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AN eight-page supplement, containing an installment of Howe's "Metallurgy of Steel," accompanies this number of the ENGINEERING AND MINING JOURNAL.

A SPECIAL dispatch to the New York Times from the city of Mexico, with reference to the large investments of English capital in Mexico, states: "The British Minister and Consul here have greatly aided in this investment of their countrymen's capital in Mexico, both having helped, with their advice and official reports, the formation of an intelligent opinion in England regarding business opportunities here."

This we can confirm, and the reports to the English Foreign Office by Sir Francis Denys, First Secretary of Legation, and Sir Lionel Carden, Consul-General in Mexico, on the railroads, mining and other industries are able and carefully compiled documents, conveying much information of a valuable nature. Both these gentlemen have had great experience in the country, and a special training which enables them to form and communicate an intelligent opinion; they have, therefore, been of great service to their countrymen. The moral of all this is, that it would be well if our consular service were improved by special training and longer service. As a rule, our consuls rarely speak the language of the country they are sent to, and have no knowledge of what they should report upon, consequently their reports are of very little value to any one.

THE admirable behavior of the new cruiser "Charleston" on its trial on the 24th Aug. has elicited warm praise from Commodore BENAHEW, president of the trial board, who reports officially as follows:

"Official trial of 'Charleston's' engines and boilers finished yesterday afternoon. Probable average total horse power, 6,700. Maximum revolutions for one hour, 116 $\frac{1}{10}$ ; average revolutions for four hours, 115; vacuum never below 26. Ship's draught at starting trial, 16 feet 11 inches forward, 19 feet aft. A continuous speed by log of 18 knots maintained. Ship actually under forced draught for 6 $\frac{1}{2}$  hours. Performance of machinery and boilers admirable; during entire period not found necessary to slow, nor was there any heating."

The following official dispatch was further received yesterday by the Navy Department:

"Confident that the contract horse-power will be exceeded, the estimate of 6,700 was made so as to be within the actual facts. Cards not yet worked out. Estimate based on boiler performance gives the indicated horse-power greatly in excess of contract requirements."

It is no small matter to build and equip such a vessel and have her make such a record almost at her first trial, and the Union Iron Works, of San Francisco, deserve great credit for this "admirable performance." The official report is confined simply to the actual performance of the machinery, and says nothing of the fact that the trial was made in a heavy sea, which greatly interfered with the development of speed.

THAT the trait of credulity should survive among men all the demonstrations of science, is perhaps not surprising. It is akin to that hope which "springs immortal in the human breast." But really the credulous ought to exercise this immortal faculty on fresh material.

Yet the stalest old delusions find acceptance still, and are cackled over from time to time as if they were new-laid. Perhaps nothing furnishes a more curious instance than the undying belief in the "divining rod."

We have this week received a serious application from a man of mature years and apparently sane upon other points for the address of a maker of divining-rods, or of the possessor of one, or, failing these, for a description of the method of manufacture. He gravely informs us that his brother possesses one, but will not let him have the use of it, wishing for himself the job in prospect, namely, hunting for gold in Canada. We are also informed that if the body of mineral be large it will affect the rod from a great distance; that the operation is fatiguing, by reason of the sensation communicated to the arm when there is much mineral about; and finally, that the rod will not work in every one's hands. The last proposition, being the one solitary statement in which the innumerable authorities on the subject agree, may be safely believed to contain at least a partial truth!

A CURIOUS accident delayed the Pennsylvania Railroad Company's eight o'clock express train from Long Branch on Wednesday morning last for about half an hour. After passing Red Bank the train was flagged to a stop at a road bridge crossing the line, and it was seen that one of the heavy cross beams supporting the plank roadway of the bridge had sagged to such an extent that the smoke-stack of the locomotive could not pass under it by several inches. It was perfectly rotten, and had evidently been struck by the stack of a preceding train, and was brought down to such an extent that, thick as it was, it had nearly parted by its own weight. The train would not have been released as quickly as it was, as no saw large enough to cut out the sagged portion was available, had it not been for the common sense of Mr. Kirkbride, a builder, of Asbury Park, who happened to be on the train, and suggested a block and tackle, which was at hand, to tear away the beam. This was done and the train passed between the two ends. The section of road does not belong to the Pennsylvania Company, but to the New York & Long Branch Company, and is leased to the New Jersey Central Company, and operated jointly by that company and the Pennsylvania. We presume the responsibility of inspection rests with the New Jersey Central Company, but to whichever it does attach, a grave neglect had occurred, as the beam was one that should have been removed many months ago, for a most casual examination would have revealed its condition. Had the accident occurred at night it might have been a serious one. Curiously enough, the name of one of the officials of the New York & Long Branch Railroad Company, according to POOR'S Manual, is A RECKLESS!

## HYDRAULIC LOCOMOTION.

The *Chemin de fer glissant* or sliding railway at the Paris Exposition is the application in practice of an old theory that, by adopting a sled upon rails with water interposed as the carrying medium, the least possible friction would be encountered and greater speed could be attained than by means of wheels.

The promoters of the enterprise give the credit of the invention to a French engineer named GIRARD, who was killed in the Franco-German war, and name as the date of it 1868; but if we are not mistaken, the idea was advanced some years before this date in England, where it was looked upon as chimerical and impracticable. However that may be, it has now for the first time been tried on a working scale, and in combination with a system of propulsion which, we believe, is novel. The wheels are replaced by four hollow slides, about 8 by 4 inches, one at each corner of the car, fitting upon a flat and wide rail, grooved on the inner surface. To set the car in motion water is forced by compressed air into the slide, which it raises slightly from the rail, and the propelling force is supplied by a stream of water at high pressure directed from short iron pillars upon paddles fixed underneath the car. The stream of water is supplied automatically by the movement of the car, being shut off in the same manner by the paddle passing out of range. By the time the last car has passed the jet the foremost one has reached the next pillar. The force developed is represented as very great. The train is stopped by shutting off the stream of water that feeds the slides. The experimental line on the Esplanade des Invalides has four carriages, with seating capacity for about 100 passengers, and to traverse its length, some 250 yards, only a few seconds are required. Great speed is claimed for the invention, not less than about 90 miles an hour, and the ability to stop in 30 yards when running at this speed. Gradients are represented to be no obstacle, 16 inches in the yard being practicable, and the descent at such an inclination is said to be safe. No doubt the lowness of the center of gravity, which is little more than two feet above the rails, will

reduce the risk of running off the track, but the enthusiastic recommendation of the system by its promoters as peculiarly adapted for elevated railways in cities would not be echoed, we think, by the dwellers and foot passengers in streets traversed by such a line. We do not see how a continual shower bath is to be avoided, except by such an extensive, expensive, and above all, opaque dripping pan as would both require an immense expenditure and create an intolerable nuisance.

#### THE UTAH ORE PRODUCERS' ASSOCIATION AND MEXICAN SILVER-LEAD ORE QUESTION.

On another page we publish a letter from the Utah Ore Producers' Association, written in answer to our invitation to state their case in the ENGINEERING AND MINING JOURNAL. In discussing this letter we shall make reference only to the "case" as presented and not to the lack of courtesy which has characterized the published letters of the Utah Ore Producers' Association. In order to refer more easily to the questions we discuss we have numbered the paragraphs alike in the letter and our answer.

1. It is true that the Mexican semi-official papers, while discussing in a fair and dignified manner the question of promoting commerce between the country, point out the ill effect which the course of our government in practically prohibiting the entry of Mexican products—not silver-lead ore alone—will necessarily have in driving Mexican trade to the Germans and English.

We believe it is vastly more advantageous to this country and to all American industries to admit raw materials free, and to make this the workshop for our neighbors, furnishing them with manufactured goods in exchange for their raw materials, than to adopt the old Chinese policy of building a wall around our country and confining our markets to our own people. The result in China was not such as to justify the adoption of the plan here.

The duty of the American government is to administer the laws honestly and without favoritism. Congress makes the laws and alone has power to change them. No one asks more than that the interests of Americans should be protected; but the preposterous assumption that the owners of a small number of lead mines, or railroads and smelters which are anxious to prevent the competition of other American roads and smelters, should be considered as the only American industries to be "protected" is too ridiculous. American consumers and American producers of other things than fluxing lead ores have also rights that it is of equal importance to the country to protect.

It is the unreasonable demands of certain well-protected industries that they shall have all "the boodle," and that the balance of their countrymen shall contribute it, that is rapidly creating a revulsion against the protective system. We believe reasonable, moderate protection necessary in establishing certain new industries, but let the general public get the impression that protection is being "worked for all there is in it" by favored industries, and by "rings," "combinations" and "trusts," to increase large profits and to prevent competition, and the whole system will be repudiated and the innocent be made to suffer with the guilty.

2. It should be needless to repeat that the ruling that the metal of greatest value regulates its customs standing is "a long-established ruling." Under the act of 1883, a duty was imposed on lead ores, and silver and gold ores were admitted free, and the Secretary of the Treasury (Republican) ruled that ores in which the value of the silver and gold exceeded that of the lead should be classed as silver ores, and in 1888 Senator EDMUNDS, as chairman of a Republican Senate committee appointed to investigate this very question, reported that "in the case of ores that contain more lead in weight than either gold or silver, but more gold or silver than lead in value, the committee inclines to the opinion that they are not subject to duty in respect to the lead they contain. In the same act of 1883, in the paragraph relating to copper, special language is used imposing a duty upon copper found in any ore, and the same is true in respect of nickel. This change of phraseology would seem to imply that Congress intended to make a distinction in respect of imposing customs duty upon the lead that might be contained in ores usually known in commerce as gold and silver ores, as compared with the provisions made in respect of copper and nickel.

"This view is fortified by the fact stated in a letter of 26th June last, addressed to the chairman of the committee by the Assistant Secretary of the Treasury, stating that before 1883 these ores containing gold or silver and lead, where the gold or silver preponderated in value, had been admitted under the free list as ores of gold or silver, and were known in commerce as such, and not as lead ores. This course of business and practice, it must be assumed, was known to Congress when it enacted the act of 1883, and, taken in connection with the special provisions made in regard to copper and nickel, would, the committee thinks, in a legal sense, show that such ores were not and are not dutiable as lead ores.

"The committee is of opinion, therefore, that the class of ores herein mentioned are not dutiable under existing law."

Certainly this evidence is conclusive against the wild assertion that those who have invested on faith in it and have built up great American

works "have no equities in the matter." It seems to us they are just as worthy of "protection" as are those with whom they make competition.

3. This is not at all a question for quibbling over a word, or whether one man calls the ore lead ore and another silver ore, or another iron ore. Not only the Secretary of the Treasury, but a competent special Senate committee, has decided what the intention as well as interpretation of the law is, and until the law is changed by Congress this must be considered sufficient to establish this point beyond disturbance by special "instructions," which would in effect change the law.

