on shaft No. 2, on the Green Claim, and is driving a tunnel on the Mount Vernon Claim which is in 150 ft. Within the next 50 ft. the vein should be cut. The property is on the North Fork of the Tuolumne River, 3½ miles above Sugar Pine.

COLORADO.

Boulder County.

Melvina.—This old mine, at Salina, is to be reopened and worked by the Great Eastern Gold Mining Company, of Boston, Mass. The mine was opened 30 years ago and produced some high-grade ore, but had been idle some years until D. G. Peabody bonded it 3 years ago. The shaft is now down 615 ft. According to reports some very high-grade sylvanite ore has been shipped recently to Denver. An adit level, which it is said will run in ore all the way, is now in 300 ft.; it will cut the shaft 3,000 ft. in. Most of the stockholders are Eastern men. J. Emery Harriman, Jr., of Boston, is treasurer and manager of the company.

Gilpin County.

(From Our Special Correspondent.)

After Supper.—The lessees are going to put up a new shaft building and install a 30-H. P. plant. B. Kimber, Black Hawk, is manager.

Calhoun.—Eastern parties are reported to be about ready to take hold of this property, which was formerly operated by Bliebel & Company.

Hidden Treasure.—The Kansas-Burroughs Consolidated Mining Company has since October 1st taken hold of this property, formerly operated by The Gold Coin Mines Company, and will keep the water out, under some option arrangement for the next 30 days. The property is advertised to be sold at sheriff's sale for the Knickerbocker Trust Company on account of an order of sale, the amount being named at \$108,666. It is not expected that the sale will really take place.

Merrimac.—The National Mining and Milling Company is installing a gasoline hoisting plant. J. J. Reilly, Central City, is manager.

Old Town.—A new shaft-house has been completed and sinking begun with intention of going down 400 ft. deeper. A switch has been built by The Gilpin Tramway Company. G. H. Kimball, Jr., Idaho Springs, is manager.

O'Neill.—The Colorado-Ontario Gold Mining Company is sinking this week with three 8-hour shifts, intending to sink the shaft 500 ft. deeper, making it 1,000 ft. Shipments of ore are to begin and the property is now equipped with a splendid plant of machinery. H. C. Eastman, Central City, is manager.

Phoenix Boroughs.—A new 100-H. P. hoist has been ordered from Hendrie & Bolthoff, of Denver. Sinking is about finished, which will make this shaft about 1,300 ft. deep, and heavy shipments may be expected. P. McCann, Central City, is manager.

Powers.—A plant of machinery has been installed and Chamberlain & Company are going to sink the shaft. This property is famous for its enargite ore.

Gunnison County.

(From Our Special Correspondent.)

Ashland Mining Company.—Carter Brothers are driving a big tunnel to cut this company's property, the breast being now in 325 ft. Several strong veins have been cut.

Belle of Titusville.—This property has been bonded to a company that is preparing for development during the winter.

Tin Cup District.—Two tunnels are being driven on the Enterprise, an 8-ft. vein of high-grade milling ore, with a pay streak of first-class. A 60-ft. vein of iron and copper ore has been uncovered near the surface on the Berger Placer. A new shaft on good ore has been started on the Indiana by Duncan et al. A force of men has been put on at the Jimmy Mack and will shortly be increased by the addition of another shift. Good ore has been struck in the shaft on the Bonanza Lode by Hurley & Hughes. Olson & Miller have discovered a good streak of lead ore in the Antimony on Taylor Hill. The rich ore recently found in the Perigo has improved in quality and shipments are now being made to Aspen.

Lake County—Leadville.

(From Our Special Correspondent.)

Leadville Production.—The output shows an increase to about 2,250 tons of all classes of ore per day. The output from the gold belt shows a large increase over last month.

Banker Mining Company.—The ore being developed in 2 of the levels is improving and it is anticipated that shipments will soon begin. The shaft is down 1,100 ft. Manager Guth is now in New York consulting with other owners.

Butcher Boy.—This new Ball Mountain project being handled by P. L. Kimberly has a new shaft down 175 ft.

California Gulch Mining Company.—At the 530-ft. level 5 ft. of low-grade iron ore is exposed. The new find will be developed. The company is handling the water satisfactorily.

Matchless.—This famous property made Senator Tabor rich and his wife has been endeavoring to save it. It was sold under the hammer this week for \$18,000 to satisfy a judgment held by the buyers, J. W. Newell, W. B. Page and W. R. Harp. According to the statute, Mrs. Tabor has 6 months to redeem. The upper levels of the Matchless produced millions of dollars. The lower levels have never been explored.

Midas.—The enormous iron bodies are worked on 2 levels and shipments for September were 5,000 tons of good-grade iron ore.

Montgomery.—The new shaft is shipping and some very nice lead carbonates are found. Shipments will be regular.

New Elkhorn Mining Company.—The company put down a deep shaft on its property in Evans Gulch, but has been idle some years. It has a magnificent surface plant and a large acreage. Mr. Walter Heape, of London, is now in the city and is making an examination of the property to report to the other directors of the company.

Penn Mining Company.—Dennis and S. J. Sullivan own the controlling interest in this company which is working the old Breece-Iron proposition. Shipments average 300 tons a day, one of the biggest outputs in the camp.

Poverty Flat Mining Company.—The development in the Seeley Shaft shows 75 ft. of the iron ore body.

Valentine Mining Company.—The shaft is down 483 ft. and good streaks of iron ore are showing. The new pumping plant has no trouble handling the water.

Weldon Mining Company.—The fire damage is about completed. The shaft has been retimbered 50 ft. from the surface. An entire new surface plant is being put in and as soon as this is done Weldon No. 1 shaft will begin steady shipments from the ore already opened.

Ouray County.

(From Our Special Correspondent.)

American Nettie.—This company's mill was started September 10th, and is running smoothly. An automatic tramway over 2,000 ft. long conveys the ore to the mill. Proprietor Wrisberg will erect a similar mill soon at his properties in Hinsdale County.

San Juan County.

Kendrick & Gelder Smelting and Mining Company.—According to statements given out by interested parties, the matte smelter near Silverton is expected to be ready by November 1st. The ore bins completed are on a spur from the Silverton & Gladstone Railroad. A flume 5,000 ft. long takes 20 cu. ft. of water per second from Cement Creek, which is delivered to an impulse water wheel at the mill under 170 ft. pressure, producing 340 H. P. This wheel will supply power for the crushers and rolls in the sampling department, the blower for the furnace, and a dynamo for light. The furnace is 42 by 120 in., has a capacity of 200 tons per day, and will have a Bretherton blast heater, the blast being supplied by a Connellsville blower. From the furnace discharge the slag will pass, be granulated and go to the dump without the use of slag cars. The furnace charge, it is said, will be so mixed as to run at least 3% copper; to contain about 3% coke and a small percentage of lime, to produce a 50% copper matte. The operation proposes to oxidize the iron sulphide in the pyritic ore. The Henrietta Mine, in Prospect basin, which belongs to the company, is developed by 3 tunnels on the trend of the vein 140 ft., 500 ft. and 860 ft. long, respectively, a 160-ft. upraise connecting the lower with the center tunnel, the latter being connected with the upper by an 80-ft. upraise. The ore is a sulphide of copper and iron, running, it is claimed, about 8% copper and 10 oz. to 20 oz. silver. At a point lower down the hill a tunnel site has been located and a tunnel to cut 600 ft. lower than present lowest workings is contemplated. Plans have been partially made for a 5,500-ft. tramway from mine to railroad. F. C. Kendrick is general superintendent of mine and smelter.

(From Our Special Correspondent.)

Mining Transfers.—Albert Martin to Elbert Ehler, Columbia Lode; C. L. Abbott to George H. Barnes, Nancy Hanks No. 2 Lode; M. Taylor to David McPhillips, Last Chance Lode; C. A. Layton to C. N. Potts, assignment of bond and lease Challenge Group; Peter Leonard to Joseph Gibbons, Trail Lode; Nellie Tulley to John J. Mayers, Acapulco Lode; Nellie Tulley to Joseph Bordeleau, Columbia Lode; Louis May to Louis Wyman, Highland Mary Group; U. S. to Joseph B. Blizard, patent on Portland Consolidated Lode; John H. Crow to H. P. Barnard, bond and lease Copper Crown Group; C. H. H. Kramer to Tim Marrian, New York Group; Joseph Gibbons to Elizabeth Gibbons, Trail Lode.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Anchoria Leland Gold Mining Company.—The

case of this company vs. the Jefferson Mining Company has been reset for October 25th. It has been pending some time. The properties are on Gold Hill.

Beacon Hill.—Considerable work is going on in this hill. On the north side the El Paso, the Rocky Mountain and a number of leases on the Kimberly are pushing work. On the south side the Gold Dollar is working steadily, as also are several leases on the Mabel M., the Black Belle, Prince Albert, St. Thomas and other properties.

El Paso Gold Mining Company.—Considerable development work is being done. It is understood the shaft will be sunk to 600 ft. A new hoisting plant and large compressor have been lately installed. Developments are watched with interest. Wm. Bainbridge, of Cripple Creek, formerly of the Elkton Mine has charge.

Ironclad Mining and Milling Company.—This company has granted a 2 years' lease on the Pard and Ironclad Claims on Ironclad Hill. The lease calls for 25% royalties and 100 ft. of sinking. There is a 300-ft. shaft on the property which will be sunk 100 ft. deeper.

Portland Gold Mining Company.—Work has begun on the new mill. The first spade of earth was turned on October 5th by President Burns in the presence of Irving Howbert, J. W. Proudfit, Nelson B. Williams, W. P. Bonbright, Wm. Lennox, Frank G. Peck and others. The mill is to be erected in Bear Creek Canyon, not far from Colorado City, on the line of the new railroad from Colorado Springs to Cripple Creek. Land has been purchased and also water rights. The chlorination process will be used and the mill will have a capacity of 300 tons per day. Work already begun on ditches, reservoirs, etc. The ore will be shipped from the mine to the mill over the new Colorado Springs & Cripple Creek Railroad, in which directors of the Portland are interested. The cost of the new mill will be \$350,000, including the land. Stern, Rogers & Company, of Denver, are to supply the roasters, crushers, rolls and all heavy machinery. The buildings are to be of structural steel. The Colorado Springs Light, Heat and Power Company will furnish power. The mill will probably be completed in about 6 months.

St. Patrick.—Work has begun in this property in the town of Victor. The property has recently been equipped with a new Hendrie & Bolthoff hoist and a Norwalk compressor. Getting out surface water and sinking will begin soon. The shaft is at present 350 ft. deep and will at once be sunk to 600 ft. The property is situated south of the Gold Coin and has the extension of that vein. Mr. William Weston, of Colorado Springs, is in charge.

GEORGIA.

Lumpkin County.

Amicalola Water Power Company.—This company has been incorporated to utilize the water-power of the Amicalola and other streams and to furnish electric power to mines and others. The capital stock is \$1,000,000. The directors are F. L. Murray, T. R. Craven and G. L. Fisher. The office is in Dahlonega.

Kennedy Quarry.—A lot of soapstone has lately been taken out of this quarry, east of the Chestatee River, near Dahlonega. N. L. Kennedy, the owner, has shipped a quantity to New York to be tested.

Murray Hill Mining Company.—This company has been incorporated, with office at Dahlonega, to work mines near that place. The directors are T. R. Craven, R. S. Disney and F. L. Murray.

IDAHO.

Owyhee County.

De Lamar Mining Company.—The report of Assistant Manager E. V. Orford for August states that 4,320 tons of ore from the mine and 5,322 tons of tailings were treated. The ore assayed \$9.67 gold and \$1.17 silver before treatment, and \$2 gold and 50c. silver after treatment. The tailings assayed \$4.52 gold and \$1.27 silver before treatment, and 93c. gold and 61c. silver after treatment. The mill product was valued at \$35,850; that of the tailings plant was \$22,640. The cost of operating the tailings plant was \$7,915. The total expenses were \$41,265 and the estimated return \$58,730, leaving an estimated profit of \$17,465.

Shoshone County.

Vaughn Concentrating Process.—According to a local paper an experimental plant has been erected at Kellogg. The plant consists of 6 tables fed with tailings from the Last Chance Mill and operated by a 3-H. P. engine, which runs the tables and pumps the clean water used in washing. The capacity of each table under favorable conditions is given at from 5 to 10 tons daily.

Each table has either a wooden or metal top, covered with a screen of wire or cloth, the latter being preferable for very fine pulp. The feed runs on the top of the screen while clean water is fed to the table from the sides, entering below the screen. The table has a reciprocating motion, the stroke being given by a cam while the return depends on springs. The quicker

stroke of the cam forces the heavy material to the high end of the table, while the water and lighter waste runs off at the low end. The tables are 30 in. wide by 8 ft. long, and the stroke can be made of any length required. The water running on the table below the screen has a free outlet, and the finer slimes work down through the screen onto the table, while the coarser run off on top of the screen.

ILLINOIS.

Williamson County.

Illinois Steel Company.—This company has bought 2,500 acres of coal lands near Cairo, where, it is said, borings have shown seams of coal 9 ft. thick under but 100 ft. of surface. The price paid is said to have been \$500 per acre.

MAINE.

Oxford County.

Beach Hill Mica Company.—This company, composed of Geo. L. Kimball, of New York City; E. P. Kimball, Leon Willard, Geo. Hamblin, Chas. Green and John Wells, with Geo. L. Kimball as president and Mr. Wells selling agent in New York, is opening a mica quarry at South Waterford. A 10-H. P. engine and boiler, steam drill, etc., are employed, the company employing 8 workmen steadily and have up to date taken out over 20 tons of mica.

MICHIGAN.

Copper—Houghton County.

Atlantic.—Work on the new sandstone engine house for No. 3 shaft of this mine is progressing very rapidly and the company expects to have the machinery running by January 1st. It is 48 by 60 ft. and 25 ft. high. The large double Nordberg hoisting engine is expected to arrive in a few days. The compressors and pumps are also expected soon. No. 3 shaft is now down 2,500 ft. and is producing a large amount of rock. The new shafts, A and B, are both 500 ft. deep. At B shaft, an addition has been built on to the boiler house to make room for more boilers, should they be necessary.

Baltic.—The September output was 128 tons of mineral from 8,629 tons of rock crushed.

Calumet & Hecla.—Work on the foundation for the new stamp mill at Lake Linden is nearly completed. The steel work on the mill will be done by the Union Bridge and Iron Company. The mill when completed will contain 6 Levitt heads with a capacity of crushing 1,800 tons of conglomerate rock or 2,700 tons of amygdaloid rock every 24 hours.

The work on the foundation for the 22,000,000-gal. pump "Arcadia" is fast nearing completion.