Was there ever a more absurd statement than this: "Is it common sense to say that a non-dutiable 'ore of silver' can by the mere application of fire be melted into dutiable lead in pigs or bars?"

Is it not equally common sense to say that a dutiable gold or silver bearing or iron ore can by the mere application of heat be melted into non-dutiable gold or silver?

If "preponderating weight" and not value is to govern the case, then many silver-lead ores, or lead ores containing no silver, might come in as quartz rock, as limestone, or as iron ore.

Justice and fairness are essential in every argument, if we would carry conviction of the righteousness of the cause. When the Utah Ore Association asserts to be an injustice the allowing of lead to come in free in ores containing greater value in silver and gold, it asks that such ores shall "pay a duty of 1½ cents a pound"—on what? Not on the lead in the ore, but on the rock and other waste material, and even on the silver in the ore; so that if the ore contained, say, 20 per cent. of lead and 240 ounces of silver and 79 per cent. of lime and quartz, and other waste material, the lead would have to pay 7½ cents a pound duty, and the non-dutiable silver, even without "the mere application of fire," would be converted into "dutiable lead." This is the present law governing the entry of "lead ores," which the Utah Ore Association, the Globe Smelting Works, and others wish, in the name of justice and right, to have cover all silver-lead ores. Gentlemen, honesty and fair dealing, and respect for the rights of others, are essential foundations for a righteous cause, and those who disregard them cannot complain when the honesty of their motives are impugned.

4. We have already answered this.

5. Has the Utah Ore Producers' Association become so demoralized by the advocacy of injustice, because it is profitable (temporarily) to a few producers and stifles competition, that it cannot understand or appreciate how a paper can advocate, unbribed, the cause of justice and the good of the whole industry and of the nation? The value of the lead and silver and gold produced in Colorado, Utah, Idaho and Montana in 1887 is given by the Director of the Mint in the following table, the gold and silver being estimated at coining value and the lead at 4½ cents per pound.

	Gold and Silver		Lead	
	Value.	Per cent.	Value.	Per cent.
1887.				
Colorado, 11 mines.....	\$1,361,839	24.1	\$4,286,878	75.9
3,300 remaining Colo. mines.....	19,139,785	88.2	2,512,968	11.8
Utah.....	4,121,450	89.8	468,450	10.2
Idaho.....	5,816,645	69.7	2,536,770	30.3
Montana.....	23,796,085	97.5	630,000	2.5

From this and other official data it is clear that, while the lead interests are important and deserve, and shall always receive, the encouragement of the ENGINEERING AND MINING JOURNAL, they are insignificant as compared with the silver and gold producing interests, either in value of product or in the number of men concerned.

It appears also that 81.53 per cent. of the entire lead product of the United States is desilverized lead produced in the Western States and Territories. One-third of this was produced in Lake County, Colo., and 63.4 per cent. of the desilverized lead was produced by eleven Colorado mines. The balance of the Colorado mines produce eight times as much gold and silver as lead.

It is well known that when lead ores can be obtained at fair cost smelting offers much the cheapest method of reducing and obtaining the silver and even the gold, from miscellaneous ores. It was the discovery of the great lead mines in Nevada, in Utah, and in Colorado that so greatly stimulated the development of the mining interests by reducing the cost of smelting. As Mr. RICHARD PEARCE, of the Argo Works, has stated in his recent address to the Institute of Mining Engineers in Denver, "If it were not for the great efforts which have been made from time to time to cheapen the cost of smelting, silver mining here would have received its death blow long ere this."

The chief element in reducing the cost of smelting has been the abundance of carbonate lead ores, and so necessary are these ores to the beneficiation of miscellaneous silver and gold ores that they have steadily increased in value, until they now command a value greater than the intrinsic value of the lead they contain. They have, in other words, a value as luxes beyond that of their metal contents.

A small number of mines in Colorado, chiefly the eleven already referred to, and a few in Utah and Idaho, are those which possess this exceptional advantage, and it is precisely the owners of these few mines who are raising such an objection to the entry of the Mexican fluxing ores that will tend to regulate and moderate the price of other fluxing ores, and will allow of competition in the market for dry silver ores.

The smelters in Colorado who cannot buy Mexican ores want to kill off their rivals who can, and then control the market for silver ores. The effect of the new instructions issued by the Treasury Department, putting an altogether arbitrary and unjust valuation on lead in imported ore, has, we are gleefully told in the Colorado reports, stopped from 40 to 50 per cent. of the imports, and, according to the Eagle Pass statements, has stopped the entire entry of Mexican ores at that port, as, no doubt, was intended. The effect has been quickly felt. Our special ore report from Leadville, Colo., published in these pages last week, informed us that the charge on smelting dry ores had been increased from \$2.50 to \$3 per ton. The 1,000 or more mines which produce dry ores in Colorado must pay the smelters this much more for smelting, because they cannot get a sufficient supply of fluxing ores, even at an abnormal price, and because the smelters, which under the new instructions cannot get Mexican fluxing ores, are withdrawing from the market for dry ores.

This is protecting the mining industry with a vengeance, and it will not take the silver miners long to learn it either.

The expectation is to advance the price of lead and make the many consumers (mostly poor men) pay a still higher tax to the monopolists; but the effect may be the reduction or abolition of the duty on lead, and the service the Utah Ore Association and its friends will have done will be to have increased the cost of smelting, to have greatly injured the silver and gold mining industry, and to have driven trade away from this country and have built up a rival smelting industry in Mexico with English and German capital. If the public gets the impression that protection to American industry means only that it shall make monopolies instead of fostering and promoting the growth of American industries; and that it shall enhance the cost of producing the useful minerals and metals instead of lessening it, as the progress in civilization requires, then protection will quickly be voted a failure and an injustice and will be abolished, that which is necessary and beneficial along with the abuses and injustice which these gentlemen are loading it down with.

Is it a question of wages? Not at all. Wages in the Missouri lead mines are scarcely, if at all, higher than in Mexico, and to the ton of lead produced are less, and are but slightly greater even in Colorado. Wages depend on the relative quantity of work and workmen, and the enhancement of cost of treating silver ores which has already commenced, and that of lead which is sought, will tend to close struggling silver mines and check consumption and manufacture of lead; and, therefore, will lessen the work to be done and tend rather to reduce than to advance wages. The pretence that the exclusion of Mexican ores is sought in the interest of wages of American workmen is too "thin" to be believed by those who have only to look back and see how their wages have steadily declined, while the mine owner got more and more for his ore, as Mr. PEARCE has shown in the paper above referred to. The enemies of wage earners and of the protective system are those who make it a cover for abuse and injustice, and its friends those who advocate moderation, justice, and regard for the rights of others and the course which will create work, not restrict it.

#### CORRESPONDENCE.

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

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

#### Is a Faulted Fissure Always the Oldest?

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: With reference to the interesting article on "Faults in Strata," in your issue of the 24th inst., by Carl Henrich, M. E., you will perhaps permit me to remark, that, apart from the question, "Is a Faulted Fissure Always the Oldest?" there is another, viz., a point in physical geology now receiving considerable attention, as physicists tell us (as I understand them) that it is extremely improbable that the foldings and faultings in rocks over extensive regions were produced by horizontal or tangential pressure, because the cooling down of the earth's crust could have produced only very insignificant or feeble flexures in strata due to shrinkage. The cause of these contortions and faults must, it would appear, be looked for in another direction.

It may therefore interest your readers to know that such crumplings, overlaps, etc., as are seen in hard strata, can be beautifully reproduced in miniature by subjecting layers or artificial strata of plastic materials laid upon an uneven surface of harder substance and confined within a given space, to the vertical pressure of a mass of material (sand) also harder than the plastic layers. The result of such downward pressure, if properly applied, causes the yielding strata to assume faultings, contortions, and so forth, similar to those we have in nature in the harder rocks.

W. S. GRESLEY, F. G. S.

PITTSBURGH, Pa., August 28th.

#### Mineral Wax.

TO THE EDITOR OF THE ENGINEERING AND MINING JOURNAL:

SIR—Noticing the recent paper on mineral wax in the ENGINEERING AND MINING JOURNAL, issue of 13th July, I anticipate your interest in that product, hence write to ask if there is a market for it in great or small lots? Our neighborhood is a shale formation, and so rich in places that much wax is freed from the shale by the sun's action. The wax could be furnished in car load lots. Again, during the warm months the wax frees itself and fills all crevices in the mother shale, usually occurring in half-inch layers, at intervals of every six inches in the shale. Further, I have

one claim in which the wax has saturated and is held in a sandstone deposit, covering at least a mile square, and evidently several hundred feet thick. At a depth of 10 feet the sand is so rich in oil or wax as to be soft, and the increased softness is so regular in depth that I think it could be easily shoveled at 20 feet. My main concern, however, is the shale itself. The railroad runs through several shale deposits so rich in wax as to burn on application of very little heat. A few feet below the surface a match will ignite it.

Until the past few weeks no value has been attached to these deposits. Since their notice in the JOURNAL, however, some excitement has obtained in them and fancy prices attached to them, and the different deposits of the pure article are being named as, first, elaterite, occurring in fissure veins; ozokerite, occurring in between strata; albertite, being in deposits similar to coal and found in places in 4-foot veins; asphaltum, wherein sandstone deposits are saturated, and finally the wax, which runs from the shale and is held in the surrounding loose rocks and pulverized shale.

In any of the above forms I think that the product is sufficient to fill the orders of any regular market in whatever quantities required.

I find that the want of a market is the only obstacle to the establishment of an industry in this article, and it is in the hope that you could aid this object that I write you.

I shall be pleased to furnish you samples of any or all of the above forms and shall be glad to know which of the above formations you think the most desirable.

J. R. SHARP.

SCOTFIELD, Utah, August 24th.

#### The Mexican Silver-Lead Ore Question.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: An editorial in the ENGINEERING AND MINING JOURNAL of June 15th, headed "The Mexican Silver-Lead Ore Question," takes, as we think, an unfair view of the case, and is calculated to prejudice the Treasury Department against the mining interests in the decision now pending. We believe that the article misstates both the law and the facts.

The JOURNAL has always professed to be the friend of American mining, and its professions have been generally believed. Taking for granted, therefore, the JOURNAL's good wishes for the prosperity of the great American industry of lead mining, and believing that its editorial sprung from lack of a thorough understanding of the case, we take the liberty of pointing out a few of the many particulars, in which we claim injustice is done our interests, by your paper. The editorial in substance makes the following points, which we answer *seriatim*:

1. That Mexican semi-official papers announce that if present importations are stopped their government will retaliate to the disadvantage of commercial intercourse between the two republics.

In regard to the threat of Mexican retaliation, we urge that the policy of our government is one of protection for American industries; that the duty imposed on lead by Congress was intended to protect lead mining, and was in line with the legislation which encouraged and accomplished the development of the mineral resources of the country; that the faith of the United States was by this statute pledged to the miner of lead ores that his product should be protected, and that on the faith of this promise his investments have been made, his costly works erected, and his labor done; that he has developed an industry which consumes vast quantities of supplies, materials, and machinery, all of which are accorded adequate protection against like products of other countries, and that this trade is more important than the whole of our trade with Mexico. Under these circumstances, our government should not be frightened from carrying out its protective laws, according to the intent of the law makers, by any threat, semi-official or official, that Mexico will retaliate.