Franklin Junior.—The work of moving the combined shaft and rock house from amygdaloid shaft No. 1 to conglomerate No. 1 is completed, and the building will soon be equipped with machinery. The hoisting engine recently installed at this shaft is connected with the boilers. Sinking, drifting and stoping underground go ahead, and the openings are showing up well, both in mass and in stamp rock. No. 1 shaft on the amygdaloid is sinking to the 16th level. Drifting is being carried on in this shaft at the 15th level, north and south, and north at the 12, 9th, 8th and 6th levels; also north of Klondike shaft at the 10th, 8th, 6th and 4th levels. The work of cutting down the old shaft is being pushed, but very difficult owing to the contact with the old workings, and also the necessary removal of old timbers, measuring from 45 to 50 ft. long. Drifting on the conglomerate lode at the 14th level north and south from the cross-cut from the new workings is carried on.

Franklin.—This mine is experiencing the same trouble with too much water as the Calumet & Hecla; 11 pumps are kept going.

Elm River.—The shaft on the southeast part of section 12 is down 130 ft.

Wyandotte.—This mine is being prospected by a diamond drill. At present the most important work is being done on the southeast of the Winona lode.

Copper—Keweenaw County.

(From Our Special Correspondent.)

Mohawk.—The steamer "Osceola" has discharged about 200 tons steel rails at Peguaming for this mine. The rails are to be taken over to Traverse Bay on scows. They will be used for the Traverse Bay Railroad, built by Hebard & Sons, but now owned by the Mohawk. When the work is finished the Mohawk will have a standard gauge railroad from the mine location to Traverse Bay, about 15 miles, enabling the company to handle large quantities of rock efficiently and rapidly.

Phoenix Consolidated.—This mine has just cut up a 5-ton mass of copper. A shipment of 15 tons of copper will be made to the smelter in a few days.

Copper—Ontonagon County.

(From Our Special Correspondent.)

Belt.—Pennsylvania people are negotiating for control of this property. The last attempt at

mining was made about 13 years ago by an English corporation.

Michigan.—This company has bought 4 Burnham pumps from the Union Steam Pump Company, of Battle Creek, Mich., to handle the water from the old workings.

Norwich.—This mine has been kept clear of water since active operations ceased in order to show it to prospective buyers. After the mass copper uncovered by the exploratory work has been taken out the mine will be closed.

MINNESOTA.

(From Our Special Correspondent.)

The State board of equalization has raised the assessments of the mines of the State by about \$1,400,000. It was the idea of the governor and his assistants that a raise of about \$10,000,000 should be made from the \$7,100,000 of the county board. The raise was not greatly opposed by the mining interests, who had feared a worse fate.

The mines of this State now lead those of Michigan and Wisconsin together for the first time, in production and water shipments. September shipments show that of the 14,885,000 tons received at lower lake docks to that date Minnesota had shipped, to 6 days earlier, 7,583,000 tons. This 6 days means 300,000 tons to be added to the Minnesota total to make its due share of receipts below this season. Shipments are as follows by roads: Duluth, Missabe & Northern, September 502,761 tons, season 3,207,437 tons; Duluth & Iron Range, month 591,385 tons, season 3,149,398; Eastern Minnesota, month 188,706; season 1,226,134. This is for the month 624,224 tons greater, and for the season 1,664,660 tons greater than last year. It is evident that nearly all of the increase of the year is coming from the Minnesota ranges.

Iron—Mesabi Range.

(From Our Special Correspondent.)

At a meeting of the State board of equalization at St. Paul the values of the State's iron mines were raised 22½% on realty and nothing on personalty. This adds \$1,450,000 to the \$7,100,000 of the prior values. The mines got off easily compared to those of Michigan, where the raise put on the mines of one company, the Oliver, is more than the entire valuation of all Minnesota mines before they were raised.

Chandler Iron Company.—This company has dropped the option on the so-called Rahilly tract, in T. 58, R. 20. Its explorations in that town have not resulted as well as was expected.

Fayal Iron Company.—It is reported that this company hopes to make arrangements for 2,000,000 tons output another year.

Lake Superior Consolidated Mines.—This company has bought the ne ¼ of section 3, T. 58, R. 18, paying therefor \$37,000. The tract had been explored and was found to contain 1,750,000 tons. It was explored 7 or 8 years ago and abandoned, on the ground that the ore was unsalable.

Oliver Iron Mining Company.—This company's Mountain Iron Mine is shipping 10,000 tons a day and has been for some time. It will end the season not so very much behind what was hoped at the beginning.

Spruce Mining Company.—At this mine the powder house blew up recently, breaking almost every window in Eveleth, and making a hole where the powder house stood 100 ft. square. It is supposed that but one man was killed. The mine is shipping heavily and has lately been examined by the agents of one of the large steel companies. The mine is operated by P. L. Kimberley.

Union Ore Company.—This mine is hoisting its first ore and will mine all winter, using as large a force as can be worked to advantage. Its ore will go to the Republic and Steel Hoop furnaces, and over the Duluth & Iron Range road. The fee is held by the Minnesota Iron Company, which gets a royalty of 25c., while P. L. Kimberley gets an additional royalty of 15c. Kimberley once claimed the fee ownership, but lost it to the Minnesota Company in the courts.

An exploration for iron is under way about 6 miles south of Hibbing, where T. F. Burke is sinking pits. This is 5 miles south of the nearest mines and far from where ore was supposed to exist. Mr. Burke calls it an encouraging exploration.

Wyoming.—Explorations on these lands at Virginia have ceased and mining will probably be carried on there during the coming year. The work of opening a mine will start shortly.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The price of zinc ore advanced \$1 per ton on Wednesday, and fancy grade ore brought \$28.50 per ton. Lower grade ores advanced in proportion and turn-in was considerably less than last week. The Oronogo ore sold on Monday several days earlier than usual at \$27, but the Edgar Zinc Company came into the market for large lots of high-grade ore

on Wednesday and forced the price to \$28.50. The King Jack, on the land of the United Zinc Company in Chitwood Hollow, Joplin, sold at the top, but the average throughout the district was about \$27.50 per ton. Lead was unchanged, selling all the week at \$23 per thousand. Following is the turn-in by camps of the Joplin district for the week ending October 6th:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin.....	1,852,340	353,960	\$33,194
Cartersville.....	1,447,960	344,990	25,307
Galena-Empire.....	1,619,190	74,639	21,156
Oronogo.....	939,770	8,650	12,164
Helleville.....	380,050	17,220	8,257
Webb City.....	595,140	31,240	7,523
Central City.....	163,160		1,876
Aurora.....	960,060	23,240	9,556
Cave Springs.....	136,970		1,712
Spring City.....	92,520	52,220	2,219
South Jackson.....	91,930	11,940	1,377
Carthage.....	155,400		2,020
Stotts City.....	89,240		1,239
Spurgeon.....	92,920	10,010	1,332
Neck City.....	53,780		728
Granby.....	432,110	50,050	5,050
Carl Junction.....	62,800		815
Aiba.....	98,520		1,281
Springfield.....	83,420		1,064
Seneca.....	68,860	6,660	634
District total.....	9,615,770	986,780	\$138,512
Total 40 weeks.....	374,952,020	43,830,940	\$6,255,115

During the corresponding week last year fancy-grade zinc sold at \$43.50 per ton and lead at \$27 per 1,000 lbs., and the value of the total sales was greater than last week by \$26,097. For the corresponding 40 weeks last year the lead sales were less than this year by 6,660,020 lbs., but the zinc sales were greater by 24,811,930 lbs., and the value was greater by \$2,525,356. As compared with the previous week the sales show a decrease of 927,000 lbs. of zinc and 77,270 lbs. of lead and the value was less by \$12,299.

The price of mine run coal has advanced from \$1.10 per ton on board cars at the mines to \$1.75 per ton and most of the local agencies for Kansas coal mines have received orders to make no contracts for future delivery, as they are short of miners and cars. The advance was due to the big demand from the Western railroads. The advance will probably result in the closing down of the smelters of the Cherokee-Lanyon smelters at Nevada, Mo. Only two blocks are now running, employing about 70 men, and General Manager A. B. Cockerill states that the high price of slack makes it impossible to compete with smelters operating in the natural gas fields. The plant of the company at Pittsburg, Kan., has shut down. It is the last of 5 plants formerly operated by the company there and employs about 80 men.

New Companies.—The following new companies have been recently organized: The Republic Zinc Company, of Elizabeth, N. J.; capital, \$100,000; W. A. Adair, incorporator. The Daugherty Mining Company, Pierce City, Mo.; capital, \$10,000; incorporators, J. M. Daugherty and J. G. Lowdon, of Abilene, Kan.; C. W. Thompson, Pierce City, Mo., and C. P. Hamilton, of Purdy, Mo. Cliff Lead and Zinc Company, Joplin, Mo.; capital, \$12,000; incorporators, Henry Crossman, William Grant and W. H. Deems, Joplin, Mo.; William N. Davis and E. J. Becker, Kansas City, Mo. Union Lead, Zinc and Realty Company, Pioneer, Mo.; capital, \$200,000; incorporators, George A. Case and Fletcher Clear, Joplin, Mo.; Henry Clear, Grangeville, Mo.; J. K. Newell, Towanda, Pa.; Dr. B. H. Warren, West Chester, Pa.; William Sharp, Wilkesbarre, Pa., and Capt. F. N. Moore, North Orwell, Pa. The Blew Mining Company; capital, \$15,000; incorporators, C. McDonald and others, of St. Louis. The Clear Jack Mining Company; capital, \$100,000; incorporators, Wm. B. and Benjamin F. Young and Frank O. Chesney, all of Kansas City.

St. Francois County.

(From Our Special Correspondent.)

Explorations.—The continued high prices of carbons has resulted in a great shut-down in diamond drilling, and only 6 companies are drilling, while 11 have called in their drills until carbons recede to a reasonable price. The big Desloge Company is the last to stop and the St. Joe Company is drilling less than usual. The St. Joe Company is now reaming out a lot of old bits that were lost during their long period of activity. These bits were lost when carbons were worth \$5 to \$15 a carat and it was cheaper to abandon stuck bits than attempt to recover them. Since carbons have advanced to the present top-prices of \$70 to \$75 a carat it is profitable to recover lost bits, as the quality of the old stone is greatly superior to the present poor stock. A shaft is being sunk at Irondale on the McCormack farm, and the Big River Lead Company is prospecting with one drill in this camp.

Catherine Lead Company.—The new mill of this company at Fredricktown is about completed and the company will soon be a producer. It is rumored that the company will unite with the Columbia Lead Company in erecting a smelter at East St. Louis.

Eureka Prospecting Company.—This is a new

St. Louis company that is drilling some lands, under option, near Bonne Terre.

Iron Mountain Company.—The mammoth estate of this iron company is being re-examined and prospected for disseminated lead.

National Lead Company.—This company is an active producer, as half of its new 1,000-ton mill has started up and the balance of the mill will soon be completed, giving it as large a capacity as the St. Joe Mill, the largest in Missouri. But how long can the National property, with its small acreage and only 2 shafts, supply such a large mill, when the St. Joe Company has found it necessary to open 12 shafts and constantly add to its very large acreage?

Penicaut Lead Company.—This company has started 2 diamond drills to prospect its property at Bonne Terre.

St. Joe Company.—This company has replaced its old mill engine, which had been in continuous service for over 20 years, with a much larger compound-condensing Corliss engine, and also rebuilt and enlarged the pumping plant at Big River, some 3 miles from the mill, and is making other improvements for greater economy and increased production. The company recently purchased the Dr. Hoffman tract of 105 acres for \$45,000, and is sinking shaft No. 12, to be over 400 ft. deep, on it. As this property is about 3 miles from the terminus of the railroad, a wire rope tramway will transport the output.

Washington County.

(From Our Special Correspondent.)

Missouri Zinc and Lead-Fields Company.—This company, which consumed more printer's ink in balloon advertising than had ever been expended in the entire history of this county, has collapsed on the death of its active promoter, Mr. Wolcott. This was the first appearance of the boomer in this substantial district, and the community breathes freer since this mushroom has wilted. This is too fine a camp to be ruined by booms and wild-cats.

The Guggenheim Brothers, of New York, are closing a deal for another large property, the Desloge Company's estate. This tract is on Big River, 4 miles from Bonne Terre, which the Desloge interests have been operating for 8 years, after selling out their first mine at Bonne Terre to the St. Joe Company. The Desloge property has 2 producing shafts, a 600-ton mill, a smelting plant of 6 air furnaces and an estate consisting of some 2,000 acres on Big River in the heart of the lead belt. It is recognized as one of the largest properties in the range, and the price is said to have been \$2,000,000, which is regarded as reasonable. Lands within the recognized lead belt are rising rapidly, so that \$500 per acre for well-located land will soon look cheap. But the old-timers who used to buy their pick of these lands at the farming rates of \$10 to \$50 per acre cannot bring up their ideas to \$100 to \$300 per acre prices now ruling.

Renault Lead Company.—This company has discontinued diamond drilling, but its lead production is so rapid that 2 more furnaces are being erected in addition to the 2 erected a year ago. This will give 7 furnaces, which will probably have to be increased.

MONTANA.

Broadwater County.

(From Our Special Correspondent.)

Diamond R.—The work of enlarging the concentrator at Neihart has begun and a contract has already been let for the foundation work. The new addition is to join the present mill on the northwest side. Instead of 8 tables, as at present, 18 will be used. The crusher will be replaced by a larger one and the capacity of the whole plant is to be 300 tons daily. W. W. Masters is millwright. The present power, light and steam plants will supply the new addition. The company proposes to erect a wire tram, starting just above tunnel No. 8 at the Broadwater and running by an air line to the concentrator. This tram is to be constructed by December 1st, and in running order will have a capacity of 50 tons per hour. It will be upon pillars 30 to 110 ft. high, be 3,400 ft. long, and have a total fall of 500 ft.

East Pacific.—About 2 tons of ore from the rich gold pocket recently found in tunnel No. 4 have so far been taken out in driving the tunnel through the streak. The pocket is about 10 ft. long. The vertical extent of the streak is undetermined. The two tons already out will go over \$20,000 to the ton.

Martha W.—Wilson Flecher has taken a bond on this property. Ten sacks of ore, weighing 1,200 lbs., have been sent to a Butte assay office. The lot is supposed to be worth \$4,000.

Orphan Boy.—Frank Ester, of Helena, has taken a bond and lease on this property and is building a 10-stamp mill. The ore is free milling and will average, it is thought, \$15 per ton, mostly gold. The property is on Beaver Creek, about 6 miles from Winston.

Stolen Sweets.—At this property, situated on Iron Age Hill, 2½ miles from Winston, the

lessees, Angus Gillis and Frulgren Brothers, have the shaft down to the 400. They have equipped the mine with a good hoist and have 16 in. of \$80 ore in the west drift.

Stray Horse.—Ingram Smith, of Winston, who has the lease on this property, has opened up a body of shipping ore and has out 2 cars.

Deer Lodge County.

(From Our Special Correspondent.)

Arnold.—This property, located 10 miles northwest of Garrison, and owned by Dr. Geo. Blackburn, of Butte, is under lease and bond to Eastern parties. Two cars of ore from a tunnel samples 12% copper. The ore is a carbonate, and is in lime.

Emery.—The leasing company operating this property is working a force of about 25 men and making weekly shipments to the smelter.

Jefferson County.

(From Our Special Correspondent.)

Ada.—At this mine, situated 12 miles up Cataract from Basin, belonging to Downey & Ax, a cross-cut of the ore body at 80 ft. discloses 12 ft. of solid shipping ore, with neither wall in sight. So far there is no waste with the ore.

B. & G.—Robt. A. Bell, the owner of this property, situated in the Upper Warm Springs District, has let a contract to drive a cross-cut to the North lead on the 250 ft. level. The North lead where exposed on the surface shows a fair streak.

Uncle Sam.—Smith & Breen, of Basin, have secured a lease and bond on this old property up Cataract 4 miles above Basin. They will sink a new shaft, expecting to strike the shoot of ore found in the property years ago.

Lewis & Clarke County.

(From Our Special Correspondent.)

Eldorado Gold and Gem Mining Company.—Judgment has been entered against this company in favor of Frank W. Jours for \$17,325. The defendants are the successors to the Sapphire & Ruby, which became insolvent. The judgment is the result of a promissory note given by Howard Oviatt, of London, Eng., to the original company.

Madison County.

(From Our Special Correspondent.)

Buckeye.—This property, at Brandon, 5 miles from Sheridan, is operated by Wiseman & Company, who are making shipments to East Helena. The ore is silver-lead.

Germania.—This property, on Wisconsin Creek, 5 miles from Sheridan, owned and operated by Rundle & Spuhler, has the 10-stamp mill in operation on its own ore.

Keystone.—Two shipments of lead ore have recently gone from this Georgia Gulch mine, worked by Pritchett & Eastbridge, of Sheridan. They have a good showing of ore.

Lake Shore.—Master Mechanic Staley has the machinery for the stamp mill, saw mill and air compressor plant loaded on teams to be hauled to the property from Twin Bridges. It amounts to about 200 tons.

Octopus.—At this property on Bivens Gulch, 10 miles from Twin Bridges, a shipment of high-grade silver ore is ready to be marketed. William McDougall is working the claim.

Salt Lake Mining and Development Company.—This concern has taken hold of the Old Joe Mine, about 2 miles from Pony. The ore is to be milled in the new 10-stamp mill built by the Strawberry owners.

Strawberry.—The new 10-stamp mill after a very satisfactory trial run has closed down temporarily to install 2 6-ft. Frue vanners.

Toledo.—Alfred Ledoux, of Sheridan, has taken hold of this old property and will sink the shaft another 100 ft. Some high-grade iron sulphides were shipped years ago.

White Horse.—O. Geiger, who is operating this mine on Wisconsin Creek, a few miles above Sheridan, is shipping silver-lead ore to East Helena.

Silver Bow County.

(From Our Special Correspondent.)

Butte Consolidated Mining Company.—This company has brought suit against Sam Barker, Jr., to quiet title to the Annex Lode.

Homestake Mining and Milling Company.—This company has bought 3 claims adjoining the Sailor's Dream and will sink a deep shaft. A hoist is to be put on the 90-ft. shaft. The property is on Brown's Gulch, 7 miles from Butte.

Sailor's Dream.—At this claim in Brown's Gulch the owners, Barston & Kendrick, have run 3 tunnels of 225 ft., 456 ft. and 350 ft. About \$80,000 has been shipped, leaving a tonnage of second-class ore which they are now running through a 2-stamp mill at a fair profit.

Snohomish.—Receiver Harris recently submitted to the United States Court his report of operations in August on this property and the Tramway. The expenses of operating the Snohomish were \$8,072, and of the Tramway \$167. There were 3,125 tons of second-class ore treated,

75 tons of which came from the Tramway. The Heinze indebtedness has been paid. The receiver's salary for the month was \$500, the book-keeper's was \$200; office expenses, \$71.

Ticon.—This property joins the Speculator at the northwest corner and is a small claim about 400 ft. long. Comings & Company, who have a lease on it, have been enjoined from extracting ore by the Speculator people. It is owned by James A. Murray.

NEVADA.

Esmeralda County.

(From Our Special Correspondent.)

The cyanide plant at Kinhead has been purchased by F. Pfeifer, who will remove it to his mill above the Baldwin Ranch.

NEW YORK.

Saratoga County.

Sacandaga Mining Company.—James A. Emerson has bought the plant of the Sacandaga Mining Company, of Hadley, consisting of a farm of 100 acres, upon which was located the company's "diggings," the buildings thereon and a large quantity of mining machinery. The price paid was \$700. The property cost \$22,000. Mr. Emerson has sold the farm to a farmer of Luzerne, and will move the machinery to Warrensburg, where such parts of it as are available will be used at a wooden factory.

NORTH CAROLINA.

Rowan County.

(From Our Special Correspondent.)

Union Copper Mines.—The output of these mines last week is reported at 500 tons, averaging 4% copper.

OREGON.

Grant County.

Red Boy.—This mine, 5 miles west of Granite, is reported bonded to an English company for over \$2,000,000.

PENNSYLVANIA.

Anthracite Coal.

Miners' Strike.—There was another outbreak of violence on October 10th at Hazleton, when a large number of strikes undertook to stop work at Coxe Brothers' Oneida Colliery at Oneida, which has been in steady operation. Non-union miners who were going to work were stoned and beaten with clubs; two of them were seriously injured. The strikers remained about the colliery and Superintendent Kudlick was stoned. A force of 50 special police attempted to prevent the strikers from coming on the company's property at No. 2 mine. Shots were exchanged and one special policeman was killed, another seriously injured, while one striker was probably fatally injured. Work at the colliery was suspended and there is now not one colliery in full operation about Hazleton. In the Wyoming Valley the shut-down continues. In the Schuylkill region the strikers have succeeded in closing down more collieries and but little mining is going on there. In the Lehigh Valley the strikers have succeeded in inducing some of the men in the Panther Creek Valley mines of the Lehigh Coal and Navigation Company to stop work.

Interest has centered on a convention of delegates from the various local lodges of the United Mine Workers, held Friday, October 12th. Many of the delegates to this convention were pledged to vote for a recognition of the union by the mining companies and a continuation of the strike until such recognition is given. Other delegates and President Mitchell, while not holding out for recognition, said they regarded the 10% advance offered by the companies was too small a concession. Hence there was little prospect that the convention would decide to accept the company's offer, and call off the strike.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Globe Mining Company.—F. W. Bush, of Custer, general manager, states that the shaft is down 60 ft. and that the vein is 12 ft. wide. The ground is under bond from Captain Hazard and associates of Custer, \$5,000 being paid down with \$25,000 in installments. The ore is a white quartz, carrying gold. The property joins the North Star on the southwest.

May.—At a depth of 60 ft., rich free-milling ore is reported found in a 4-ft. ledge.

Mayflower.—A number of Eastern stockholders have been to the mine. At a depth of 75 ft. a quartz ledge 8 ft. wide is reported cross-cut. A steam hoist has been put in. F. C. Graydon is manager.

University Company.—Two miners are opening up a claim 5 miles north of Custer for this company. Five claims were located recently near the Grand Junction Mine.

Vigilante.—F. W. Bush, manager, announces that the company will begin sinking again soon. Shaft was sunk 300 ft. following a vertical of copper and gold ore.

Lawrence County.

(From Our Special Correspondent.)

American Mining Company.—Drifting has begun on lower quartzite in Spearfish Canyon at the bottom of a 300-ft. shaft.

Big Owl Mining Company.—Ground is being broken for a 50-ton cyanide plant in Snorter Gulch, near the Portland District. Eastern men are interested.

Detroit & Deadwood.—The small cyanide plant erected by this company on Annie Creek is running smoothly. Four 4-horse teams haul ore from the mine to the mill.

Faust & May.—The shaft on the Realization Group in Garden City District is being unwatered and work will start this fall toward opening up an ore shoot. The owners intend to erect a cyanide plant.

Golden Gate Mining Company.—This company has absorbed the Northwestern Gold and Silver Extraction Company by purchasing the outstanding stock. This gives the Golden Gate Company control of much territory. A connection has been made between the underground workings of the Kicking Horse Mine, formerly owned by the Extraction Company, and the Maggie Mine, and ore is hoisted through the Kicking Horse and shipped to the cyanide plant in Deadwood. D. C. Boley, of Deadwood, is general manager.

Homestake Company.—Ground is broken for a new steel hoist at the De Smet Mine, on the Central City side of Lead Hill. The plant will be the same size as the Deadwood-Terra. The hoist will be about 300 ft. below the Star Hoist at Lead. The company will have the water ditch completed in about 6 weeks. The present supply is quite low, necessitating hanging up stamps on the Lead side. The company will erect a second cyanide plant on the opposite side of the hill.

Horseshoe Mining Company.—A shaft is to be sunk to lower quartzite in the Iron Creek District by the Horseshoe Mining Company, which has the chlorination plant at Pluma. The company 3 years ago patented 100 claims of ground. Considerable interest is taken in the shaft.

Minneapolis-Deadwood Company.—This company is preparing to erect a cyanide plant in Garden City District. Some fair grade cyaniding ore has been found.

Omaha Mining Company.—A tunnel is being run on bedrock under Whitewood Falls by this company. Three hundred feet of flume have been placed to sluice a large area of old placer bed and Homestake concentrates. A tunnel will conduct the creek water through a shaft to the sluice boxes on bedrock. It is 80 ft. to bedrock above the dam.

Titanic Mining Company.—A steam hoisting plant is being erected by this company in Carbonate Camp.

Wasp No. 2.—The owners have completed a 30-ton cyanide plant in the Yellow Creek District. The mine contains a large amount of \$10 ore.

Pennington County.

(From Our Special Correspondent.)

Claire Belle.—A deal is said to be pending on this mine, 4 miles southeast of Hill City, owned by Frank Hebert and associates. There are 10 claims in the group. The company has erected a 2-stamp Tremain mill and about 12 tons per day are treated. Rich specimen rock has been taken out. The vein is said to be 10 ft. thick, with a formation resembling the Holy Terror.

Cochran.—James Cochran, owner of this mine at Old Myersville, is working 2 men taking out ore which is run through a 30-ton Huntington mill. The ore averages \$15 per ton and he expects to close down when cold weather commences, with a profit of about \$10,000 for the season's work.

Gopher Mining Company.—This company says it has cut a rich vein showing wire gold on the Lena Mine, 4 miles north of Hill City. The vein is 20 in. thick. The property is owned by Minneapolis men.

Steve Brier.—Minneapolis men have taken a lease and bond on this group of claims, 1 mile north of Silver City. The vein shows antimony and gold.

TEXAS.

El Paso County.

Federal Copper Company.—According to reports, this company, owning the Dragoon Mines in Grant County, N. M., is about to erect a new smelter at El Paso. This company, composed of G. W. Jacobs and others in New York City, bought a site for the plant and tracks at El Paso last winter. The company has been one of the largest patrons of the old El Paso Smelter for several years. The new plant will cost \$250,000 and will employ 300 men. H. J. Clifford is superintendent of the Dragoon Mines.

Uinta County.

(From Our Special Correspondent.)

Dyer.—The smelter is not in commission. In

spite of bright expectations it is questionable if these copper ores can be profitably treated at home. No new ore bodies have been uncovered this season.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending October 6th there were sent forward from the different smelteries 23 cars, or 971,338 lbs., lead-silver bullion; 5 cars, or 265,975 lbs., copper bullion. In the same week there were shipped from the different camps to smelteries inside of the State, 118 cars, or 5,569,840 lbs., lead, silver and gold ore and concentrate products and 12 cars, or 552,100 lbs., copper ore.

Salt Lake & Los Angeles Railroad.—At a dinner given to Senator W. A. Clark, of Montana, at the Alta Club this week, he announced that the report of his being behind this undertaking is true.

Beaver County.

(From Our Special Correspondent.)

Horn Silver.—Annual meeting was held in Salt Lake October 2d, resulting in the selection of the following officers and directors: Allan C. Washington, president; Juan M. Ceballos, vice-president; Ambrose I. Harrison, treasurer-secretary; William R. Britton and Theo. B. Moore, all of New York City; James Sharp, John Sharp and P. T. Farnsworth, of Salt Lake City. Two days later President Washington, the Messrs. Sharp and Manager Farnsworth visited the mine. In past 12 months approximately 15,000 tons of crude ore and concentrates were marketed, with a gross value of over \$550,000. The noteworthy feature of the year is the copper yield and the high grade of the ore. The official report will not be made public till January.

Iron County.

(From Our Special Correspondent.)

Proposed Iron Furnace.—T. A. Greer, of Birmingham, Ala., recently examined Iron Mountain. Before returning East he said that he and his associates will put in a plant next year. The assurance of the building of the railroad between Salt Lake and Los Angeles attracts renewed attention to this section.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—For the week ending October 5th there were forwarded from the 3 railroad points of the district 1 bar of bullion, 85 cars of ore and 8 cars of concentrates, made up as follows: Mammoth, 1 bar bullion, 11 cars ore, 3 cars concentrates; Centennial-Eureka, 31 cars ore; Grand Central, 14 cars; Gemini, 11 cars; Uncle Sam & Humburg, 5 cars; South Swansea, 5 cars; Carissa, 4 cars; Yankee Consolidated, 2 cars; Carissa lease, 1 car; Showers Consolidated, 1 car. Eureka Hill shipped 5 cars of concentrates.

Centennial-Eureka.—In September 134 cars were shipped and the signs are that this generous production will be maintained during the winter.

Eagle & Blue Bell.—On October 6th, at Salt Lake, the annual meeting resulted in retaining the old directorate. In past 12 months 205 tons of ore were marketed, which netted, above freight and smelter charges, \$7,961. Present debt is \$10,875, and there are 7,950 shares in the treasury.

Piute County.

(From Our Special Correspondent.)

Dalton.—The company has leased its property under bond for \$100,000, running to October 1st, 1901. A 20% royalty is to be paid on the gross value of all ore marketed and 8 men are to work daily. It is said that a car-load of ore, containing something above \$50 per ton, is being packed down by the company for shipment.

Salt Lake County.

(From Our Special Correspondent.)

Dalton & Lark.—P. T. Farnsworth, assisted by W. F. Snyder, who is now associated with him in the option, made the \$56,000 Hanauer payment this week. W. A. Farish in his report says that there are 200,000 tons of ore blocked out.

Fortune.—Last week shipments were 70 tons of crude and 100 tons concentrates. Mill has been handicapped, water supply running only 10 hours a day.

Silver Shield.—On October 5th the September output, consisting of 60 tons crude and 50 tons concentrates, was marketed, returning \$3,800 above freight and treatment. This is something over expenses.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—In the week of Saturday, October 6th, there were marketed through the Mackintosh sampler 2,857,000 lbs. smelter products, made up as follows: Silver King, crude 1,100,140 lbs., concentrates 293,920 lbs.; Daly-West, crude, 777,250 lbs.; Ontario, crude, 360,540 lbs.; Anchor, concentrates, 210,310 lbs.; Loring Bros., concentrates 152,340 lbs.; Quinn, concentrates 62,500 lbs.

Tooele County.

(From Our Special Correspondent.)

Consolidated Mercur.—September tonnage mined and treated averaged 973 tons a day, a good showing. The gold yield will not be known before October 15th.