2. That the ores in question are admitted under a long-established and oft-repeated ruling.

Nor is the ruling under which these ores are admitted a long established one in the sense of being a settled rule of the department, known to those most interested in the laws; according to the interest of the law-makers, by any threats semi-official or official, that Mexico will retaliate.

The ruling under which these Mexican ores are admitted free of duty, is not a long established one, in the sense of being a settled rule of the department known to those most interested in the enforcement of the law protecting lead mining.

The first affecting lead ores was made in 1883, was unknown to the miners of lead ore, and was so little known even to the department itself that in making the ruling of January, 1886, the secretary did not refer to it at all, but based his ruling on a supposed analogy to an import of iron ore passed upon in 1880. This ruling of January, 1886, did not become generally known to miners until 1887, and ever since that time they have been urging its unfairness, and asking that it be reversed and the law enforced.

3. That even if such ores can be classed as lead ores they can also be classed as "silver ores," and should therefore be admitted free of duty.

We make the claim that the ores in question are *lead ores*, within the meaning of the tariff act, and that they are not at all "ores of silver" within the meaning of that act. But we further maintain a view directly opposite to the one your paper announces, and contend that, even if these ores may be classed as "ores of silver," if they can also be classed as "lead ores," they must pay duty as lead ores under the "similitude clause" of the tariff act.

The editorial itself indirectly shows that these ores are lead ores, when it says that to stop these importations would "enormously increase the price of carbonate ores" and shut a considerable number of "dry ore" producing mines.

It will not be denied that the carbonate ores here referred to are "lead ores," and that the dry ores are "ores of silver."

But if the imported ores are not "lead ores," how would shutting them out "enormously increase the price of ores that are lead ores?"

If they are "ores of silver" how would their exclusion cause dry ore producing mines (i. e., silver ore producing mines) to cease working?

If they are a convenient instrument for reducing ores of silver, are they themselves ores of silver?

Is it not conclusive that they are "lead ores," when they come directly in competition with home produced lead ores as an instrument in reducing ores of silver in the blast furnace?

That they are in fact lead ores, and known as such, was unanswerably

shown at the hearing on May 15th. Governor Grant, of Colorado, whose company had smelted large quantities of them, said emphatically that they were lead ores, and were of the same general character as the lead ores of our mountain States and Territories. This was also shown by others, and by samples taken from carloads of these Mexican ores, in bond at the El Paso Custom House, and presented to the Secretary, together with samples of the lead ores of Colorado, Nevada, Utah and Idaho.

There is no doubt that the galena and carbonate ores of the States and Territories are lead ores, and are and were at the time of the passage of the tariff act commonly known as such, and as such were intended to be protected.

The learned and honored Prof. R. W. Raymond joins with O. H. Hahn and Anton Eilers in describing the smelting ores of Nevada, Utah and Montana as *lead ores*. A reference to the transactions will sufficiently show this. Nor are these gentlemen in opposition to the weight of authorities, official, technical and practical. The whole mass of the people engaged in mining, smelting, transporting and writing about these ores, which, because of their lead contents, are reduced in blast furnaces, have for many years past considered and described them as *lead ores*, and this fact was shown at the hearing.

It should not be forgotten that the smelted product of these imported ores, even when silver ores smelted with them have raised their silver values, are lead bullion, known to the department, and dutiable as "Lead in pigs or bars."

Is it common sense to say that a non-dutiable "ore of silver" can, by the mere application of fire, be melted into dutiable "Lead in pigs or bars?"

It is known to the JOURNAL that in case no admixture or other ores was had, the bullion would contain a relatively greater value in silver than the ore, because a less percentage of silver than of lead is lost in the process of smelting. We ask that the same rule be applied to the ore as is applied to the reduced bullion, and that preponderating weight, and not preponderating value, determine whether the ores are "lead ores" or "ores of silver."

If they are "lead ores" they must pay a duty of 1½ cents per pound, although they could also be classed as ores of silver. In adopting the metal schedule of the tariff act, the discussion shows that the provision "If two or more rates of duty should be applicable to any imported article, it should be classified under the highest of such rates," was added to the "similitude clause" to reverse the current of legal decisions and cover cases where any article dutiable in one schedule is also on the free list.\*

4. That the government should regard manufacturing industries built up on the faith of its rulings.

The argument that the government must respect manufacturing industries built up on the faith of its departmental rulings is easily answered. We contend that the importers have no equities in the matter; that they knew this ruling was a violation of express statute, nullifying by executive regulations the fairly expressed interest of the law-making power; that they have not done equity, even under this ruling, but it has been a constant source of frauds upon the revenue by which they have grown rich at the expense of the whole lead mining industry; that if the law were enforced they would be still on the same footing as other smelting works in the country, and that even if the value of their works were totally destroyed the loss would be more than covered by their illegally gotten gains.

The true equities of the case are with the miner, who on the faith of express statute, enforced up to the time of this ruling, put his money into mining enterprises which have employed tens of thousands of American miners at living wages, and have added hundreds of millions to the metallic wealth of the nation.

The whole question is one of wages. Put them at the level of wages in Mexico and our mines can compete with the world, and continue to yield annually their tens of millions in gold and silver and lead. While doing this they can continue to buy from the rest of the country larger and larger quantities of tools and supplies, materials and machinery, the production of all of which is protected by adequate tariff laws. But our mines can not do these things and pay six or seven times the daily wage paid in Mexico.

If the Mexican ores continue to come in free of duty, tens of thousands of American miners will be thrown out of employment or forced to live on Mexican wages. Does the JOURNAL wish to see these things come to pass?

5. That the smelting industry is largely dependent on these Mexican ores.

It is not easy to reconcile the JOURNAL'S statement that the smelting industry depends on these Mexican ores, with a belief that it is as impartial in this matter as it should be. It must have been known to the writer of the editorial that no single smelting plant of importance, save only that at El Paso, has been erected since these Mexican importations became important. Yet for many years the production of this country has exceeded 125,000 tons of lead annually. It would not seriously impair the smelting industry to stop these importations, because American ores can, at fair prices, be produced to supply the whole consumption of the country.

The production in 1878 was 91,000 tons, consumption 78,000 tons. This large surplus ran the price down, and in 1879 we only produced 92,780 tons for a consumption of 94,697 tons. We produced in 1880 97,825 tons, and consumed 94,697 tons; in 1881, produced 117,085 tons, and consumed 117,345 tons; in 1882, produced 132,240 tons, consumed 132,718 tons; in 1883, produced 147,345 tons, consumed 140,535 tons. This again gave a surplus and reduced prices. Yet in 1884 we produced 143,360 and consumed 148,900 tons; in 1885, produced 135,518 tons, and consumed 145,900 tons. In 1886 the Mexican importations became important, and our production fell to 127,404 tons, against a consumption of 141,878 tons. Ever since that time our production has been in competition with the free Mexican ores, and no fair deduction can be drawn from the fact that our production has fallen short of the consumption. The fact remains evident that the mines of the United States can at fair prices supply home consumption, and that every ton of Mexican ore imported drives a ton of American ore out of the market.

6. That such ores have benefited and will benefit silver mining in the United States, by reducing the price of lead ores for fluxing ores of silver and by adding wealthy competitors in the ore market.

7. That to stop the importations will close the smelters or drive them across the border, and injure silver mining.

The continuance of these importations will ruin the lead mining industry. Nor will it aid silver mining by furnishing convenient instruments for reducing them. This, indeed, might be the case if the silver mines were located near where these Mexican ores are smelted, and if Mexico could not produce "ores of silver" as well as lead ores. But the first result of continued importations will be to close down the principal lead-ore producing mines of the country. Many of these are located near silver ore producing mines, and reduce the silver ores. But when the lead ores are no longer mined, these silver ores would have to seek smelters near to the Mexican border. This would give a monopoly into the hands of these smelters, and they could dictate the price paid for the silver ores, and say to the producer: "Mexico produces silver ores in plenty; they are nearer my works than yours are and freight on them is not half as great. Besides there is no duty to be paid on importing them, and silver is worth more per ounce in the United States than in Mexico. Give me your ores at my price or I will buy from Mexico, and you can keep your American ores." What could the silver miner say to this? Would not silver mining be then as lead mining now is, between the upper and the nether millstones, forced to reduce wages or shut down? And all this for the benefit of a mere handful of men who have grown rich on the usufruct of fraud, and who hire a few score American workmen and a horde of Mexican peons!

It is hard to believe that the JOURNAL, hitherto the trusted friend of American miners, in view of all these facts, will still urge the Department to continue to nullify the law, and enrich a few smelting men at the expense of a great industry.

Very respectfully,  
W. G. VAN HORNE,  
Secretary Utah Ore Producers' Association.

SALT LAKE CITY, Aug. 4, 1889.

## IMPRESSIONS AND REMINISCENCES OF THE ENGINEERS' EUROPEAN TRIP.—II.

By One of Them.

(Continued from page 158.)

*Return to Liverpool.*—My experience in going to Glasgow by first-class sleeping car was not such as to make me anxious to repeat it, so I went to the other extreme, and returned to Liverpool by daylight in a third-class compartment. Don't think the words third class have a degrading significance. They have nothing of the sort in Scotland. Four-fifths of even the well-to-do people travel third class, and it is said that no one travels first class but princes, Americans and fools. A wealthy Scotchman was asked the reason why he traveled third class, and he replied, "Because there's nae fourth." I had only two companions the whole journey, one an Oxford student, and the other a young business man, both perfect gentlemen, and far more companionable than those one is apt to find in first-class compartments. In fact, the only difference I could find between the first and third class was that the former had more luxurious upholstery, and the latter the more agreeable companions. There is a marked improvement in recent years in the character of the third-class compartments, and if the improvement continues the words first, second and third class, applying both to passengers and coaches, may be abandoned and the American custom adopted of considering all the passengers to be first-class people, whether the cars are or not, and charging extra prices only for special service, such as Pullman cars, limited express trains, etc. An Anglicized American, who has lived in England several years, takes a rather different view of the matter. He says as we become more civilized we will divide people into classes also. "Why, you already have four classes of passengers in America," he says; "first, those who ride in your Chicago limited trains; second, the regular sleeping car passengers; third, those who travel in the ordinary day coaches, and fourth, the emigrants." He may be right, but we don't label the trains and passengers as in England, and it is the label we object to.

Immediately on arrival in Liverpool, I put on what one of our members calls the "disguise of a gentleman," a swallow-tail coat, and became first class again as one of the guests at the reception given in our honor by the mayor of Liverpool, in the magnificent Town Hall. This was a fine beginning to the long series of receptions and banquets with which we were entertained during our whole trip in England and in France.

*The Crewe Railroad Shops and the London & Northwestern Railway.*—Leaving Liverpool on Friday, June 7th, one detachment of the engineers, over one hundred in number, visited the famous railroad works at Crewe, where they were most hospitably entertained by Mr. Webb, the general superintendent. There was a lunch and speeches, of course. The only criticism that can be made of these works is that they are too big to be seen in one day, covering 116 acres, of which 36 acres are under roof. They differ from our railroad shops in America in including in them a complete steel works, with Bessemer converters, open-hearth furnaces, plate angle and roll trains, hammers, tire mill, etc. Some statistics were given which were received with unbounded astonishment, such as that the capital of the road is \$528,000,000. How could so much money be spent on one railroad in such a little island? When we went over that road on our way to London the wonder was explained. Every bridge and viaduct on the line, and there are hundreds of them, is built of stone; the road is heavily ballasted, laid with heavy rails, held down by clumsy-looking chairs; the stations are like small palaces, and, in short, everything about the road impresses an American with its apparent expensiveness. It is a way they have in England, and we contrasted it with what Mr. Whittemore, of the Chicago, Milwaukee & St. Paul Railroad, told us—that he had built 500 miles of railroad in one year and did not use a yard of masonry in it, and that if he had to build it in the English style he could not have built one-quarter, or possibly one-tenth, of the mileage in that time. I told this to an Englishman, and he remarked: "But would it not pay better in the long run to build it properly, as we do in England?" Possibly it would, if we had unlimited capital to build with, or if we were content to build 50 miles in a year, instead of 500, and postpone the populating of Dakota, Montana and Washington until the next century. The difference between the English and the American railroads is the characteristic difference between English and American engineering. Each is the product of its environment. The English road may have some features which are due to the English mental habit, to slowness and to conservatism, but the features of the American road are due to the necessity and the conditions under which it is built.

But in railroads, and in other departments of engineering as well, the

\* Vide Cong. Rec., Vol. XIV., Part IV., pp. 3582-3585.

English and Americans are approaching each other. The Pennsylvania Railroad, as it increases in wealth and as the country through which it runs is increasing in population, is building stone bridges and magnificent stations. The English railroads, "catching on," although slowly, to American ideas, are beginning to use Pullman cars, and to put doors between the compartments in the car. Before long they will put doors in the ends of the cars, and after that the "vestibule." The Northwestern road furnished us a special train from Liverpool to London, with entirely new cars, and it was noticeable what an improvement they were over the ordinary English compartment car. We could go from one end of a car to the other; but still we were not happy, for so many of our friends with whom we wished to converse *en route* were in the other cars, and we could not go from one car to the other.

Many of your readers may have seen the old engraving showing the first train on the Mohawk & Albany Railroad in 1831, and will remember how the railway carriage of that train was closely patterned after a mail coach. From the mail coach to the vestibuled sleeping and parlor cars there has been a gradual development or evolution, rapid in America, slow in England; but England is now moving more rapidly, and her railroad cars will soon be unobjectionable. She is, however, far ahead of us in the civil engineering department of the railroads, in more solid road beds, freedom from grade crossings, safer bridges, finer and cleaner stations, especially in small towns and villages, and in convenient "left luggage" rooms in every station (price twopence for each parcel).

*The Horwich Works of the Lancashire & Yorkshire Railway*—Another party of 100 went to Horwich, and they had just as good a time as the Crewe party. The writer could not be in two places at once, so he speaks of Crewe only from hearsay, but of Horwich by experience. He is glad he chose Horwich, for in one point it is more interesting than Crewe, as it is a new works, begun only in 1886, and not quite finished yet. As one of the speakers said at the inevitable lunch, the works were started on a clean sheet of paper. No doubt these are the finest railroad shops yet built; and why should they not be? With all the other works which had preceded them as examples of how not to build, with a fine piece of ground to build on, and with plenty of capital and the best engineering skill, some of it graduated from the London & Northwestern, it was easy to build a works which should be the finest of their class. A strong impression these works left upon us was "how very American they are"—everything new, the machinery the best possible, and exactly adapted for the work to be done. Milling machines used extensively, even end millers and profiling machines, taking even bigger cuts than we do in America—all was beyond criticism, and we could do nothing but express our admiration.

*Manchester*.—The two parties met in Manchester in the evening, and the swallow-tail coats were in requisition again, for we had a reception and banquet given us in the Town Hall. A most delightful affair it was. The mayors of four cities, Manchester, Salford, Oldham and Bolton, sat at the head of the table with immense gold chains, and the regalia of office around their necks, and many prominent citizens of the reception committee and others were present. My table companion was a "fine old English gentleman," and when sipping his after-dinner port his conversation was charming. On my mentioning to him that I thought the mayors and public officials were a fine-looking body of men, he replied: "We elect our very best citizens to public office." I think nothing I heard in my whole trip gave me such food for thought as that simple sentence. Would that we could say the same in our American cities! Is not the greatest difference we notice in the streets of our cities in England and America, to our disadvantage, chiefly due to our being behind England in this one matter of the class of citizens we elect to municipal offices? If our officers were like those in England, would we not have cleaner streets, freedom from obstructions, skids, etc., less jobbery in contracts of every kind, no "boodle aldermen"? Would not city government be divorced from national politics? Would not the rapid transit problem be soon and rightly settled?

*The Manchester Ship Canal*.—Saturday, June 9th, we had a choice of various trips in the city and vicinity. The largest party went to see the works of the Manchester ship canal. The canal is designed to make Manchester a seaport, and relieve it from the burden of being dependent on Liverpool. It is to be 35 miles long, 26 feet deep, with a minimum width at the bottom of 120 feet. It will have five locks of 15 feet lift each. These will take in the largest ocean steamer, and the gates will be worked with powerful hydraulic machinery, so as to open and shut in 15 minutes. The contract price is £5,750,000, and the work is expected to be finished in 1892. Fifteen thousand men and 150 locomotives are at work on the canal, and the most rapid and cheapest removal of earth ever known is being done. It is truly a magnificent undertaking, and is another evidence of the Englishman's willingness to spend a pile of money in engineering works which promise even only a small dividend in the distant future. Some Manchester men think the canal is going to do great damage to the commerce of Liverpool; but the Liverpool men with whom I spoke concerning it said that they were not afraid of any such result. It will increase the prosperity of Manchester, of course, they said, but the richer one city becomes the better for the other.

*The Renaissance of the Canal*.—We have heard a good deal lately about the abandonment of canals on account of the greater cheapness of railroad transportation, especially in the United States. No wonder our canals are being abandoned, for, such as they are, with their miserable towpaths, small cross-section, unstable banks and mule motive power, they are relics of the days of the stage coach, and it is high time they gave place to something more modern. There will be a reaction here, as well as in England, some day in favor of canals, but they will be ship canals, with steam for motive power, and capable of floating the largest vessels. The Nicaragua Canal is the first one we need, to give us cheap transportation between the Atlantic and the Pacific. If the British and Canadian governments can afford to spend hundreds of millions of dollars in building the Canadian Pacific Railroad, in establishing docks at Esquimaux, and in subsidizing steamships from Vancouver to China and Australia, what should not we be able and willing to do to tie together by water our Eastern and Western sea coast.

The Erie Canal has been one of the greatest causes of the prosperity of New York City and State. It is capable of doing yet more for both, and the most far-sighted and liberal policy should be adopted in regard to its enlargement. After the Erie and the Nicaragua canals may come the

Florida and the Cape Cod ship canals, on our coast; the James River and Kanawha Canal, to connect the Ohio River with the Atlantic Ocean; the Hennepin Canal to connect the lakes with the Mississippi, and the proposed canal between Lake Erie and Pittsburg, to connect the lakes with the Ohio. If it pays England to put a ship canal between Liverpool and Manchester, what would it not pay us to build these more important canals in America?

(TO BE CONTINUED.)

#### PNEUMATIC DUMPING CAR.

One of the devices shown at the Paris Exhibition for dumping cars, as described in our contemporary, *Le Génie Civil*, is the employment of compressed air. The idea is to unload a whole train of cars by one movement by means of compressed air communicated to all the cars, in a manner similar to its application to brakes.

II. Buette, a contractor, has the credit of the plan which has been carried out by M. Emile Chevalier of Grenelle. Fig. 1 shows the action of

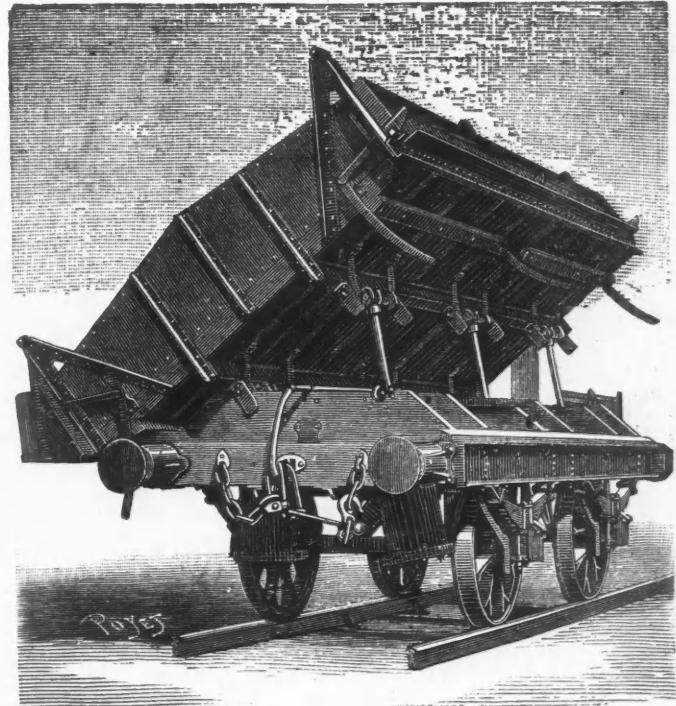


FIG. 1.

the dumping cylinders. The principal advantages are the ability of dumping either to right or the left without having to turn the car, and in the arrangement of the sides, by which they are opened and closed automatically. The frame has six cylinders, three arranged on each side longi-

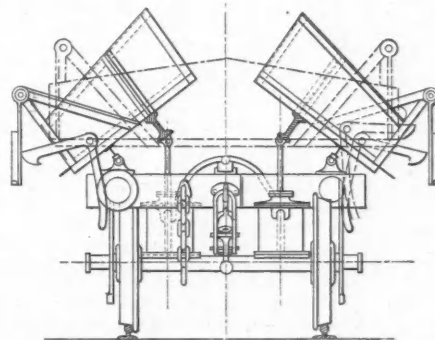


FIG. 2.

tudinally, for the purpose of raising the body from the side opposite to that where it is desired to dump. They swing on pivots fixed to cross-pieces of the frame. The body of the car, either of wood or iron, rests on the frame on two iron beams; on these beams are fixed the slides swinging in the rings. The guides clasp these rings and prevent all longitudinal displacement of the body. The rings and guides are fixed on the sills of the frame. The compressed air, stored in one or more intermediate receivers, is carried by the general supply pipe at the moment when it is desired to dump. From this pipe there are branches to distribute the motive power to the right or the left by means of a tap with three openings, placed under each body and operated by levers. This arrangement allows of dumping all the cars either to the right or the left, or only some of them if desired, allowing the compressed air to pass through the general supply pipe for those not required. The dumping accomplished, it is only necessary to shut off the compressed air from the supply pipe for the bodies of the car to resume their normal position by their own weight. The air is sent from the locomotive within an initial

pressure of about 140 pounds to the inch, but the cylinders are arranged to work with half this pressure.