Geyser-Marion.—Nothing was done at the shareholders' meeting.

Sacramento.—Until the company installs its own refinery the cyanide product will be handled by John C. Griffiths. Material for the roaster was shipped over 2 weeks ago.

WYOMING.

Carbon County.

Finley.—This group of 8 copper claims at Encampment is reported sold to a company of New York and Boston men, and development work is to be carried on.

Kurtz-Chatterton.—A rich strike copper ore is reported at this Encampment mine. The tunnel is now in 1,600 ft.

(From Our Special Correspondent.)

Wyoming Development & Transportation Company.—The stamp mill of this Boston company at Gold Hill is not running regularly yet. The company states it recently struck a vein of gold ore 18 to 22 in. wide, in the winze sunk from the Acme tunnel. The company is employing in the camp about 25 men, and a large number of teams. The saw-mill operated by the company is turning out about 5,000 ft. of lumber per day.

FOREIGN MINING NEWS.

AUSTRALASIA.

Queensland.

The Mines Department reports the gold yield for August as 79,182 oz. crude, equal to 52,362 oz. fine gold, or \$1,082,323. Of this 77,545 oz. came from quartz mines and 1,637 oz. from placer workings. The total shows an increase of 5,483 oz., or 7.4%, over August of last year.

Tasmania.

Mount Lyell Mining Company.—For the four weeks ending September 19th this company reports 20,792 tons of ore treated, the yield being copper bullion containing 732 tons copper, 51,338 oz. silver and 1,709 oz. gold. The average return was 3.5% copper, 2.47 oz. silver and 0.08 oz. gold to the ton.

CANADA.

British Columbia—Boundary District.

(From Our Special Correspondent.)

B. C.—Shipments from this mine in Summit Camp aggregated about 2,000 tons in July, 1,500 tons in August and 2,000 tons in September. Repairs and alterations to the main shaft during August interfered with hoisting and so kept the output down. The ore was sent to the Canadian Pacific Company's smelter at Trail, B. C.

Granby Smelter.—It is announced that when the Knob Hill and Old Ironsides mines double their tonnage a second 300-ton furnace will be blown in at the Granby Smelter. The first furnace, started in August, continues to run smoothly, nothing having yet occurred to necessitate a stoppage. Plans for the buildings and for the foundations for plant and machinery of the pyritic smelter the Standard Pyritic Smelting Company intends erecting near Greenwood are due to arrive from Denver, Colo., now. The promoters intimate that it is their intention to push construction without delay and to have the smelter ready by December. The company is incorporated under provincial laws with a capital stock of \$500,000 in 1,000,000 shares. The head office is in Quebec, where the chief promoters of the company reside. The registered office is at Greenwood.

Knob Hill and Old Ironsides.—These mines, at Greenwood, worked under one management, will soon increase their daily output from the 300 tons they are now shipping to the Granby Smelter at Grand Forks to 600 tons. Hitherto power for both mines has been supplied by a 10-drill air compressor installed last year at the Old Ironsides, but a new Rand compressor of like capacity will soon be ready at the Knob Hill. The properties together employ 170 men, but the working force will shortly number at least 250.

Mother Lode.—This mine, near Greenwood, is sending ore to the smelter. Both mine and smelter are owned by the British Columbia Copper Company, of New York. All the buildings, trestles, ore bins, etc., for the smelter at Greenwood are completed and the machinery and plant are being installed. The mine is opening up satisfactorily, with copper ore occurring freely at both the 200 and 300-ft. levels. Instructions have lately been received to sink the shaft from 325-ft. to the 500-ft. level.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Ore Shipments.—The ore shipments from Rossland mines for the 9 months ending September 30th amounted to 144,000 tons, valued at

\$2,304,000 tons gross. Compared with the corresponding period of 1899 there is an increase of 24,000 tons, valued at \$384,000.

The ore shipments from the mining divisions of East and West Kootenay and Yale, exclusive of Rosslund, such as Fort Steel, Moyie, Revelstake, Slocan, Nelson, Grand Forks, Greenwood and the Boundary country generally, amounted to 115,000 tons for the 9 months ending September 30th, showing an increase of 35,000 tons over the corresponding period of 1899.

Thus, the total shipments of ore from the various mining divisions of East and West Kootenay and Yale for the first 9 months of the year 1900 amounted to 259,000 tons, valued at \$6,574,000 gross, which is almost equal to the ore shipments from the same district for the whole of 1899.

Le Roi Assessment.—The investigation resulting from the appeal of this company against the Government assessment is completed, but no decision has yet been given except that counsel for the Crown maintains that the valuation of \$6 per ton, or an assessment of \$1.351, is just and equitable.

Kennett.—The management operating the Tamarac has let a contract for 6,000 ft. of tramway from the mine to the track of the Nelson & Fort Shepherd Railway. B. C. Reblet, of Nelson, has received the contract.

Iron Mask.—The British Columbia Exploration Syndicate has purchased this property, comprising the Iron Mask, Copper Queen, Sunrise and Bonnie Jean fraction, in all 140 acres. The location is 5½ miles from Kamloops, and 3 miles from the Canadian Pacific Railway. The engineer in charge of the property is Mr. J. Argall. The ore is gold-copper. The new owners will explore and develop the property.

SOUTH AMERICA.

British Guiana.

The gold output of the colony in August, on which royalty was paid, was 9,779 oz., which compares with 9,070 oz. in August, 1899; showing an increase of 709 oz., or 7.7%, this year.

COAL TRADE REVIEW.

New York. Anthracite.

Oct. 12.

The weather during much of the past week has been warm enough to keep down the demand for anthracite, but the lower temperatures of the last few days are creating renewed anxiety about winter supplies. The coal in storage at the beginning of the strike was equal to from 4 to 6 weeks normal demand. The strike has now lasted nearly 5 weeks. Winter is still some distance off, but timid people are liable to get scared and send prices up if the weather is unseasonably cool.

Receipts of coal by lake at Chicago for the season are reported about equal to those at this date last year, but from present indications lake shipments are not likely to amount to anything this month. Hence a large amount of coal will have to go to Chicago by rail this winter. At the head of the lakes it looks as though many consumers will find hard coal too expensive and will have to be satisfied with bituminous. In the East trade has been light. Prices, which fell with warmer weather, and reports of a speedy settlement of the strike, are now rising again.

The September output of the collieries is officially estimated as 2,959,550 tons. Considering that the Wyoming region was almost entirely closed down by September 18th, it is easy to see how far in excess of normal demand is the total productive capacity of the collieries. Yet this fact, which is the basis of all unrest in the coal regions, is ignored by papers from which fair views are expected. It is easy to say that the railroads should reduce freight rates and increase consumption, but 3 roads, handling altogether 48% of last year's shipment, show no profits in coal mining. What would their transportation accounts show with lower rates?

The prospects of a speedy settlement of the strike are not as favorable as a week ago. President Mitchell, of the United Mine Workers, says the offers made by the companies are not favorable enough. It looks just now as though mining might not be generally resumed till after the elections.

Prices of coal at New York are a matter of bargaining. It is asserted that broken has sold at \$4.80, stove \$4.80@\$.5, nut \$4.80@\$.5, wholesale f. o. b. for free-burning white ash. The steam sizes are harder to get than the domestic. Pea is said to command \$4 and buckwheat over \$3 per ton.

Notes of the Week.

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

	August.	Year.
Earnings	\$1,813,505	\$13,860,053
Expenses	1,922,290	14,526,232
Net loss	\$108,785	\$666,179

For the nine months the gross earnings increased \$999,768; the expenses, \$1,238,324; and the net loss, \$237,556.

The Philadelphia & Reading Coal and Iron Company makes the following statement for August and the two months of the fiscal year from July 1st to August 31st:

	August.	Year.
Earnings	\$2,465,231	\$4,562,232
Expenses	2,238,871	4,362,010
Net	\$226,360	\$200,222

The two months show a decrease of \$542,890 in earnings; of \$379,453 in expenses; and of \$163,437 in net earnings.

Bituminous.

The demand for coal in the Atlantic Seaboard soft coal trade continues stronger. The shoal water ports are heard from now. Buyers at these ports are sending in orders thick and fast; they are looking for coal and trying to get stocked up for the winter. Shippers are not able to keep boats for this trade from accumulating at the tidewater shipping ports, thus shoving aside shipments to other points. In some cases this is merely a matter of giving preference to the most urgent orders. In many cases, however, the delay in shipments is due to the short car supply at the collieries. This car shortage causes much complaint from producers, and it is asserted that the railroads show open favoritism to three concerns. During the past week other producers have been able to obtain only a little more than 50% of the total number of cars wanted. The main lines for the past 6 weeks have acted much in this fashion: They would allow producers up to 75 or 80% the number of cars wanted and afterward allow loaded cars to accumulate along the lines; then car supply would be cut to 50%. When producers protested the accumulated cars would be rushed through to tidewater and the railroads would point to this improvement in transportation as an offset to the car supply at the mines. When cars on the road were reduced to a minimum the supply of cars would be increased to 75% and the former course of action repeated.

Trade in the far East is very active and consumers who have been unable to get a supply of better grades are stocking up on poorer coals. Along the Sound the same conditions prevail. No shipper seems able to supply all orders from this territory for good coal. New York Harbor trade is also good. All-rail trade is large and producers are obliged to cut down on orders to keep their shipments fairly distributed. Export business shows numerous inquiries and steady shipments.

Transportation from mines to tide is irregular—just at present a little poorer than it has been. In the coastwise vessel market freight rates are weak. We quote as follows from Philadelphia: Providence, New Bedford and the Sound, 60@65c.; Boston, Salem and Portland, 75@80c.; Wareham, Portsmouth and Bath, 80c.; Lynn, 85c.; Newburyport, 90c.; Bangor, \$1; Gardiner, \$1 and towages; Saco, \$1.05 and towages; with 10c. above these rates from the further lower ports. Freight rates on foreign shipment are now about \$4.80 per ton to continental ports.

Speculative prices on Clearfield coal have fallen slightly and are now about \$2.45@\$.2.85 to consumers f. o. b. New York Harbor ports. Jobbers get coal a little cheaper.

Birmingham, Ala.

Oct. 8.

(From Our Special Correspondent.)

Coal production during the past week was reduced by a strike at Blocton, a large colliery of the Tennessee Coal, Iron & Railroad Company in Bibb County, where 1,000 miners and boys went out on a strike the middle of the week past because of the refusal of the company to pay 75c. per yard for top in low places in rooms. The miners went out without referring the matter to an executive board, as stipulated in the contract between miners and operators. The strike will be over before the end of a week, it is expected.

The rails on the 10 miles of road from Oneonta in Blount County to the new mines of the Underwood Coal Mining Company are being laid and by September 15th it is expected the road will be through. Shipments of coal will begin immediately. Work is pushed on the road to the Stout Mountain Coal and Coke Company's properties in Blount County also. The Southern Railway is completing the line to the new mines in Bibb County being opened by Messrs. Raynolds & Wadsworth, and before 30 days coal from there will be on the market.

Several coal washers are being built, one or two of which are nearly completed. Within the coming 10 days work will resume at the Republic Company's Sayreton mines.

There was no reduction in miners' wages for October, as was predicted. The wages are fixed in accordance to contract with pig iron selling prices as a basis.

Buffalo.

Oct. 10.

(Special Report of Rogers, Brown & Co.)

In view of the near approach of election little interest is taken in the purchase of any material not actually needed for immediate use. Therefore we have a rather quiet market, with shipments continuing at the same satisfactory rate and prices about the same as those ruling for some little time past. Concessions, however, have been made in some cases where the trade was particularly desirable. We quote below on the cash basis, f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, \$16; No. 2, \$15.50; Southern soft, No. 1, \$15.75; No. 2, \$15.25; Lake Superior charcoal, \$18.50; coke malleable, \$15.50.

Chicago.

Oct. 9.

(From Our Special Correspondent.)

Anthracite Coal.—The buying of anthracite coal has fallen off materially, the better situation among the mines having had the effect of reducing sales considerably. However, there is a steady demand and prices are holding firmly at \$5.75 for broken and \$6 for domestic sizes. Small egg coal is in very short supply, and this grade of coal is likely to be altogether out of the market should not the present conditions become improved. There has been some little coal received here during the past week, all of which has been readily absorbed, and as navigation will soon close it looks very probable that the price of hard coal will not seek any lower level this season than the ones now quoted. The amount of inquiry has fallen off considerably, and dealers in general are taking it very much easier than a couple of weeks ago. Retail price of hard coal continues at \$7, and in consequence this price has driven many to buying the better grades of bituminous coal for domestic purposes.

Bituminous Coal.—The demand has decreased from last week, inquiry being far less and sales considerably smaller. This does not include the better grades of bituminous coal; that of the smokeless variety from Maryland and West Virginia are in heavy demand and report considerably more business than for a long time past. Steam coal is being sold fairly well, manufacturers and others having taken considerable during the past few weeks. The prices remain quite firm, but should a settlement of the anthracite strike be assured it is likely that there will be an excess of supply of soft coal here very soon and prices will decrease almost certainly. Prices on some grades of bituminous coal are: Brazil Block, Indiana, \$2.80; Island nut, \$2; Hocking Valley, \$3; Du Quoin, \$2.50; Wilmington, \$2.50; Pocahontas, Maryland and New River, \$4; Raymond, \$3.50.

Coke.—Coke sales are beginning to show up better, the demand being livelier. Prices are beginning to go up, and the coke market here has a very good outlook for the next few months.

Cleveland, O.

Oct. 10.

(From Our Special Correspondent.)

The lake shippers of coal have encountered another difficulty now. The regular fall shortage of railroad cars is on in this territory and its effects are severe. Many of the shippers have been chartering vessels, only to find when they went to the docks that the shipment of coal from the mines had not been equal to the cargoes demanded. This situation has been embarrassing in the light of other conditions. The domestic coal movement is heavy, which may in part account for the light movement to the lakes. Bituminous coal sales have been made heavier by the scarcity of hard coal and the increased prices which such a situation occasions. Lake rates remain as they have been, 30c. being received to all upper lake ports.

Pittsburg.

Oct. 10.

(From Our Special Correspondent.)

Coal.—There is but little change in the coal situation here this week. The scarcity of cars continues to retard shipment and consumers are complaining. The mines are in full operation, with the exception of a number on the river which are closed on account of there being a scarcity of empty coal boats and barges to load. The Monongahela River Consolidated Coal and Coke Company is daily adding new coal boats and barges and the supply of coal ready to go out on the next rise in the rivers has increased over 30,000,000 bu.

Connellsville Coke.—There is not likely to be any material change in the coke market until after the election. The production and shipments showed slight gains last week. Prices are about the same, standard Connellsville furnace coke being quoted at \$2 and foundry at \$2.25@\$.2.50, but for a desirable contract these prices are shaded. Outside producers continue to quote furnace coke at \$1.50 and foundry at \$1.75@\$.2. Last week 14,043 ovens in the Connellsville Region were active and 6,419 were idle. The production for the week was 150,877 tons, a gain of 1,961 tons over the previous week. The shipments aggregated 8,112 cars, distributed as follows: To Pittsburg and river tipples, 3,161 cars; to points west of Pittsburg, 3,558 cars; to points east of Connellsville, 1,392 cars. This was an in-

crease of 663 cars compared with the previous week.

San Francisco Oct. 6.
(From Our Special Correspondent.)

The receipts of coal at San Francisco by water, exclusive of product of Mount Diablo mines and deliveries by rail from Rocky Mountain mines, for the nine months ending September 30th, in short tons:

	1899.	1900.
Eastern, anthracite and bituminous.	30,251	14,022
Oregon	39,734	28,315
Washington	455,184	491,077
Total domestic	525,169	533,414
British Columbia	346,861	447,041
Australia	115,416	113,175
Japan	6,350	6,100
Great Britain	80,371	55,987
Total foreign	548,998	622,303
Totals	1,074,167	1,155,717

The total increase this year was 81,540 tons, or 7.6%. The increase in Washington coal was 35,893 tons, or 7.9%, and in British Columbia coal 100,180 tons, or 28.9%. The largest decrease noted was in coal from Great Britain.

Foreign Coal Markets.

The English coal trade shows little change. Demand continues large and prices for all grades are firm.

Late Cardiff, Wales, quotations are, for best steam coal, \$6.60@7.08; seconds, \$6@6.60; thirds, \$5.64@6. Dry coals can be had at \$5.76@5.78. Small coal brings \$2.88@3.48. No good steamer coal can be bought below \$5.75.

Freights to Mediterranean ports from Cardiff range from \$2.16@2.95. Coal to Marseilles and Genoa is taken about \$2.50.

In France there is little change. Current quotations in the Nord and the Pas-de-Calais are for lump steam coal, \$6.80 per metric ton; nut, \$6.50; washed, \$7; run-of-mine, \$4.60. Lower class coal can be had for \$4. To these prices from \$1 to \$1.50 must be added for freight to Channel ports, and from \$2 to \$2.75 to Mediterranean ports. In the Southern ports the consumption is chiefly of English coal.

In Germany the trade is still in an excited condition, and complaints of short supplies continue. The reduction in freights on the railroads gives no satisfaction. Some manufacturers advocate the temporary prohibition of all coal exports.

Ocean freight rates from the United States continue firm. Recent charters are noted from Philadelphia to Trieste or Venice at 21s. 6d. (\$5.16), October sailing and at 21s. (\$5.04) November sailing. Also from Baltimore to Genoa or Marseilles at 20s. (\$4.80), and to Trieste (November sailing) at 21s. (\$5.04). The rate to Trieste from Baltimore is nearly \$1 higher than the charter rate last May.

Even at present rates American bituminous coal can be put down to Mediterranean ports for from \$7.25 to \$7.75 per ton, which is at least \$1 below the cost of Welsh coal there.

SLATE TRADE REVIEW.

New York. Oct. 12.

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'ville.		Bangor.	Bangor Ribbon.	Alb'n or Jackson Bangor.	Chap'n Keys he	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	F'ces	Tons.								
24 x 14	6.50	3.50	3.00	3.00	3.00	3.00	5.10	2.90		
24 x 12	6.60	3.50	3.00	3.00	3.00	3.00	5.25	2.90	3.75	
22 x 12	6.60	3.50	3.25	3.00	3.00	3.00	5.25	2.90	3.75	
22 x 11	6.50	3.75	3.25	3.00	3.00	3.00	5.25	2.90	4.00	
20 x 12	6.90	3.75	3.00	3.00	3.00	3.00	5.25	2.90	3.75	
20 x 11	6.80	3.75	3.25	3.00	3.00	3.00	5.25	2.90		
20 x 10	6.80	4.25	3.50	3.25	3.00	3.00	5.35	2.90	4.25	10.50
18 x 12	6.80	3.75	3.00	3.00	3.00	3.00	5.25	2.90	3.50	
18 x 11	7.00	3.75	3.00	3.00	3.00	3.00	5.25	2.90	3.75	
18 x 10	7.00	4.25	3.50	3.25	3.00	3.00	5.35	2.90	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	3.00	3.00	5.35	2.90	4.25	10.50
16 x 12	6.80	3.75	3.00	3.00	3.00	3.00	5.25	2.85	3.50	
16 x 10	7.00	4.25	3.50	3.25	3.00	3.00	5.25	2.85	4.00	10.50
16 x 9	7.00	4.25	3.25	3.00	3.00	3.00	5.35	2.85	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	3.00	3.00	5.35	2.85	4.25	10.50
14 x 10	6.60	3.75	3.25	3.00	3.00	3.00	5.25	2.70	3.75	10.50
14 x 9	6.50	3.75	3.00	3.00	3.00	3.00	5.25	2.70	3.75	10.50
14 x 8	6.60	3.75	3.25	3.00	3.00	3.00	5.10	2.70	4.25	10.50
14 x 7	6.40	3.75	3.25	3.00	3.00	3.00	5.10	2.50	4.25	10.50
12 x 10	5.75							2.50	3.25	
12 x 9	5.60							2.50	3.25	
12 x 8	5.50							4.85	2.50	9.00
12 x 7	5.00							4.85	2.25	9.00
12 x 6	4.80							4.75	2.25	8.50

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

September shipments of roofing slate were much less than last year, and were below those of any previous month in 1900, since April. In fact, the total shipments thus far this year show

a decrease as compared with 1899. In Pennsylvania alone, where the movement from Slatington and Walnutport in the 9 months amounted to 145,207 squares, the falling off is 15,230 squares, or 9 1/2% when compared with 1899. The shipment of school slates from these two stations in the nine months were 16,292 cases, against 13,762 cases in 1899; and of blackboards, 15,680 crates against 17,625 crates last year; showing in each case a decrease of over 10% in 1900.

Export business is falling off, and the movement of sea-green slate alone will show a considerable decrease this year. Freight rates continue high, and 17s. 6d. to London is about the ruling quotation to-day, few contracts for room having been taken since July last.

IRON MARKET REVIEW.

NEW YORK, Oct. 12, 1900.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending				From Jan., '99.	From Jan., '00.
	Oct. 13, 1899.	Oct. 12, 1900.		Tons.		
An'racite & Coke.	241	277,700	182	215,550	10,123,365	11,073,138
Charcoal.	25	6,450	31	8,325	211,630	291,862
Totals..	266	284,150	213	223,875	10,334,995	11,365,000

The returns for October 1st show a further drop in the production of pig iron. The blast furnaces now running are producing at the rate of 11,500,000 tons a year. At the beginning of June, when the activity of the furnaces was at its height, the output was at the rate of 15,000,000 tons a year. Unsold stocks have increased somewhat, but it must be remembered that consumers generally are carrying less iron than for a long time past.

While little new business has developed during the week, inquiries have increased and a good business is beginning to develop. The car-builders will require a good deal of material soon, and the same can be said of the locomotive shops and the shipyards. The prices of Bessemer pig and steel billets seem to be near bottom. At least there is no more giving way, though some buyers look for a further reduction.

With the opening of the cotton shipping season the export of Southern pig iron is beginning to increase, and new orders are said to be coming in.

There is nothing new as to prices of rails. The \$26 rate is maintained, but the railroads are not buying, except on "conditioned" contracts.

Birmingham, Ala. Oct. 8.

(From Our Special Correspondent.)

Shipments of pig iron are not sluggish, but are mostly on orders accepted over 3 months since. There is a good accumulation of iron in the furnace yards. Furnacemen are not saying much as to selling ahead, such policy is not looked upon favorably now in the face of low quotations.

Local conditions are much improved, with 2 large rolling mills of the Republic Iron and Steel Company in operation again, the rolling mill of the Tennessee Coal, Iron and Railroad Company at Bessemer going, pipe plants at Bessemer, Anniston and North Birmingham in operation, car-wheel works in Birmingham and other places in operation.

The market has improved slightly, but the talk in iron circles is that there will not be any noticeable improvement until after the elections. Export trade is better. Reports from Brunswick, Savannah, New Orleans, Mobile and Pensacola being that there is Alabama-made iron moving out steadily.

There is some talk of an increase in the production. The Trussville furnace may start up again. The suit filed by the Trussville Furnace, Mining and Manufacturing Company against the firm of Rogers, Brown & Company, of New York, for \$100,000 damages, alleging that the firm refused to accept the production of the furnace, against which the firm claimed that the quality of the iron manufactured was not up to contract stipulations, has been dismissed in the United States Court. The understanding is that some settlement was made outside of the courts.

The following quotations are given for pig iron: No. 1 foundry, \$12@12.50; No. 2, \$11.50@12; No. 3, \$10.50@11; No. 4, \$9.50@10; gray forge, \$9.50; No. 1 soft, \$12@12.50; No. 2, \$11.50@12.

Cleveland, O. Oct. 10.

(From Our Special Correspondent.)

Iron Ore.—The vessel interests on the lakes are now rushing iron ore down from the head of Lake Superior with all possible dispatch as the end of the contract season comes with November 1st. The movement up to October 1st shows that they are much further ahead than they were this time last year. The ore movement during September from all upper lake ports amounted to 2,520,000 tons, as against 2,375,000 tons for the same month in 1899. The total shipment during

the season has been 14,900,000 tons, which is 1,840,000 tons ahead of last season. All of this is due to the dispatch the boats have been getting and the prevalence of good weather for the boats started early. Not much wild chartering is being done now, but the outlook is for an early closing of the season of navigation, seeing the sluggish tendencies of lake traffic just now. Not much is being done in the way of sales of iron ore. In the absence of sales the association prices prevail. The basing prices are \$5.50 on Bessemer, Old Range, and \$4.25 on non-Bessemer. Of the Mesabi ores Biwabik seems to be the basing ore quoted at \$4.25.

Pig Iron.—There is a little larger inquiry for pig iron, but few more sales. The Bessemer consumers are finding that their stock piles are getting low and in consequence are going on to the market to supply their needs. The business now is mostly in inquiry, the stake at which sales are made not having been reached as yet. Bessemer pig is quoted at \$14, although some iron has been sold at less than that figure. The demand for foundry iron is about equal to that which has been noted for several weeks past. These prices are also unchanged at \$15.50@15 for No. 1; \$15@14.50 for No. 2.

Finished Material.—The market has been stronger on plates this week, owing to the fact that the capacity of the larger mills has been pretty well filled up until the end of the year. Plates are quoted at 1.10@1.15 strong. Bars are a little better, being also in demand, with 1.15@1.20 quoted and some sales said to have been made as high as 1.25. There is quite a contention on the price of rails. Large orders are in sight, but the buyers stubbornly refuse to pay more than \$22, while the mills are holding out for the agreed price of \$26. There are contracts amounting to about 75,000 tons in the aggregate awaiting the settlement of the difficulty over the prices. Some inquiry has been heard for axle billets and the mills quote \$21 on these and \$19 on soft steel billets. The latter market is weak. The prices on structural shapes holds firm, with a moderate amount of business moving.

Old Iron.—Old rails appear to be in demand just now, a good many sales having been made. These are bringing about \$17, a few sales having been made on that basis. The business in the other branches is hardly heavy enough to warrant a quotation.

Philadelphia, Pa. Oct. 11.

(From Our Special Correspondent.)

Pig Iron.—Reports from furnace agents up to noon to-day do not throw much light on the pig iron situation. There are sales all the time, but with scarcely an exception they are for small lots. The foundrymen are particularly backward in preparing for the winter, although it turned out to-day that four large concerns have an option that expires in 30 days. Forge is quoted at \$14; No. 1 X foundry, \$16.50.

Billets.—Until the deadlock is over there will be no business to speak of in billets. Prices are not at their lowest and in view of cheaper ore and cheaper transportation next year there will be no large orders placed.

Bars.—The replies to-day show a lessened volume of what are considered good-sized orders. The consumption does not fall off, but buying does. There will soon be a big rush of orders for common iron, and those who know of it think a great deal of car-building iron will be wanted.

Sheets.—Manufacturers are accumulating supplies and do so with the greatest confidence that later demand will clean out their stocks.

Merchant Steel.—The few contracts that agents refer to as the result of the past week show a falling off, but the agents say this is merely in accordance with the policy of buyers at this season, and especially this year.

Plates.—There is a further falling off in plate orders and no very clear statement is to be had. Manufacturers here have no doubts about the amount of business they will do this winter, but among outsiders there are strong views held that point to lower quotations.

Structural Material.—There is no change in prices, but the statement is that a big domestic and foreign demand is at hand.

Steel Rails.—The railroad officials here give out very little to hang anything on. They decline to be quoted as discontented with \$26, but they are. The short talk is that the Pennsylvania Railroad Company will very soon place an order for 75,000 tons under stipulations and later on 75,000 tons more.

Old Rails.—Bessemer is dull; a large quantity of old iron rails will go in trade for new steel rails as soon as the deal is made.

Pittsburg. Oct. 10.

(From Our Special Correspondent.)

Bessemer pig iron at less than \$14 a ton is sold at a loss—at least that is the claim made by some furnacemen. If this is true there has been

no profit in the sales made during the past two weeks. It is authoritatively denied that standard Bessemer iron sold as low as \$13.25 last week, as was reported. Some iron of an inferior quality sold at that figure, but the sales were of little importance. A few small lots were sold this week at \$13.25, but the bulk of the sales were at \$13.50@13.75. Foundry iron is not in as great demand as last week, but prices are unchanged. The furnace of the Youngstown Steel Company at Youngstown, O., which has been in continuous blast for three years, will be shut down on Saturday. The cause assigned by the management is a lack of business of a profitable character. The furnace will be relined and other improvements made. The Stewart Iron Company's blast furnace at Sharon, Pa., resumed operations on Monday after a long idleness. The plant has been overhauled and necessary repairs made. The Bessemer steel billet market continues dull, only a few sales of small lots having been made during the week. The railroads are slow in placing orders for steel rails for next year's requirements and it is said the delay is due to dissatisfaction over the price fixed by the associated manufacturing concerns. There is still talk to the effect that there must be a further cut in prices before any heavy orders are given. A local official of the Pennsylvania Railroad said he does not believe there will be any concerted fight on the part of the railroads against the steel rail pool to force a reduction in price, but that \$26 a ton is too high and the railroads will simply hold out their orders until the manufacturers make some concessions. An official of the leading steel rail company announced positively this week that there would not be any reduction made from the rates fixed for 1901. It is believed there will be but little buying in any line except for immediate requirements until after the election. The activity of the market for finished material this week exceeded all expectations, tank plates only being weak. All the plants of the American Steel Hoop Company are busy, the only idle one, the Youngstown works, having been put in operation on Monday. The activity is due to the unprecedented demand for cotton ties. Twenty plants of the American Tin Plate Company were started on Monday and Tuesday, but no announcement is made as to when the balance of the company's works will be put in operation. It is hinted that the starting of the other plants will be delayed until November 1st, as on that date a reduction of 8% in the wages of the Amalgamated Association will go into effect under the sliding scale. The reduction is due to a cut in price from \$4.65 to \$4 a box for 100-lb. I. C. coke plates, which went into effect on October 1st. It is barely possible that the average of the sales for September and October, on which the wages for November and December are based, will not be as low as now expected. In that event the workers may not suffer a reduction of more than from 4% to 6%.