In case the cars are intended for work suited always for dumping the whole train either right or left, it would be preferable to replace the one supply pipe by two, each operating one series of cylinders. The dumping could then be regulated by one tap placed on the locomotive, as with brakes.

The same principles could be applied to operate by vacuum, but in this case the surface of the pistons would be five times as large for the same work.

The automatic opening and closing of the sides of the body of the car is attained by hanging them on hinges, and they are kept closed by right-angled hooks. These latter swing on an axis, so that the hanging part at the moment of dumping touches the frame and the hook is raised. When the body after dumping returns to its original position, the hook swings into its former place and the side in falling back hooks itself.

Fig. 2 shows a ballasting car which can dump right, left and between the rails. In this case the tap for individual operation is dispensed with, the two pistons receive their motion directly from the general supply pipe, and the operation is regulated from the locomotive.

These cars seem to us to possess great advantages for certain classes of work, not only for removal of material and ballasting of railroads, but for unloading coal, ore, stone and, generally, heavy goods carried in bulk.

#### MALIWUN TIN MINES.

Maliwun is a village of the Mergui District, and is situated on a stream of the same name flowing into the Pakchaw River. It is near "Renaung," the capital of one of the most flourishing tea districts of Siam. About three or four miles from Maliwun the first mine is reached, and the others all lay about this.

The plan is of this first mine, and it will be seen that the mine was worked in terraces from the hill. This was necessary to remove the "overburden" and for drainage purposes. A large catchwater drain at foot of the hill supplies the motive power for the wheel below, and one can now understand why work has often to be stopped during the dry weather. It is due to failure in the supply of water. Where a perennial stream is handy work seldom stops.

The pits are all open ones, and though this causes waste of labor and time, yet it is less expensive than tunneling; in fact, the miners are too poor for this sort of work. The depth of the pits is from 10 to 12 feet, and the fact that in level ground one pit is deeper than that contiguous to it, proves that the vein of tin seldom runs level.

These veins are met with often at the surface, but their yield is not so good as those found below. I am speaking of "veins" of tin ore, but I had no opportunity of finding out whether the ore was thus found or scattered promiscuously over the surface, as I did not enter the pit—a superstition existing among the miners regarding allowing a stranger to descend into their mines.

I was told that when a vein is struck it is followed up till it is exhausted or enters a hill, when, rather than tunnel through, it is given up.

I may add that the few instances where government officials were allowed to descend, a little money had to be spent afterward by the miners in performing ceremonies necessary to propitiate their incensed "hat" or spirit.

As soon as the vein is struck the sand is removed and heaped in a convenient place, ready for washing, which is done when a good quantity has accumulated. The sand is carried in baskets up step ladders to the required place, much the same way that coolies do earthwork.

Sometimes a chain is formed, and the basket handed from one to the other till it reaches the depot; at other times each man carries a basket direct from the pit. In few instances the sand is thrown at once into the sluice box, where a few men are stationed to wash it, but in the majority of cases it is heaped up. As soon as a quantity is heaped up the stream is diverted to the sluice box and washing begins. As much water as is required is admitted by means of a trap or sliding door at mouth of sluice box, and then run off again by means of another sliding door into the tank at the opposite end. Generally a good deal of sand finds its way into the tank, and this is taken up and washed again. The washing must be a very discouraging one, for out of a cubic foot of quartz and sand that was washed before me, only half a teaspoonful of tin sand was obtained, and this after about five minutes' washing. The tin sand is now taken away to a storeroom near by and there carefully preserved till a quantity is obtained for smelting, when it is carried down by men to the furnaces at Maliwun. The greatest difficulty experienced in mining is in pumping out the water from the pits. I have endeavored to show in the plan how this is done by means of an overshot wheel and "Portuguese pump," as it is called. To make things clearer I append the following in explanation of the drawing. A hole is excavated in the lowest part of one mine, and the water wheel and pump adjusted over it. Drains are cut from the other parts of the mine to this central excavation, so as to bring all the water to it. The water wheel is about 5 feet in diameter, and is worked by the water from the catch-water drain above. On a small wheel, fixed to the axis of the larger one, an endless chain, composed of a number of wooden blades, is passed. This chain works in a trough, and in passing up the blades, assuming a perpendicular position, pushes the water up the trough to the drain above. In all, it is but a miserable apology for the common lift pump. To ease the axle of the water wheel and lessen friction, two little streams of water are allowed to fall on the pivots. This wheel has a treadle attached to that part of the axle opposite to the one where the chain works, and intended to be worked by hand power when the stream supplying the water fails.

The miners are paid by the month, or by the amount of sand collected. The wages a month range from \$3.25 to \$4.87, skilled workmen often getting as much as \$8.12. Those paid by the amount of sand collected get \$2.25 per "khan" (a small basket equal to  $\frac{1}{16}$ th of a bushel). Food is supplied to all by the mine owner, and settling day comes once a year, on the Chinese New Year Day.

There are only two smelting furnaces in Maliwun, and the workers of the other mines sell their sand to them at \$2.25 per "khan" (a drawing of which is given). It takes 16 of these "khans" to make an imperial bushel, and the output of tin a bushel is two slabs, or 212 pounds of metallic tin. As for a

description of the smelting furnace, I give the following to make the drawing clearer: The furnace consists of a framework of flat iron bars, arranged in the form of a cylinder or truncated cone, the lesser diameter being below. This cylinder rests on an iron pan, which is again supported by an iron ring, propped up on three legs. The pan is filled with clay, and sometimes two or more pans are used, one fitting into the other. In line with base of cylinder, and at one side is an arched aperture for letting out the molten metal, and on the opposite side, a little higher up, another aperture containing the clay tube that fits over the bamboo one of the bellows. This bamboo is also covered with clay, to prevent its being burnt.

The bellows consists of a hollow cylinder 15 inches in diameter, generally the trunk of a tree hollowed out, or made up with planks. It is 10 feet long, and has an air tube of the same length running along one side. The latter opens at either end into the cylinder, and at the centre, into the bamboo connection.

At both ends of the cylinder are valves, semi-circular, and of 3-inch radius, and there is another in the air tube, working diagonally at the opening into the bamboo tube. As the piston is pushed in, the valve at the opposite end closes, and the air necessarily rushing in through the opening into the air conduit, forces the diagonal valve to the opposite side, and finds its way into the bamboo tube, and thence into the furnace. This operation is reversed on the return stroke of the piston. It is very ingenious, and costs about \$74. The air tube and cylinder are bound well together by iron bands, four in number.

The furnace cylinder is lined with six inches clay, and is from 2 feet at bottom to 2½ feet at top. The height is 3 feet and in some cases 4 feet.

When starting work a little fuel is put in the furnace and the bellows set going, then a layer of ore or tin sand is put in, then some more ore, then more fuel, etc., the layers of ore and fuel alternating, much in the same way as in the packing of a brick kiln. The piston is of wood, covered with leather and well greased; the piston rod is of nut wood, and has to be replaced very often, not through breaking, but from sheer wearing away through friction. The one under description had its rod, originally 3 inches diameter, worn down to an elliptical section of 1 and 1½ inches diameter. It takes three men to work the furnace, two at the bellows (relieving each other every hour) and one clearing away scoriae, slag, and pouring the tin into the mold. Of course the man in waiting at the bellows occasionally stirs the fire, and puts in more fuel and ore.

As soon as a quantity of molten tin has collected in the excavation made for that purpose, it is ladled out and run into molds. Each set of three men work for six hours and, in many cases, a fourth man is told off to do the lading and molding into blocks. The wages of the men vary from 33c. to 40c. a day. The furnace is kept going, without intermission, for days, and in 24 hours the output is 15 to 16 blocks of 106 pounds each. The Chinese weight of these blocks is 80 "changmins" ( $\frac{1}{16}$  changmin = 2 pounds avoirdupois). Each of the blocks fetches about \$20 at Penang. A "khan" of tin sand weighs on an average 16 changmins, i.e., about 21 pounds, a basket therefore weighs 336 pounds, and the output of this weight of sand or ore is 212 pounds of tin, a percentage of 63 per cent. This is not all that is got out of it; the scoriae and slag are pounded down and resmelted, the tin accruing from this being generally divided between the men and the owner.

I have been told that the slag has often been thus resmelted three or four times.

Regarding the amount of fuel used, I could get no accurate information, no account being kept, as, the fuel supplier contracting for smelting so many baskets of ore and in return getting a share of the tin, it is immaterial to the owner what amount is supplied, so long as the quantity of the ore contracted for is smelted. I may be able to give this information after visiting "Renaung."

The tin is all sent to Penang by steamer, and not an ounce of it ever goes to Calcutta or Rangoon direct.