Pig Iron.—Bessemer pig iron is quoted this week at \$13.50@13.75, Pittsburgh, and sales aggregating 5,000 tons are reported. A few small lots of an inferior quality brought \$13.25. There are still large stocks, but producers do not seem anxious to sell and look for better prices after the election. Foundry iron prices are firm, but the demand is not as good this week. No. 2 is quoted at \$14@14.75.

Steel.—Several small lots of Bessemer steel billets sold this week at \$17.50. For a desirable order \$17 could be had, but it is not believed that an order at less than that figure would be accepted. Steel bars are firm at 1.15@1.25c. and plates are quoted at 1.05@1.10c.

Sheets.—The demand for sheets is better this week, with but little change in prices. No. 28 is quoted at 2.95@3c. and No. 27 at 2.85@2.95c. Galvanized sheets are quoted at 75% off.

Ferro-manganese.—The price of 80% domestic has dropped from \$85 to \$75.

New York, Oct. 12. Pig Iron.—Buying is rather light. New business is almost wholly on orders for immediate delivery. Several Eastern furnaces have gone out of blast and some concerns report Northern irons higher. We quote for Northern irons, tidewater delivery: No. 1 X foundry, \$16.25@17; No. 2 X, \$15.25@15.75; No. 1 plain, \$16.25@17; No. 2 plain, \$14.75@15.25; gray forge, \$14@14.50. For Southern irons on dock, New York, No. 1 foundry, \$15.50@16; No. 2, \$14.50@15; No. 3, \$13.50@14; No. 4, \$13@13.50; No. 1 soft, \$15.50@16; No. 2, \$14.25@14.75.

Bar Iron and Steel.—Prices are unchanged. We quote common bars at 1.20@1.25c. for large lots on dock; refined bars, 1.5c.; soft steel bars, 1.20c.

Plates.—The market is unchanged. We quote for large lots at tidewater: Tank, 1/4-in. and heavier, 1.20@1.30c.; shell, 1.35c.; flange, 1.50c.; universals, 1.30c.

Steel Rails and Rail Fastenings.—Genuine sales of standard sections at the announced price of \$26 per ton are very light indeed. Light rails are selling between \$25@30. Splice bars are 1.30@1.35c.; spikes, 1.45c.; fish plates, 1.25c.; bolts, 2.05@2.25c.

Structural Materials.—The demand has been very light. We continue to quote large lots at tidewater: Beams, 1.65c.; channels, 1.65c.; angles, 1.30c.; tees, 1.70c.; zebs, 1.65c.

Nails.—The demand is stronger. Wire nails in large lots on dock are quoted at \$2.50; cut nails, \$2.15.

METAL MARKET.

New York, Oct. 12. Gold and Silver.

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

Table with columns: Metal, August (1899, 1900), Year (1899, 1900). Rows include GOLD Exports, Imports, SILVER Exports, Imports, and Excess.

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

Gold and Silver Exports and Imports, New York For the week ending October 11th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Table with columns: Period, Gold (Exports, Imports), Silver (Exports, Imports), Total Excess, Exp. or Imp. Rows include weekly and yearly data.

The gold worked this week went to Central America and the West Indies; of the silver \$864,905 (1,358,619 oz.) went to London and the balance to France. South America and the West Indies. The imports of gold and silver were from Central and South America and the West Indies.

The United States Assay Office in New York reports the total receipts of silver at 86,000 oz. for the week. Total since January 1st, 3,876,000 oz.

Average Prices of Silver per oz. Troy.

Table with columns: Month, 1900 (Lond'n, N. Y.), 1899 (Lond'n, N. Y.), 1898 (Lond'n, N. Y.). Rows include months from January to December.

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

Table with columns: Month, COPPER, TIN, LEAD, SPECTEF. Rows include months from January to December.

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 16.3c.; for February, 16.0c.; for March, 16.55c.; for April, 15.9c.; for May, 16.55c.; for June, 16c.; for July, 16.16c.; for August, 16.55c.; for September, 16.69c.

Prices of Foreign Coins.

Table with columns: Bid, Asked. Rows include Mexican dollars, Peruvian soles, Victoria sovereigns, Twenty francs, Twenty marks, Spanish 25 pesetas.

Financial Notes of the Week.

Business generally becomes still more quiet as election approaches. The anthracite strike has

had very little effect on trade, however. The demand for currency in the West and South continues, and money in New York is higher. The anticipations of gold imports seem about to be realized, and \$500,000 gold is reported taken in London for New York account, with probably more to follow.

The mint order for bullion having been satisfied, the silver market gave way and declined to 29 1/2c., at which figure business is to-day dull.

The statement of the United States Treasury on Wednesday, October 10th, shows balances in excess of outstanding certificates as below, com-

Imports and Exports of Metals.

Large table with columns: Port, Week, Oct. 10 (Expts, Impts), Year 1900 (Expts, Impts). Rows include New York, Baltimore, Philadelphia and various metals like Aluminum, Copper, Iron, etc.

Total United States.

Table with columns: Articles, August, 1900 (Expts, Impts), Year, 1900 (Expts, Impts). Rows include Antimony, Copper, Iron, Manganese, Nickel, Nails, etc.

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, 3/4c. a lb. Lead, 1/2c. a lb. on lead in ore; 2 1/2c. per lb. on pigs, bars, etc.; 2 1/2c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1 1/2c. per lb. on pigs and bars 2c. on sheets, etc. Copper, tin and platinum are free of duty.

parison being made with the statement of the corresponding day last week:

	Oct. 3.	Oct. 10.	Changes.
Gold.....	\$83,878,290	\$86,620,569	I. \$2,742,279
Silver.....	7,014,707	5,929,697	D. 1,085,010
Legal tenders.....	20,078,151	16,665,725	D. 3,412,425
Treas. notes, etc....	69,158	23,612	D. 45,546
Totals.....	\$111,040,306	\$109,239,694	D. \$1,800,702

Treasury deposits with national banks amounting to \$96,614,989, showing a decrease of \$864,402 for the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House for the week ending October 6th—gives the following totals, comparison being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discounts.....	\$636,380,100	\$710,562,500	\$816,810,700
Deposits.....	710,806,100	781,168,800	877,210,800
Circulation.....	15,473,200	15,534,700	30,110,800
Reserve:			
Specie.....	142,850,600	147,252,400	163,404,100
Legal tenders.....	32,594,700	48,630,500	62,140,500
Total reserve.....	\$195,445,300	\$195,932,900	\$225,544,600
Legal requirements.....	177,701,700	195,289,700	219,302,700
Balance, surplus.....	\$17,743,600	\$613,200	\$6,241,900

Changes for the week, this year, were an increase of \$245,100 in circulation; decreases of \$661,900 in loans and discounts, \$7,496,000 in deposits, \$5,752,300 in specie, \$2,822,400 in legal tenders, and \$6,700,700 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.	1899.		1900.	
	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'n.....	\$147,262,400	\$163,404,100		
England.....	163,164,600	174,856,510		
France.....	382,901,080	\$239,523,425	458,384,495	\$224,856,535
Germany.....	114,685,000	59,080,000	121,680,000	62,680,000
Spain.....	67,195,000	69,155,000	68,445,000	81,765,000
Aus.-Hun.....	153,145,000	62,691,090	188,865,000	49,575,000
Neth'nds.....	13,710,000	29,635,000	24,350,000	28,065,000
Belgium.....	14,585,000	7,270,000	13,570,000	6,785,000
Italy.....	77,585,000	7,135,000	77,165,000	8,350,000
Russia.....	448,240,000	24,420,000	374,520,000	33,790,000

The returns of the Associated Banks of New York are of date October 6th, and the others are of date October 5th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to September 27th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India.....	£3,894,525	£4,409,907	I. £515,382
China.....	1,039,363	1,607,266	I. 567,903
The Straits.....	263,008	654,966	I. 391,958
Totals.....	£5,197,096	£6,672,139	I. £1,475,043

Arrivals for the week, this year, were £191,000 in bar silver from New York, and £27,000 from South America; total, £218,000. Shipments were £129,000 in bar silver to Bombay and £7,000 to Shanghai; total, £136,000.

Indian exchange continues firm at 15.94d. per rupee, with a good demand for Council bills in London. In addition about £700,000 gold is reported shipped from Australia to India.

Receipts of specie at San Francisco from Mexico—chiefly by rail—for the nine months ending September 30th were:

	1899.	1900.
Silver dollars.....	\$1,412,846	\$7,320,128
Silver bullion.....	677,982	1,341,839
Gold bullion.....	625,531	211,289
Total.....	\$2,716,359	\$8,873,256

The dollars are simply in transit to China, where the demand has been very heavy this year.

Shipments of specie from San Francisco by water in September included only \$2,799,300 silver and \$29,923 gold. For the nine months ending September 30th these shipments were as follows:

	Gold.	Silver.	Totals.
Hongkong.....	\$90,077	\$10,125,178	\$10,215,255
Shanghai.....	1,297,081		1,297,081
Japan.....	15,863	63,530	79,393
Pacific Islands.....	1,180	5,000	6,180
Central America.....	15,175	6,450	21,625
Mexico.....	1,000		1,000
Total foreign.....	\$123,295	\$11,497,189	\$11,620,484
Honolulu.....	258,000	53,800	311,800
New York.....	3,427,130	285,222	3,712,352
Totals.....	\$3,808,425	\$11,836,211	\$15,644,636
Totals, 1899.....	11,381,919	5,219,771	16,601,690

The silver shipments included \$2,535,308 in Mexican dollars in September and \$7,960,230 for the nine months; which compares with \$341,458 and \$1,891,573 respectively last year.

Other Metals.

Daily Prices of Metals in New York.

October.	Sterling Exchange.	Silver.			Copper.			Spelter.	
		Fine oz. (1 s.)	London.	Lake. cts. @ lb.	Electrolytic @ lb.	London @ lb.	Tin. cts. @ lb.	Lead cts. @ lb.	N. Y. cts. @ lb.	St. L. cts. @ lb.
6	4.84 1/2	64 3/4	29 1/4	16 1/2 @ 16 1/2	16 1/2 @ 16 1/2	29 1/4	4.32 1/2 @ 4.37 1/2	4.10	3.95
8	4.84 1/2	64 1/2	29 1/4	16 1/2 @ 16 1/2	16 1/2 @ 16 1/2	29 1/4	4.32 1/2 @ 4.37 1/2	4.10	3.95
9	4.83 1/2	63 3/4	29 1/4	16 1/2 @ 16 1/2	16 1/2 @ 16 1/2	29 1/4	4.32 1/2 @ 4.37 1/2	4.12 1/2	3.97 1/2
10	4.84	63 3/4	29 1/4	16 1/2 @ 16 1/2	16 1/2 @ 16 1/2	29 1/4	4.32 1/2 @ 4.37 1/2	4.12 1/2	3.97 1/2
11	4.83 1/2	63 3/4	29 1/4	16 1/2 @ 16 1/2	16 1/2 @ 16 1/2	29 1/4	4.32 1/2 @ 4.37 1/2	4.15	4.00
12	4.83 1/2	62 1/2	29 1/4	16 1/2 @ 16 1/2	16 1/2 @ 16 1/2	29 1/4	4.32 1/2 @ 4.37 1/2	4.20	4.05

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 continues to rule quiet but firm. Our cables report a good business doing in Europe, where consumers, generally, are but poorly supplied. On this side we learn of but few transactions, and while manufacturers are busy, they appear inclined to work with smaller stocks pending the outcome of the elections. We quote Lake copper at 16 1/2 @ 16 1/2 c.; electrolytic copper in cakes, wirebars and ingots at 16 1/2 @ 1.2c.; in cathodes at 16 1/2 @ 16 1/4 c.; casting copper at 16 1/2 c.

The market for standard copper in London, which closed last week at £72 15s. for spot, £73 5s. for three months, opened at these figures and remained about the same throughout the week. At the close the quotations are cabled at £72 7s. 6d. for spot, and 10s. higher for three months.

Refined and manufactured sorts we quote: English tough, £76 10s. @ £77 10s.; best selected, £78 15s. @ £79 5s.; strong sheets, £84 @ £85; India sheets, £83; yellow metal, 6 1/2 d.

For the eight months ending August 31st the imports of foreign copper into Germany were 59,961 metric tons. The exports of copper were 7,654 tons, leaving a balance of 52,307 tons consumed or added to stocks. The balance in 1899 was 40,787 tons, showing an increase of 11,520 tons, or 28.2%, this year.

Tin.—The market has fluctuated somewhat, and the tendency has been upward. Early in the week the slight advance in the London market caused American consumers to take hold more freely, with the result that prices here quickly advanced to 29 1/2 c. The immediate response of our domestic market to the advance abroad would appear to indicate that buyers here are very poorly supplied. At the close we quote 28 1/2 @ 28 3/4 c. for spot, the market being easier.

The London market has fluctuated considerably. It closed last week at £134 5s. for spot, £127 15s. for three months, and opened at £133 for spot, £127 for three months. On Tuesday it was down to £130 and £124 15s. respectively; on Wednesday it opened at £133 15s. for spot, £127 15s. for three months, declined on that day about 30s., but on Thursday recovered to £133 for spot, £127 for three months. The closing quotations are cabled as £131 for spot, £126 for three months.

Lead.—There is no change in the market. A good business is doing from day to day at last prices, namely, 4.32 1/2 @ 4.37 1/2 c. New York, 4.27 1/2 @ 4.32 1/2 c. St. Louis.

The foreign market is strong, Spanish lead being quoted at £17 17s. 6d., English lead at £18. St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull. Argentiferous is quoted 4.32 1/2 c., and Missouri brands at 4.25c. Trading is very light at these rates.

Spelter.—The market has developed further strength. We learn that some large orders have been placed for export to Europe and more are in prospect. Consumers in this country are not well supplied, and with the reduced output of spelter and the European exports, we should not be surprised if values improved still further. We quote St. Louis at 4.05c., New York at 4.20 @ 4.25c.

The market abroad is strong, with good ordinaries quoted at £19 7s. 6d., specials 5s. higher.

We are informed that investors—especially small investors—in England and on the Continent of Europe, are receiving circulars from the International Zinc Company, a flood of these documents having been sent out from the company's offices in London and Paris. This company met with little success in placing its stocks in this country, and has, apparently, not succeeded better on the other side, since it is now trying to peddle out its shares by means of these circulars. We recommend intending investors to be very careful and to make full inquiries before purchasing. We refer them to the editorial published in the "Engineering and Mining Jour-

nal" March 24th, 1900, page 342, for further information. We may add that the company's property is in the hands of a receiver and the stock is practically worthless.