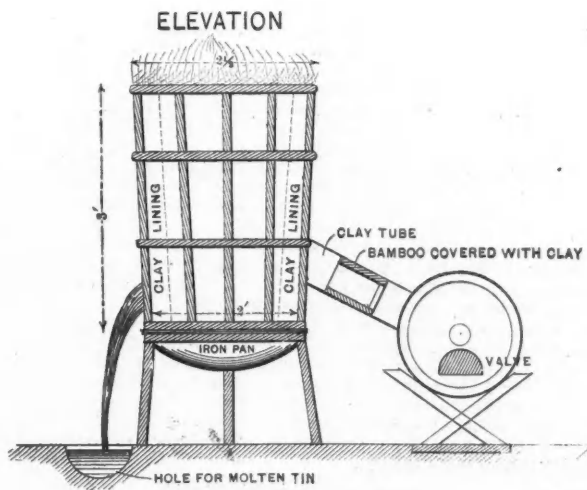
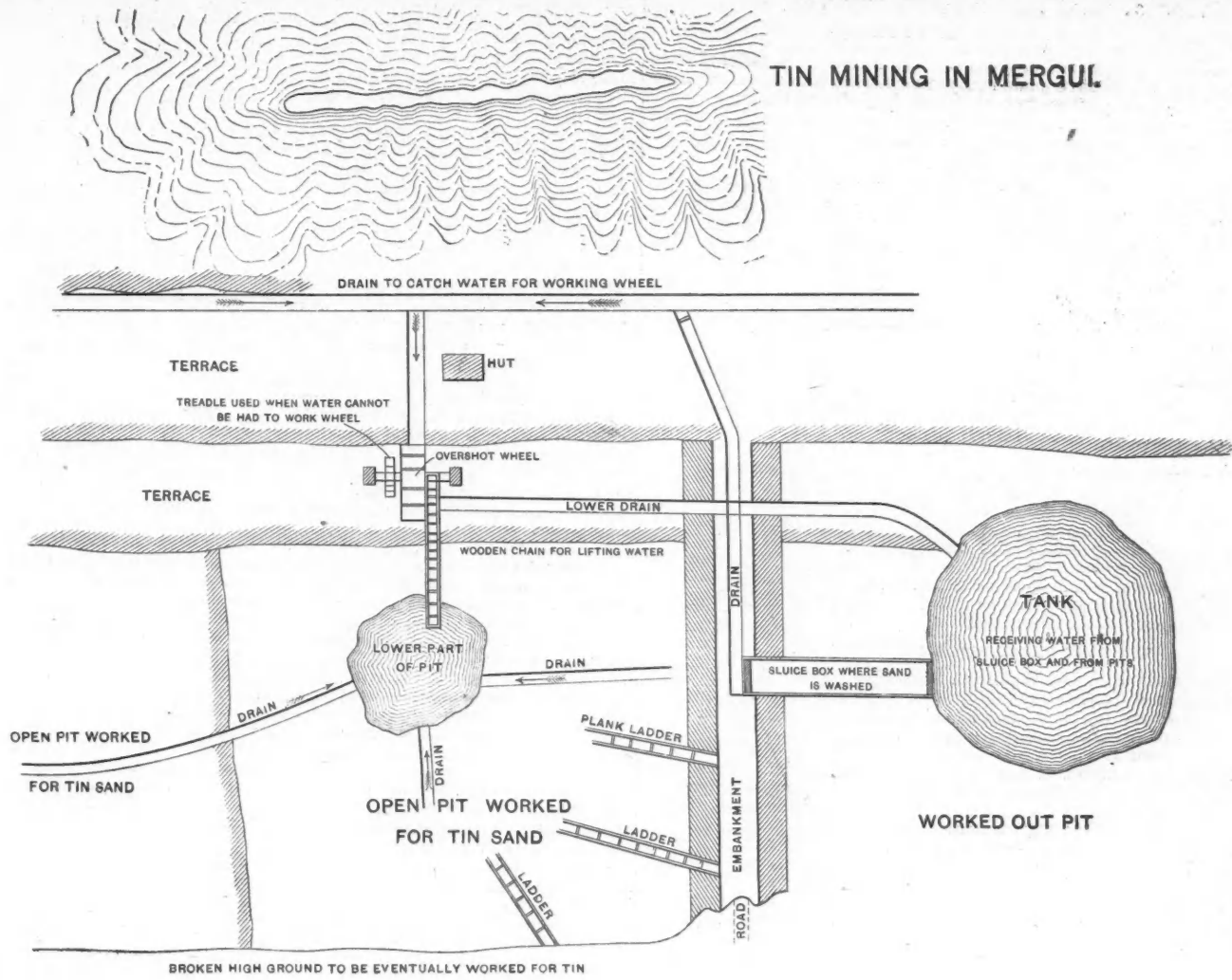
The great drawback to a successful development of the tin industry in Maliwun, or rather in the Mergui District, is due to the difficulty of importing laborers and keeping them at the mines. The owners state that they would like a labor law passed which would prevent the men from absconding.

They also want roads to their mines, and easy access to the steamer anchorage. This they have not at present, and it is not surprising that they declined to go in largely for the thing. At Renaung, they say, the coolies are bound down to the Raja like slaves, but this has been shown to be erroneous. The men at Renaung are well satisfied with their condition, and came from China to work of their own accord.—*Indian Engineering.*

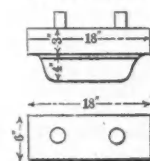
**Grisonite.**—This consists of suitable explosive agents with which certain water-containing salts—such as carbonate of soda and sulphate of magnesia—are incorporated. Grisonite with 50 per cent. of carbonate of soda contains 30 per cent. of water, and with sulphate of magnesia in like proportions, 25 per cent. Experiments under dangerous conditions have proven that the flames are quenched, and that this material is both safe and efficient.

**Peat Candles in South America.**—Peat candles are not exactly made of peat, but of the paraffine that is distilled from peat in Brazil, where it is more plentiful even than in Ireland. According to *T e Come cio das Amazonas*, Messrs. John Grant & Co. are now having machinery installed at their works capable of producing 80 tons of peat paraffine a month. They are also extracting from the turf a valuable lubricating oil. They employ 300 workmen, and have 33 boilers with purifiers, stills, refrigerators in their plant.

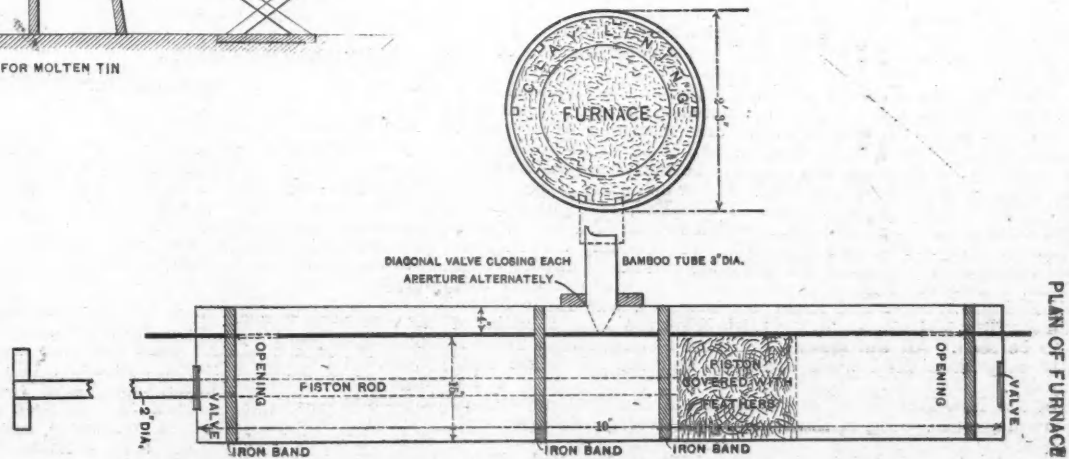
**A Novel Case of Insurance.**—A Parisian lady whose furniture and effects, including jewelry, were insured against loss or damage by fire, accidentally knocked a \$3,000 pearl necklace from the mantle into the fire below in the grate, of course destroying it. The insurance company declined to pay, as they claimed that the loss was not by such a fire as generally was contemplated when the risks were taken. The Court held, however, that "the word fire in matters of insurance applied to every accident, however unimportant such accident may be, so long as it is caused by the action of fire." The insurance company was ordered to pay the ascertained value of the necklace to the lady.



MOULD FOR TIN



ONE "KHAN" OR MEASURE FOR TIN SAND (16 OF THESE GO TO A BUSHEL)



## VACATION NOTES FROM NORTHERN NEW YORK.—II.

## THE IRON INDUSTRY OF THE REGION.

As might be expected, the furnaces of this region have suffered from the same causes which have made many other northern furnaces unprofitable in the face of competition from the South, backed by advantageous and bountiful natural resources. The ore output shows an increase, however, and there has been no relaxation of activity at the mines.

## THE CROWN POINT MINES AND FURNACES.

At Crown Point, only one of two furnaces is in blast. It was started up in April last; previous to that both furnaces had been idle for two years and a half. The furnace in blast has a daily capacity of 67 tons; the one idle is smaller, being credited with an output of 50 tons per day. The furnaces here are under the same management as those at Chateaugay. A. L. Inman, of Plattsburg, is the General Manager; H. L. Reed is the Assistant General Manager in charge of the furnaces, and Thos. Montague is the Superintendent of the Crown Point Iron Company's mines at Hammondville.

The furnaces are between the town of Crown Point and the shore of Lake Champlain. The fuel used is 75 per cent. anthracite and 25 per cent. coke. The ore used is a combination of three-quarters Crown Point ore and one-quarter Chateaugay ore. Magnesium stone from quarries in Vermont, just across the lake, and marble rubble from Rutland are used for flux.

The ore deposits of the Crown Point Iron Company are situated in the little village of Hammondville, thirteen miles distant from Lake Champlain, named from the Hammond family, which until recently held a controlling interest in the company. A narrow-gauge railroad, owned by the company, connects the mines with the furnaces. At the mines are a number of large Rand compressors, four winding engines, which operate nine drums, fourteen boilers of about 700 H. P., and twenty-five pumps.

The company owns 32,000 acres in four townships, but mining has been confined principally to the Hammondville deposits.

## THE PORT HENRY MINES AND FURNACES.

As was pointed out by Mr. Walter C. Witherbee, of the firm of Witherbees, Sherman & Co., in conversation with the writer, the only question which the owners of these enormous ore deposits are called upon to solve is one of demand, and not of supply.

Port Henry itself is a pleasantly situated little town on the lake shore, and not only has a number of fine residences erected by the Witherbees and the Shermans, but bears evidence by various improvements of local pride, encouraged by the liberality of the families above mentioned.

As at Crown Point, the furnaces here are within a few hundred feet of the lake. The Cedar Point furnace, or Furnace No. 1, has a daily capacity of 70 tons. It was built seventeen years ago, was first put into blast in 1875, and was thoroughly overhauled in 1886 and 1887. In January, 1888, owing to the negligence of a workman, a gas explosion occurred in the blast pipes. The damage was immediately repaired. Since then the furnace has been out of blast.

Furnaces Nos. 2 and 3, known as the Bay State furnaces, are distant about half a mile along the shore of the lake from the Cedar Point furnace. Furnace No. 2, which is the only one of the three in blast, turns out from 65 to 70 tons per day. No. 3 is smaller than the others, and it has a daily capacity of 50 tons. The fuel used is four-fifths anthracite and one-fifth coke. White and blue limestone, from the company's own quarries, are used for flux. No. 2 furnace is producing principally mill irons with some No. 2 Foundry.

The ores used are as follows: New Bed, Old Bed, Cheever, and New Bed Separated. N. M. Langdon is in charge of the three furnaces.

The Cedar Point furnace is owned by Witherbees, Sherman & Company, and the Bay State furnaces by the Port Henry Furnace Company, of which the above-named firm owns a majority of the stock. The officers of the Port Henry Furnace Company are: G. R. Sherman, President, in place of S. H. Witherbee, lately deceased; W. C. Witherbee, Vice-President, and H. B. Willard, Secretary and Treasurer.

The mines, by far the most important of all in this district, are at Mineville, a thriving little mining village of about 2,500 people, in the township of Moriah, six and a half miles west of the furnaces, and at a mean elevation of 1,300 feet above the level of Lake Champlain. This rise of about 200 feet to the mile is traversed by a standard broad-gauge railroad, on which are run five trains to and from the mines per day. The grade is so steep and the ascent so direct that the necessarily serpentine course of the track is broken by three "Y's."

The Mineville deposits are owned and worked by two companies. Witherbees, Sherman & Co. and the Port Henry Iron Ore Company; but as Witherbees, Sherman & Co. are the selling agents of the latter, the ore is mixed indiscriminately when sold. The property line is a geographical rather than a geological boundary, and the ore produced by both companies is of the same character.

There are two main divisions of these deposits: the Old Bed non-Bessemer ores averaging about 66 per cent. metallic iron and 1.07 per cent. phosphorus, and the New Bed Bessemer ores returning 68 per cent. metallic iron and .036 per cent. phosphorus. All of the mines are on the slopes of Barton Hill, and are in two ranges or belts, the eastern one being known as Old Bed, and the western range, higher up on the slope, being New Bed. There are four distinct veins at Old Bed, and probably an equal number or more at New Bed, all of which are parallel, with a general southwesterly dip. The Port Henry Iron Ore Company owns Brinsmade shaft, Mine 23, a part of the Old Bed mine and the 21 mine, as well as the Fisher Hill mine. Witherbees, Sherman & Co. own the other half of the Old Bed and 21 mines and Miller Pit, Bonanza, and Little Joker, besides all the New Bed mines. In the Little Joker the largest bodies of ore are to be seen. All the mines are lighted by electricity. There is apparently very little dead work necessary, and the mines are comparatively dry.

In one of the New Bed shafts are found some beautiful crystals of almost pure magnetite. The ore here shows an average of 72 per cent. metallic iron.

A new shaft has been started in the Orchard Pit at New Bed. It has reached a depth of 150 feet.

The New Bed ores are divided into two classes, "lean" and "pure."

The "lean" averages about 50 per cent. metallic iron. The Ball and also the Venstrom magnetic separators are being tried on this ore, the former apparently with the greater success.

Among other improvements, a new hoisting plant is being erected at Mine 21, and the Bleichert system of wire rope tramways, owned by Cooper, Hewitt & Co., is being erected to convey the New Bed ores to the railroad station at Old Bed. The system is intended to carry 500 tons of ore per day of 10 hours, each bucket having a capacity of 1,250 pounds.

The hoisting plants at New Bed and Old Bed are separate. At Old Bed is a well-fitted machine shop and electric plant. All of the equipment is on a large scale and includes the latest appliances. Capt. W. H. Taft is the superintendent of the mines for Messrs. Witherbee, Sherman & Co. At Lake Champlain are long ore docks on which the ore is dumped, sorted and loaded on barges. The present production of the mines is estimated at 800 tons per day; of this only 400 tons per week are consumed by the one furnace in blast, the remainder, on account of its high quality, finds a ready market not only at Troy, Bethlehem and Scranton, Pa., but further west and south at other furnaces. J. R. B.

## RUSTY GOLD.

Is there such a thing as rusty gold, or is the term merely used as a cover for bad amalgamation work?

Quartz gold—vein gold—when free, no matter how clean in appearance, can often be traced through shading gradations to the included gold of the pyrite, mispickel, chalcopyrite, blende or other sulphide, arsenide or sulpharsenide mineral which may have originally been the ore-carrier. Thus we may sometimes see flecks or films of bright gold in white, glassy quartz; but in the rock broken down by the same shot there may be masses of quartz in which the gold, no matter how bright, occupies small cavities having a rusty tinge of hematite, limonite, azurite, malachite, or a combination of these minerals, thus giving a clue to the original source of the precious metal. Below the water line one of course expects to see the gold associated, either as an "accidental" component or in chemical combination, with the sulphides, arsenides, antimonides, and compounds of this group. There has been some dispute as to what is the condition of the gold in the sulpho- and kindred compounds—whether it is as free metal, as a gold sulphide or tersulphide, or existing partly in one and partly in the other form. But Mr. J. S. CURTIS once washed out a large sample of hard bright iron pyrite, which looked as unpromising as possible, and found grains of gold in it, which were tested with acid, weighed, and finally assayed, thus demonstrating that sometimes at least gold exists in pyrite, etc., as a metal and not as a base either in simple combination with the sulphur, arsenic, antimony, etc., or in triple combination with these and the iron, copper, zinc, lead or other bases present.

As to rusty gold, we think that the term is made a cloak to cover up a multitude of sins of omission or commission. In mill work it may be that a little too much grease drops off the tappets, cams and guides, that may be a little cyanide, wood ash, acid, or fresh "quick" is needed on the aprons, or sluice and battery plates, or a little more careful handling wanted with the loose quicksilver fed into the mortars. In hydraulicking and in sluicing cement and drift mine stuff there may be a mistake as to grade, as to lining, as to the proper proportion of mercury fed, as to the right box to feed it in, as to the time of feeding, as to the way it is sprayed, as to cleaning up, that the gold is too fine or too flaky (in which case swinging amalgamated plates, so arranged as not to be caught by the boulders but to half float on the surface, would be a good scheme), as to the moral sense of the Chinamen kept around the mine, and to a host of contingencies, omitting to consider any single one of which, however insignificant on the surface, might make all the difference between profit and loss in a season's run, since nowadays the margin in this class of mining is apt to be pretty small.

Among the theories proposed to account for rusty gold, two are best known—(1) that the surface of the gold is protected by a fine film of iron sulphide or peroxide, the residuum of the original auriferous pyrite; or (2) that silica in the form of quartz or perhaps as a silicate of iron presents a mechanical repulsion to the action of the quicksilver. Mr. HENRY G. HANKS, of San Francisco, some years ago made a series of experiments, in which he succeeded in reproducing, or artificially imitating, what is commonly called rusty gold, or a gold which to a certain extent exercised a repulsion against the mercury. This he did by pounding finely pulverized dead quartz against clean, heavy grain gold, which had not been previously amalgamated, on an assayer's anvil, and then trying the quicksilver on it, using necessary precautions and observing the results through a microscope. Thus there may be rusty gold, or float gold, or unsocial, improperly behaved gold, but the metal has certainly been made to shoulder the largest share of the responsibility belonging to the metallurgist.

**For Copying Drawings.**—A new method of copying drawings, which may be found of service, is given in the *Deutsches Baumgewerbes Blatt*. Any kind of opaque drawing paper in ordinary use may be employed for this purpose, stretched in the usual way over the drawing to be copied or traced. Then the paper is soaked with benzine by the aid of a cotton pad. The pad causes the benzine to enter the pores of the paper, rendering the latter more transparent than the finest tracing paper. The most delicate lines and tints show through the paper so treated, and may be copied with the greatest ease, for pencil, Indian ink or water colors take equally well on the benzined surface. The paper is neither creased nor torn, remaining whole and supple. Indeed, pencil marks and water color tinting last better upon paper treated in this way than on any other kind of tracing paper, the former being rather difficult to remove by rubber. When large drawings are to be dealt with, the benzine treatment is only applied to parts at a time, thus keeping pace with the rapidity of advancement with the work. When the copy is completed the benzine rapidly evaporates, and the paper resumes its original and opaque appearance without betraying the faintest trace of the benzine. If it is desired to fix lead-pencil marks on ordinary drawing or tracing paper, this may be done by wetting it with milk and drying in the air.—*Building*.



**An Ancient Censer.**—An ancient metal incense-burner, or tripod, bearing the date of the reign T'ien K'i, of the Ming dynasty (1691-1628), was fished up out of the Yangtze lately in a fisherman's net at Lung-p'ing, above Kiukiang. A poor unsuccessful scholar of Wu-h'ieh, named Wang, who supported his mother by the trade of curio-buyer for collectors, and although 30 years of age, had as yet, in his filial piety, denied himself the luxury of a wife, was passing, and bought the antiquity cheap from the ignorant man. When he had carefully polished it, he was overjoyed to find that the old vessel was principally composed of gold, and the profit he will make out of it will be rightly held by all to be the reward of heaven for his filial virtue.

**Largest Engine in the World.**—The largest steam engine in the world is that constructed for the new Italian cruiser "Sardegna." It really consists of four triple expansion engines, which can be used together or separately, as desired, the entire combination being capable of developing a force of 22,000 nominal, or 25,000 actual horse power. The ship is driven by twin screws, and two engines are connected to the shaft of each screw, but one screw can be stopped altogether if the vessel is to be turned around, or, for ordinary sailing, one engine only may be used for each screw; but in case it should be necessary to increase the speed, the other engines can at once be connected and the full power exerted. As usual with naval machinery, a large number of auxiliary engines are used. On the "Sardegna" there are no less than 20 compound auxiliary engines for feeding the boilers, keeping up the draught, and so on, besides a great variety of single cylinder machines.—*American Architect.*

**The Baku Oil Wells Running Dry.**—Intelligence has been received at Berlin from Baku to the effect that a permanent decrease is showing itself in the production of naphtha in that region, and that there is a probability of a very serious crisis shortly coming on. The naphtha basins of the Apsheron Peninsula and Bibicbat are no doubt still very productive, but the yield is no longer to be relied on. Almost all the factories at Baku, including M. Nobel's, are suffering for want of the raw product, the price of which has risen from one or two kopecks to five or six a pound. Many new borings have been made, but the results by no means realize the hopes or expectations of the speculators. Messrs. Rothschild's representative, the manager of the Caspian & Black Sea Naphtha Company, has received orders to proceed to Paris after a thorough investigation has been made of the state of affairs by the company's engineer at Balachona.

**Japanese Artesian Well Borers.**—At Yangchow, Kiangsu, an attempt was lately made by the K'ung-hwa Kwan (Chrysoprase Flower Temple) congee depot to bore artesian wells with Japanese machinery and labor, this charitable institution wishing to have water handy so as to dispense hot gruel to the destitute with less expense. The manager therefore hired four Japanese well-sinkers at Shanghai, and on February 17th they got to work, with the usual iron-pointed boring-pencil suspended on a square frame 100 feet high, a novel sight, which brought the natives in hundreds to see it. So great was the crowd that a force of soldiers under Ch'eng Tsientsung (lieutenant) was called out to keep order and prevent a possible disturbance. On the 19th the Japanese workmen abruptly ceased to work, and took away the machinery, and it was found that they considered the case hopeless, as although the first day they reached a depth of 20 feet, on the second they only got 2 feet lower down, and reported the ground as hard as iron, while the walls of the hole already made kept continually caving in. It is said the Japanese engineer refused all remuneration on account of the failure of his attempt.