Silesian Spelter Market.—The letter of Paul Speier, from Breslau, September 29th, reports that prices have been firmer toward the end of the month, closing at 38.25 @ 38.50 marks per 100 kgs. Exports of spelter from Germany in August included 2,730 metric tons to Austria-Hungary, 1,745 tons to Great Britain, 1,341 tons to Russia, 775 tons to France and 421 tons to Italy. The Oberschleisische Eisenindustrie Aktien-Gesellschaft is building three furnaces with 80 retorts; they will have all the latest improvements. Zinc oxide is quiet. Exports in August included 1,119 tons to Great Britain, 411 tons to Denmark, 305 tons to Italy and 230 tons to Austria. For zinc dust there has been only a small demand. The imports of zinc ore from Spain in August were 4,559 metric tons.

Antimony is without change. We quote Cookson's at 10c.; Hallett's at 9 1/4 c.; U. S. Star, 9 1/2 c.

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

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 72c. per gram.

Quicksilver.—The New York quotation continues unchanged at \$51 per flask for large lots, with \$52.50 @ \$54 asked for small quantities. San Francisco prices are steady, \$49 @ \$50 being named on local deliveries, and \$44.50 @ \$45 on export orders. The London price is £9 2s. 6d. per flask, with the same price named from second hands.

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

Aluminum.	Per lb.	Per lb.
No. 1, 99% ingots.....	33 @ 37c.	Ferro-Titanium (2 1/2%)... \$1.00
No. 2, 90% ingots.....	31 @ 34c.	Ferro-tungsten (37%)... 35c.
Roller sheets.....	42c. up	Magnesium..... \$2.75 @ \$3
Alum-bronze.....	20 @ 23c.	Manganese (over 99%)... \$1.05
Nickel-alum.....	33 @ 39c.	Mangan's Cop (20% Mn)... 32c.
Bismuth.....	\$2.25	Mangan's Cop (30% Mn)... 38c.
Chromium (over 99%)....	1.00	Molybdenum (Best)... \$1.45
Copper red oxide.....	55c.	Phosphorus..... 50c.
Ferro-Molyb'dum (50%)... \$1.00		American..... 70c.
Ferro-Titanium (10%)... 90c.		Tungsten (Best)... 92c.

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

LATE NEWS.

Nothing can be predicted of the meeting of representatives of the anthracite coal miners, which begins in Scranton to-day. A despatch from Wilkes-Barre, October 11th, says: "The Wilkes-Barre assemblies of the United Mine Workers held meetings to-day and instructed the delegates to the Scranton convention to insist on the following demands: Recognition of the union; powder reduced to \$1.50; 10% general advance; two weeks' pay; check-docking boss; a contract signed by the companies agreeing to the above, to hold good for one year.

"The instruction of the delegates comes in the nature of a surprise, as it was expected they would be allowed to use their own judgment after taking their seats in the convention and learning the sentiments of the other delegates."

Custer County—South Dakota.
(From Our Special Correspondent.)

Black Hills Porcelain Clay and Marble Company.—The Burlington Railway Company, it is said, will build 5 miles of road from Custer to the marble quarries. A steam channeling plant, with derricks, has been purchased. Experienced quarrymen will be brought from Vermont.

Paint Factory.—The mill in Custer is running full time again. A change has been made in the method of burning the pigment, to give different colors. Iron ore is obtained from Nahant, on the Burlington Railroad and from Oreville. About 24 tons of pigment are made per 24 hours and shipped to the company's plant at Peoria, Ill. The plant employs 18 men and 12 at the mines.

Yale Mining Company.—This company has been organized at Deadwood by C. C. Curtis of Vassar and L. C. Holland of Saginaw, Mich., and is capitalized at \$1,500,000 in \$1 shares. The company has bought 3 claims owned by B. R. Wood and T. F. McLaughlin, of Custer, which show 3 verticals of quartz. The ground lies north of the North Star now worked by Omaha parties.

Pennington County—South Dakota.
(From Our Special Correspondent.)

Benedict.—This mine in Horneblende District, owned by Rapid City parties, has been bonded for \$60,000 to eastern men. A 2-stamp mill is running. The ore body is 150 ft. wide and gives an average value of \$8 per ton gold.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 450.)

New York. Oct. 12.

Heavy Chemicals.—The increased cost of soda ash in the foreign markets and the continued high ocean freights may greatly reduce the importations into the United States. Bleaching powder is firmer and a better demand for future delivery is reported. Domestic chlorate of potash is soft in price, as second-hands are persistent sellers. Makers, on the other hand, are well sold up for this year, and show little disposition to contract at present prices for future delivery.

We quote per 100 lbs. as follows: Domestic soda ash in bulk is worth 2½¢. per 100 lbs. less than quotations below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	75@80	.....	90@95
48%.	80@85	.....	\$1.00@1.05
Caustic Soda, high test.	\$1.75@1.90	.....	2.40@2.55
60%.	.....	3.00@3.25	.....
70@74%.	.....	3.25@3.50	.....
98%.	.....	3.50@4.00	3.75@4.00
Sol Soda "conc."	70@80	.....	67½
1.15@1.75	.....	.....	1.75
Bicarb Soda.	1.25@1.37½	.....	1.75@2.25
"extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime.	.....	.....	1.75@2.00
other brands.	.....	.....	1.50@1.75
Chl. Pot. Cryst.	.....	8.37½@8.50	9.50@10.00
powd.	.....	8.50@8.75	10.00@10.50

Acids.—Demand is improving. The resumption of the Eastern textile mills that shut down in the recent drought has acted favorably on sulphuric acid. Second-hands have sold blue vitriol around \$4.90 per 100 lbs., while makers continue to ask quotations as below.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified. Acetic, No 8 in lbs. \$1.62½ Nitric, 38% \$3.87½ Blue Vitriol, 5.12½@5.25 Nitric, 38% 4.12½ Aqua Fortis, 38% 3.62½ Nitric, 40% 4.37 Aqua Fortis, 38% 3.87½ Nitric, 42% 4.75 Aqua Fortis, 40% 4.12½ Oxalic 5.75@6.00 Aqua Fortis, 42% 4.50 Sulphuric, 66% 1.20 Muriatic, 18% 1.20 Sulphuric, 60% 1.05 Muriatic, 20% 1.35 "bulk 50° ton 14.00 Muriatic 22% 1.50

Brimstone.—New York imports this week were 2,700 tons. Sales ex-vessel are reported at \$23.50 @ \$24 per long ton for best unmined seconds. November-December deliveries have sold at \$21 @ \$21.25 per ton. Best thirds are worth \$2 less.

Pyrites.—Business is mostly on contract, and prices continue unchanged. Abroad non-cupreous pyrites are quoted at 3¼d. per unit of sulphur (about \$3.53 per long ton). Adding 12s. for ocean freight, the price delivered at the Atlantic seaboard would be \$6.41 per long ton of 2,240 lbs. We quote: Mineral City, Va., dump ore (basis 42%), \$4.75 per long ton and fines \$4.20. Charlemon, Mass., lump, \$5.50, and fines \$5. Spanish pyrites, 12@14c. as to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51% of sulphur; American from 42@44%.

Fertilizing Chemicals.—The animal ammoniates show an improved demand, notwithstanding the firm prices, owing to regulated offerings by Chicago packers. In September the distribution of fertilizers to the fall trade in the East was very active, but in the West it is estimated that the deliveries were about 65% less than September, 1899.

Sulphate of ammonia, gas liquor, is firmer at \$2.77½@2.80 per 100 lbs. Other quotations are: High grade Western blood, \$2.05@2.10 per unit f. o. b. Chicago; high grade New York blood, \$2.10 @ \$2.15; tankage, 9@20%, \$1.80@1.85 and 10c. per unit, f. o. b. Chicago; azotine, \$1.90@2 per unit; Calcutta bonemeal, \$23@24 per ton; domestic steamed bone, ground, \$18@20 per ton; bone black, spent, \$15@16 per ton.

Potash salts are quoted in large lots as follows: Muriate of potash, \$1.83@1.86½ per 100 lbs.; sulphate of potash, 90@98%, \$2.05½@2.08½; double manure salt, 48@53%, \$1.06@1.08½; Kainit (25% sulphate of potash), \$9.05@9.55 per long ton; sylvinit (35@37% potash), 38½@41½c. per unit.

Nitrate of Soda.—Dull, and practically unchanged. Spot is quoted at \$1.77½ per 100 lbs., and futures at \$1.77½@1.80, according to position and quantity. Sailings from the West Coast of South America since our last issue are the steamers "Bellagio," with 38,000 bags for Boston and New York; the "Cumbal" with 37,175 bags for New York, and the "Westhall" with 25,600 bags for the Delaware; making in all a total of 100,775 bags, or 12,597 long tons. The steamer "Capac" with 28,700 bags is expected this week. The September shipments from the West Coast of South America were approximately, 81,000 long tons to Europe and 9,000 tons to the United States; a total of 90,000 tons, against 133,500 tons

in 1899. In the 9 months ending September 30th, 1900, the total shipments were 665,418 tons to Europe and 122,043 tons to the United States; total, 787,461 tons. Loadings on October 1st were 131,000 tons for Europe and 15,000 tons for the United States; total, 146,000 tons, against 149,500 tons at the same time last year.

Messrs. Jackson Brothers, of Valparaiso, Chile, write us under date of September 7th, that the sales of nitrate of soda during the past fortnight amount to about 395,000 qtls. The July production was 2,784,000 qtls., making 18,196,000 qtls. for the 7 months of this year, as against 17,058,000 qtls. in 1899. August exports were 2,650,000 qtls., making a total for the 8 months of 15,932,000 qtls., being a decrease of 526,000 qtls. from last year. Producers have only offered small quantities for some time past at gradual advancing prices. It is difficult to estimate the amount of disposable nitrate for this year, owing to the considerable number of sales effected in Europe, but from the small offerings we are inclined to think that the greater part is already disposed of and we look for a further advance in prices. We quote: 95% at 5s. 6d. and 96% at 5s. 7½d. per qtl. for any delivery this year. The price of 5s. 6d., with 35s. all-round freight, stands in 7s. 10½d. per cwt. net cost and freight without purchasing commission.

Phosphates.—Florida miners report an improved demand from abroad. In September the shipments of high-grade rock from Savannah alone amounted to 10,058 long tons, making a total for the nine months of 85,717 tons, against 64,458 tons last year; an increase of 21,259 tons, or 24.5%.

The shipments of Florida high grade phosphate rock in the eight months ending August 31st are reported by Messrs. Auchincloss Brothers as below, in long tons of 2,240 lbs.:

Destination:	1898.	1899.	Changes.
Continental ports	202,800	147,803	D. 54,997
Baltic ports	87,010	82,816	D. 4,194
United Kingdom ports	23,597	22,541	D. 1,056
Mediterranean ports	5,699	1,653	D. 4,046
Australia	2,250	1,660	D. 590
Japan	1,000	.....	D. 1,600
United States	2,423	.....	D. 2,423
Total, tons	324,779	256,473	D. 68,306

The decrease noted of 68,306 tons, or 21%, in this year's shipments is due in part to the increased freight rates and scarcity of vessel room.

Tennessee phosphate rock is in best demand for export. In September Pensacola shipments aggregated 15,946 long tons, making 103,813 tons thus far this year, as against 93,644 tons in the same time last year; an increase of 10,169 tons in 1900.

In South Carolina stocks continue to accumulate. In the commercial year ending August 31st the shipments from Beaufort amounted to 135,753 tons, and from Charleston 292,809 tons, making a total of 428,562 tons, as against 481,076 tons in 1898-99, showing a decrease of 52,514 tons in the season of 1900-1901.

Prices are unchanged as below:

Phosphates.	Per Ton F. o. b.	C. i. f. Un'd Kingdom or European Ports.	
		Unit.	Long ton.
* Fla. hard rock (77 @ 80%)	\$7.50@8.00	8½@8½d	\$13.26@13.66
* Fla. land pebble (63 @ 73%)	4.35	7½@7½d	10.50@10.85
* Fla. Peace River (56 @ 63%)	3.00@3.50	7½@7½d	9.00@9.30
† Tenn. rock 78% export.	3.50@4.00	7½@7½d	11.70@12.09
† Tenn. 78% domestic.	3.00@3.30	.....	.....
† Tenn. 75% "	2.75@3.00	.....	.....
† Tenn. 72% "	2.25@2.65	.....	.....
‡ So. Car. rock, crude....	4.00	.....	.....
‡ So. Car. rock, dried....	4.50	6½d	8.10
Algerian, rock... (63@70%)	.....	7@7½d	9.38@10.05
Algerian, rock... (58@63%)	.....	6½@7½d	8.10@8.70

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

Liverpool. Oct. 2.

(Special Report of Joseph P. Brunner & Co.) In chemicals there is a fair trade passing on spot, and business is also reported over 1901.

Soda ash is steady on spot, while prices for home trade contracts over 1901 have been advanced. Export quotations for 1901 are not yet announced. We quote spot range for tierces as follows: Leblanc ash, 48%, £5@5 5s.; 58%, £5 10s. @ £5 15s. per ton, net cash. Ammonia ash, 48%, £4 5s. @ £4 10s.; 58%, £4 10s. @ £4 15s. per ton, net cash. Bags, 5s. per ton under prices for tierces. Soda crystals are firm for October delivery at £3 5s. @ £3 7s. 6d. per ton, less 5% for barrels, and £3 7s. 6d. per ton for November-December; beyond this period makers at present decline to quote. Bags, 7s. per ton under price for barrels. Special terms are quoted for certain favored markets. Caustic soda is in demand and held for full prices. The range for balance of this year, or over 1901, is as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s. @ £10 17s. 6d.; 76%, £11 5s. @ £11 10s. per ton, net cash.

Bleaching powder is in better demand and £6 5s. @ £6 10s. per ton, net cash, is about range for hardwood on spot, while about 20s. per ton extra is asked for 1901 delivery.

Chlorate of potash is in moderate request at

3¼d. per lb.; net cash, for prompt or forward delivery, but makers are not yet prepared to quote over next year for American business.

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

Sulphate of ammonia is rather idle, but prices are about unchanged at £10 17s. 6d. @ £11 per ton, less 2½% for good gray 24@25% in double bags f. o. b. here.

Nitrate of soda is quietly steady at £8 7s. 6d. @ £8 12s. 6d. per ton, less 2½% for double bags f. o. b. here, as to quantity and quality.

MINING STOCKS.

Complete quotations will be found on pages 447 and 448 of mining stocks listed and dealt in at:

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

New York. Oct. 12.

There was a ripple of speculation in the local mining share market this week, when the Comstock shares became surprisingly active through increased purchases in San Francisco by certain Virginia City, Nev., people. In the flurry Gould & Curry jumped from 35c. to 75c., Ophir from 55c. to \$1.12, Mexican from 34c. to 60c., Crown Point from 15c. to 20c., Savage from 35c. to 39c., Potosi from 23c. to 29c. and Chollar from 28c. to 31c. Sales were also made of Yellow Jacket at 25c.

Better trading was reported in the copper shares. Amalgamated sold at \$87½, closing weaker at \$86½. Anaconda sold, ex-dividend of \$2, at \$43½. British Columbia is firmer at \$12, though sales were reported early in the week at \$11½@11%. Union, of North Carolina, showed heavier trading at \$2¼@2½, apparently among insiders.

In the Colorado section Elkton brought \$1.14, Isabella dropped to 88c., and sales of Anaconda Gold are noted at 45c.; Mt. Rosa, 54c.; Argentum-Juniata, 28c.; Mollie Gibson, 26@28c.; Cripple Creek Consolidated, 12c., and Alamo, 13c. Iron Silver is up 2c. at 70c. and Leadville Consolidated is fractionally higher at 8c.

Horn Silver, of Utah, sold down to \$1.15. Phoenix, of Arizona, held at 14c. and Kingston & Pembroke, of Ontario, was bought at 20c.

The California stocks were dull.

An auction sale is noted of \$15,000 1st mortgage 6% bonds of the Virginia Coal Company, of Wise County, Va., at \$1.415 for the lot.

The Brown Hoisting Machinery Company states that it has accepted the assignment and transfer by the Brown Hoisting and Conveying Machine Company, Cleveland, O., of the entire plant, business, property, accounts, contracts and assets of every description. The officers of the company are: Fayette Brown, president; Alex. E. Brown, vice-president; Harvey H. Brown, treasurer, and F. G. Tallman, general manager. The change is a reorganization, the new company having a Delaware charter and \$1,000,000 of preferred and \$1,000,000 of common stock. The old company states that the entire interests of its stockholders have been reinvested in the new corporation, together with a large addition of new capital. The change is made in view of the great increase in the demand for the products of the company and the desirability of adding to the cash capital employed.

Boston. Oct. 11.

(From Our Special Correspondent.)

There is much professed jubilation among the brokers, who claim that "the public is coming into the market." This is chiefly bluff, however, intended to influence the public aforesaid. The market was somewhat broader this week and prices generally better; but the trading was generally professional, as it has been for some months past. The only sign of interest really apparent is a larger buying of the low-priced coppers. Many small speculators like these stocks because there is always a chance for a turn, especially now when they are at a point where they cannot go much lower.

Of the dividend-paying coppers, Calumet & Hecla sold at \$76; Tamarack, \$231; Quincy, \$143; Osceola, \$68½; Wolverine, \$40; Atlantic, \$22@22½. There was more business in the low-priced coppers, Centennial bringing \$16; Franklin, \$14; Tri-Mountain, \$10½; Mass, \$10@10½; Elm River, \$4; Victoria, \$2.

In the outside coppers the best showing was made by Utah Consolidated, which sold up to \$31½. British Columbia brought \$12@12½; Bingham, \$11½@12; Santa Fe, \$6½.

Not much business was apparent in the blind pool stocks, with the exception of Parrot. Amalgamated sold at \$87@87½, while Boston & Montana brought \$32; Butte & Boston, \$60; Parrot, \$43½; Arcadian, \$19.

The gold stocks still attract little attention. Centennial-Eureka was quoted at \$20 and Co-chiti at \$8@8½. There was a sale of 105 shares of Victor at 50c.

United States Mining was quoted at \$3 1/2 @ \$9, but sales are few. The price is firmer than for some time.

In the general list United States Oil was heavy under free selling and the drop in the price of oil. A good many shares changed hands at \$12 @ \$12 1/2. There was no other special interest in this department.

Dominion Coal sold to-day at \$39, while New England Gas and Coke brought \$15. The last raid on these stocks seems to be over. Reports of a deal with the Addicks-Lawson crowd are positively denied.

Salt Lake City. Oct. 6. (From Our Special Correspondent.)

A surprisingly active market, with the bears holding high jinks, has characterized mining share trading since Monday. Not in a year has there been so much stir on the Exchange, or on brokers' row. Most of the business was local, though there is a noticeable increase to outside inquiries and orders. Total sales reported are 108,017 shares, which sold for \$52,560.

As on the prior week, Star Consolidated was the main attraction, disappointing those who were confident it was to continue upward. It opened at \$1.04 and closed at 79, selling as low as 70, with over 50,000 shares changing hands. Ajax has moved up and there seems to be slight disposition to sell. Bullion-Beck is fairly firm. Centennial-Eureka has not changed. President Evans has affirmed the cutting of the dividend to 50c. Consolidated Mercur did next to nothing and quotations rule stationary. Daisy has fallen back as the project of making a huge West Dip consolidation with Daisy as the center falls flat. Dexter is firmer on the assurance of the consolidation with Tuscarora. Grand Central closes higher than during the week. At Horn Silver annual meeting the old board was re-elected. The expected 5c. assessment on Lower Mammoth is levied. Mammoth paid the \$20,000 dividend on October 1st. May Day sagged again; September shipments were \$5,000. Silver King is strong, with none to be had below \$60. The usual \$75,000 dividend will be paid October 10th. Utah holds the advance. The annual meeting is on Tuesday next.

A new company, called the Silver King Extension, has been incorporated, under the laws of Oregon; capitalization, \$150,000 in \$1 shares. Solon Spiro, of Park City, is president; Wallace McCormont, of Portland, is secretary; Joseph Geoghegan, of Salt Lake, is assistant secretary and Frank R. Spencer and J. R. Swinton, of Portland, are the other directors. The realty embraces a tract of ground, consisting of 4 claims, in the midst of Silver King territory, in Summit County. Mr. Spiro is the organizer of the undertaking.

San Francisco. Oct. 6. (From Our Special Correspondent.)

There has been nothing to disturb the even tenor of the market or stir up its persistent dullness. Small transactions and small fluctuations with the same old crowd of operators make up the story of the week.

Some quotations noted are: Consolidated California & Virginia, \$1.15; Confidence, 76c.; Ophir, 75c.; Caledonia, 43c.; Gould & Curry, 38c.; Silver Hill, 36c.; Sierra Nevada, 33c. A little was done in Standard Consolidated, for which \$3.90 was bid.

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

Table with 3 columns: Month, Shares, and Amount. Rows for January to September and a Total row.

With the exception of January, May and August, every month this year has shown a decrease in sales. On the Oil Exchange business was not quite so active as last week, but there was a fair number of transactions. Some prices noted are: Kern River, \$21; Blue Goose, \$7.50; Home, \$4.60; Sterling, \$2.20; Twenty-eight, \$1.85; Four Oil, 48c.; Monarch of Arizona, 38c.; California Standard, 38c. Prices were generally firm.

London, England. Sept. 25. (From Our Special Correspondent.)

Business in the mining section of the Stock Exchange has been very dull all week, and the markets have been quite idle. Attention is absorbed with the general election and no doubt for another month business will be quiet. In business circles it is hoped that the result of the election will be the return of the present Government to power with an increased majority, not because the Government have shown them-

selves to be geniuses in the handling of domestic and foreign affairs, but because a change at the present time would indefinitely delay the South African settlement and in other ways give rise to a want of confidence in the future.

The South African section continues to be quite free from speculation, but West Australians have been somewhat unsettled owing to the mystery of Hannan's Brownhill, to which I referred last week. Many rumors are being circulated with regard to the petering out of the main vein, but the directors have neither confirmed nor denied any of them. In the American section the chief interest has been the settlement in Le Roi No. 2 shares. It will be remembered that the bears got caught by Mr. Whitaker Wright and his friend, and the price was rushed up. The settlement has just been effected at £20, the par value of the share being £5.

Some attention has been called this week to the Indian gold mining section, by the notice of the reconstruction of the Coromandel Company. This company was formed some four or five years ago to acquire some of the property of the Champion Reef Company. For a time developments proceeded satisfactorily, but afterward the ground became barren and the capital was exhausted. The directors and shareholders are convinced that it is best to continue operations and to open up and develop the veins. Mr. Thomas Richards, manager of the Nundydroog, has examined the Coromandel property and recommended expenditure to the extent of £30,000, which he considers should put the company once more on a paying basis. To raise this money, reconstruction of the company has been arranged, with the new £1 shares to have a liability of five shillings.

The West Australian market is still considerably upset by the unseemly scheming for control of some of the leading producers. The Ivanhoe Company is now being attacked by Mr. Charles Kaufman and his friends with the object of ousting the present directorate and substituting their own nominees. Not a ghost of a reason is given for this agitation. The fact is that Mr. Kaufman quarreled some time ago with his former chief, Mr. Whitaker Wright, who at present controls the Ivanhoe, and the present aggressive attitude of Mr. Kaufman is nothing but a vulgar display of hostility. Though some objections have been urged in past days against the direction of the Ivanhoe, their management and policy are a vast sight better than would be expected from the present agitators, so in the interests of mining it is to be hoped that the agitation will collapse.

As a set-off against this depression in West Australians, there has been a considerable spurt in Waihis, of New Zealand. This mine has had a uniformly successful life and many discoveries of value have been made during its development. We now hear that another valuable vein has been struck. The width is said to be 9 ft. and the gold contents about 1 oz. per ton. If this vein is proved to be continuous it will add greatly to the assets of the company, which at the present time are already very considerable.

The MacArthur-Forrest cyanide patents are valid in West Australia and the owner, the Australian Gold Recovery Company, appears to be doing well on the royalties received. These royalties are being paid without demur by the users in Queensland, and recently quite a number of the West Australian companies have entered into agreements to use the process and to pay for the use of the process in past years. In one case no less than £10,000 has been received for settlement of such arrears. The company has also successfully contested this claim to share the royalties of the company that works the Sulman-Teed bromocyanogen patents in West Australia. Besides owning the cyanide patents in these two colonies, the Australian Gold Recovery Company also owns a large interest in the Cobarr Gold Mines in New South Wales, which are opening up in first-class fashion.

Paris. Sept. 30. (From Our Special Correspondent.)

The mining market has been generally quiet, and speculation does not revive with the autumn season, as we had hoped.

The copper stocks have attracted by far the most attention. The consumption of the metal evidently continues very large, and there is every indication of continued high prices.

The Transvaal gold stocks continue unchanged and their market is very dull. One awaits developments and these arrive very slowly.

The movement of gold and silver in France for the eight months ending August 31st are reported by the Ministry of Commerce as below:

Table with 4 columns: Gold, Imports, Exports, Excess. Rows for 1900 and 1899.

Exports of copper and nickel coins, taken at their face or coinage value, were 40,500 fr.,

against 52,200 fr. last year. Imports were 244,800 fr., against 473,400 fr. in 1899.

A report which has been recently submitted to the Government states that the world's supply of nickel is derived from French territory—New Caledonia—since the Canadian nickel is of inferior quality, and recommends that France should prohibit the export of the ores, or at least offer inducements for their treatment in New Caledonia or France. This is urged especially in view of the importance of nickel in making steel for armor-plate. The Societe le Nickel would probably accept without objection a government bounty on the metal it produces. May not our Canadian friends have something to say, however, against this aspersions of the value of their product? To treat the ores in New Caledonia would require supplies of fuel not now at hand; but it is proposed to meet this by a bounty on Australian coal brought by steamers. The main point in the mind of the author of this report is that, as the purchaser of most of the nickel ore, Great Britain is obtaining a strong hold on New Caledonia; a hold which is not lessened by the constant presence of British ships in the ports of the colony.

Bounties are still popular with some of our politicians, though the fallacies and injustices of the system have been so well and so often shown. Azote.

DIVIDENDS.

Table with 4 columns: Name of Company, Date, Per share, Total. Lists dividends for various companies like Adams, Amalgamated, etc.

ASSESSMENTS.

Table with 5 columns: Name of Company, Locat'n, No, Delinq., Sale, Amt. Lists assessments for various companies like Benton Con, Clarissa, etc.

ANNUAL MEETINGS.

Table with 4 columns: Name of Co., Locat'n, Date, Place of Meeting. Lists annual meetings for Alpha Con, Central Eureka, etc.

STOCK QUOTATIONS.

NEW YORK.

Table of stock quotations for New York, listing company names, locations, par values, and prices for various dates from Oct. 4 to Oct. 10.

BOSTON, MASS.†

Table of stock quotations for Boston, Mass., listing company names, par values, and prices for various dates from Oct. 4 to Oct. 10.

† Official quotations Boston Stock Exchange. Total sales, 61,599.

COAL AND INDUSTRIAL STOCKS.

Table of coal and industrial stock quotations, listing company names, par values, and prices.

Total sales, 197,124.

PHILADELPHIA, PA.‡

Table of stock quotations for Philadelphia, Pa., listing company names, par values, and prices.

Total shares sold, 15,510. ‡ Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SAN FRANCISCO, CAL.

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

CALIFORNIA OIL STOCKS.*

Table of California oil stock quotations, listing company names, par values, and prices.

* California and Producers Oil Exchanges. Total sales, 1,670 shares.

SALT LAKE CITY, UTAH.

Oct. 6.

Table of stock quotations for Salt Lake City, Utah, listing company names, shares, par values, and prices.

TORONTO, ONT.

Table of stock quotations for Toronto, Ont., listing company names, par values, and prices.

Total shares sold, 131,600.

SPOKANE, WASH.

Table of stock quotations for Spokane, Wash., listing company names, par values, and prices.

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.:

Table of stock quotations for Colorado Springs, Colo., listing companies like Acacia, Alamo, Am. Con., Anaconda, etc., with columns for dates (Sept. 29, Oct. 1, Oct. 2, Oct. 3, Oct. 4, Oct. 5) and sales.

Colorado Springs Mining Stock Exchange. Total sales, 1,458,160 shares.

MONTREAL, CANADA.*

Table of stock quotations for Montreal, Canada, listing companies like Big Three, California, Can. Gold Fields, etc., with columns for week of Oct. 8 and sales.

* Montreal Stock Exchange. Total sales, 58,000 shares.

MEXICO.

Table of stock quotations for Mexico, listing companies like Durango, Barradon y Cab., Capuzaria Guan., etc., with columns for prices and shares.

DENVER, COLO.:

Table of stock quotations for Denver, Colo., listing companies like Alamo, Anaconda, Arg. J., Anchor, etc., with columns for dates (Sept. 29, Oct. 1, Oct. 2, Oct. 3, Oct. 4, Oct. 5) and sales.

Official Quotations Denver Stock Exchange. Total sales, 99,300 shares.

PARIS.

Sept. 20.

Table of stock quotations for Paris, listing companies like Acierles de Creusot, Firminy, Huta-Bank, etc., with columns for country, product, capital stock, and prices.

LONDON

Sept. 28.

Table of stock quotations for London, listing companies like Alaska Goldfields, Alaska-Mexican, Anaconda, etc., with columns for country, authorized capital, and quotations.

DIVIDEND-PAYING MINES.

Table with columns: Name and Location of Company, Authorized Capital Stock, Shares Issued, Dividends (Paid, Total to Date, Latest), Name and Location of Company, Authorized Capital Stock, Shares Issued, Dividends (Paid, Total to Date, Latest). The table lists numerous mining companies and their financial details.

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. I., Iron. This table is corrected up to Sept. 17th. Correspondents are requested to forward changes or additions.

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

Table with multiple columns listing various chemicals and minerals such as Borax, Calcium, Magnesium, Silver, and others, along with their respective prices and units. The table is organized into several vertical sections.

THE RARE ELEMENTS.

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

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 Sept. 27. 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.