**Government Machine Works in Brazil.**—The Brazilian government maintains, and has for a great many years maintained, a national foundry and machine shops at Ypanema, in the Province of Sao Paulo. The quality of the iron ore occurring in this place is perhaps unsurpassed in the world, while the quantity is, as far as any commercial demands upon it may be concerned, inexhaustible, and the mode of its occurrence in every respect favorable to its extraction. Great efforts have been made to render the Ypanema factory a lucrative or even a self-supporting one. The last report of the management is commented upon as follows by the *Revista de Engenharia* of Rio de Janeiro: "Although this factory has received important improvements during the past few years, it is still impossible for it to yield an income that will cover its expenses and thus relieve the government of the cost of maintaining such an establishment. In 1888 the financial results were no better than they have been during the previous years, for while the amount paid out for maintenance and improvements reaches the sum of 209,624 milreis (a milreis is about 50 cents), the products sold yielded only 60,595 milreis, including the value of materials furnished to the state and amounting to 26,941 milreis. The Minister of Agriculture in a recent report says: "The zealous director of the Ypanema iron factory has reiterated the opinion, so often expressed, that it is impossible to convert this factory into an industrial establishment under the state's control."

**Aluminium Exhibit in Paris.**—One or two exhibitors have come forward with new metals. The Aluminium Company and the Alliance Aluminium Company show specimens of their productions; but these are defective from a mineralogical point of view, for they should have shown the quantities and the descriptions of minerals required to produce a given quantity of aluminium, alongside of the finished product, in order to make a reasonably complete exhibit. How many people are aware that to produce one ton of aluminium it requires about eight tons of coal, besides 6,300 pounds of metallic sodium, 22,400 pounds of double chloride, and 8,000 pounds of chloride? But even this is but a small part of the matter, for in order to produce the quantity of sodium used in the manufacture of one ton of aluminium by the Aluminium Company, some 75 tons of coal, 44,000 pounds of caustic soda, 7,000 pounds of carbide made from 12,000 pounds of pitch, 1,000 pounds of iron turnings, and 24 tons of crucible castings are required. Then, in order to produce the 22,400 pounds of double chloride employed in the production of the same ton of aluminium, it requires a further 180 tons of coal and nearly 4 tons of common salt, besides large quantities of alumina hydrate and common gas. Thus, we see that altogether about 263 tons of coal go to the production of 1 ton of aluminium, besides large quantities of other minerals—a fact that sufficiently explains the difficulty of selling

the metal for less than 15s. to 20s. per pound. We may here note that the Aluminium Company are now producing about a ton and a half of aluminium weekly.

## BOOKS RECEIVED.

*The Metallurgy of Silver.* By M. Eissler, London, 1889. Sold in this country by D. Van Nostrand Company. Pages 386. Illustrated. Price \$4.  
*Annual Report of the Geological Survey of Arkansas for 1888.* Vol. II. By John C. Branner, Ph. D., State Geologist. Published by the State, Little Rock. Pages 319. Illustrated and with maps.

## PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent-Office.

- PATENTS GRANTED AUGUST 27TH, 1889.
- 409,657. Furnace Grate. George L. Allen, Worcester, Mass.  
409,660. Lubricator. Robert M. Beck, Chambersburg, Pa.  
409,664. Steam Generator. Walter M. Brown, Albany, N. Y.  
409,666. Mold-Forming Device. Joseph J. Carr, Wilkes-Barre, Pa., Assignor to the Wilkes-Barre Molding Machine Company, same place.  
409,667. Machine for Making Sand Molds. Joseph J. Carr, Wilkes-Barre, Pa., Assignor to the Wilkes-Barre Molding Machine Company, same place.  
409,668. Purifying Aluminum Chlorides. Hamilton Y. Castner, London, England.  
409,670. Machine for Sawing Stone. George A. Davidson, Malden, Assignor of one-half to Horace Caswell, Troy, N. Y.  
409,674. Metal Screw Machine. George A. Fairfield and George Witherell, Hartford, Conn., Assignors to the Hartford Machine Screw Company, same place.  
409,679. Metal Rolls. James T. Hastings, Chicago, Ill.  
409,683. Car Brake. James W. Hurst, Hotchkiss, Colo.  
409,687. Pipe Coupler. Charles F. Murdock, Detroit, Mich., Assignee to the Automatic Car Coupler Heating Company, same place.  
409,698. Grease and Oil Separator. Edward H. Murphy, St. Paul, Minn.  
409,707. Safety Attachment for Railway Cars. Ricardo G. Riera, Barcelona, Spain.  
409,708. Method of Constructing Car Wheels. James Rigby, Minneapolis, Minn.  
409,721. Fibrous Lubricator. Joseph Williams, Jr., Pittsburg, Pa.  
409,721. Device for Feeding Fluid Fuel. Walter B. Wright, Chicago, Ill., Assignor to the International Gas and Fuel Company, same place.  
409,757. Mechanism for Operating Hoists. John S. Ebert, Brooklyn, N. Y.  
409,746. Metal Rolls. James T. Hastings, Chicago, Ill.  
409,727. Metal Rolls. James T. Hastings, Chicago, Ill.  
409,751. Sand Blast Apparatus. Jeremiah E. Mathewson, Sheffield, County of York, England.  
409,752. System of Electrical Distribution for Railways. William J. McElroy, Pittsburg, Pa.  
409,756. Electric Railway Crossing. Elias E. Ries, Baltimore, Md., Assignor, by direct and mesne assignments, to Ries & Henderson, same place.  
409,757. Underground Conduit for Electric Railways. Elias E. Ries, Baltimore, Md., Assignor, by direct and mesne assignments, to Ries & Henderson, same place.  
409,765. Fire-plate for Burning Gaseous Fuel. Robert Young, Allegheny, Pa.  
409,769. Pneumatic Railway System. Meinolph Bodefeld, St. Louis, Mo.  
409,772. Mining Machine. Alfred J. Cooper, Durys, Pa.  
409,773. Air Compressor. Henry Davey, Westminster, County of Middlesex, England.  
409,774. Stone-Sawing Machine. George A. Davidson, Malden, Assignor of one-half to Horace T. Caswell, Troy, N. Y.  
409,775. Electric Railway. Sebastian Z. de Ferranti, Hampstead, County of Middlesex, England.  
409,781. Steam Generator. Doc W. Fletcher, St. Louis, Mo., Assignor of one-fourth to Walter Rogers Fletcher, same place.  
409,782. Anti-Friction Bearing. Leonard B. Gaylor, Stamford Conn.  
409,784. Steam Boiler Furnace. John Good, Napanee, Ontario, Canada, Assignor of one-half to James E. Herring, same place.  
409,800. Rotary Engine. Frederick B. Owen, Washington, D. C.  
409,815. Electrically Propelled Vehicle. Richard N. Allen, Cleveland, Ohio.  
409,816. Combined Agitator and Conveyor. Valerius D. Anderson, Cleveland, Ohio.  
409,843. Furnace Tongs. Thomas James, Braddock, Pa.  
409,846. Oil Burning Apparatus for Steam Boilers. Frederick Leadbeater, Detroit Mich.  
409,854. Valve Gear for Pumping Engines. Michael Misic and Eduard Schweizer, Brooklyn, N. Y.  
409,855. Car Coupling. Commodore D. Moore, Pursley, W. Va.  
409,860. Railroad Tie. Alden C. Nickloy, Gloversville, N. Y., Assignor of one-half to William W. Whitaker, same place.  
409,861. Safety Guard for Cars. Charles H. Ohm, San Francisco, Cal.  
409,865. Water Wheel. Lester A. Pelton, Nevada City, Assignor to Albert P. Brayton, Jr., San Francisco, Cal.  
409,870. Coal Cutting Machine. James C. Robertson, Morrisdale Mines, Assignor of one-half to Alexander Hood, Philipsburg, Pa.  
409,871. Friction Clutch. Edward Savoral, New York, N. Y.  
409,872. Apparatus for Discharging and Conveying Coal. Charles S. Schenck, New York, N. Y.  
409,873. Charcoal Apparatus. Jacob Scherffius, Winona, Minn.  
409,894. Car for the Transmission of Specie. George F. Yost, Caseyville, Ill.  
409,913. Dumping Platform. Edward Burns, Montello, Wis., Assignor of one-half to the Berlin & Montello Granite Company, Chicago, Ill.  
409,915. Means for Utilizing the Radiated Heat of Boilers. Frank H. Butts, Minneapolis, Minn.  
409,936. Locomotive. James Des Brisay, Vancouver, British Columbia, Canada.  
409,945. Metallic Wheel. George H. Everson, Pittsburg, Pa., Assignor to the Rolled Steel Carriage Wheel Company, Trenton, N. J.  
409,954. Dumping Car. Joel H. Gearhart, Leadville, Colo., Assignor to himself and William A. Thacher, same place.  
409,982. Process of Refining Nickel. Pierra Manhes, Lyons, France.  
409,984. Machine for Expanding the Ends of Pipes. George Matheson, Brooklyn, N. Y.  
410,000. Machine for Expanding the Ends of Pipes. George Matheson, Brooklyn, N. Y.  
410,005. Coke Chute. George A. McIlhenny, Washington, D. C.  
410,009. Machine for Sawing Metal. Charles C. Newton, Philadelphia, Pa.  
410,023. Rail Joint. Allen E. Rutter, Salem, Ohio, Assignor of one-half to John A. Gamble, same place.  
410,032. Pipe Coupling. Elijah U. Scoville, Manlius, N. Y.  
410,042. Process of Producing Refractory Compounds. John L. Stewart and James L. Hastings, Philadelphia, Pa., Assignors, by mesne assignments, to the Welsbach Incandescent Gaslight Company, of New Jersey.  
410,043. Rotary Engine. James E. Studley and Robert C. Berry, Oshkosh, Wis., Assignors of one-third to John M. McDonald, Lafayette, Ind.  
410,056. Bracket for Connecting Tie Bars and Switch Rails. Frederic C. Weir and Charles Hartington, Cincinnati, Ohio, Assignors to the Weir Frog Company, same place.  
410,075. Automatic Air Compressor for Pumps. Henry A. Daniels, Yonkers, N. Y.  
410,076. Quicksilver Catcher. Edward A. Dodge, Silver Reef, Utah.  
410,084. Soldering Iron. James H. Ferns, Montreal, Quebec, Canada.  
410,091. Blower for Furnaces. Charles A. Goyne, Ashland, Pa., Assignor of three-fourths to F. H. Goyne, Arthur H. Goyne, and Thomas R. Goyne, all of same place.  
410,106. Mill for Rolling Flanged Beams. Julian Kennedy, Latrobe, and Henry Aiken, Homestead, Pa.  
410,107. Art of Rolling Flanged Beams. Julian Kennedy, Latrobe, and Henry Aiken, Homestead, Pa.  
410,112. Machine for Finishing Metal Bars. Theodore F. Krug, Baltimore, Md., Assignor to G. Krug & Son, same place.  
410,134. Metal File or Ragot. Henry W. Borntraeger, Pittsburg, Pa., Assignor to Carnegie, Phipps & Co. (Limited), same place.  
410,139. Feed-Water Heater. Alexander de Beaumont, Philadelphia, Pa.

## PERSONALS.

Mr. Andrew Carnegie has returned from Europe.

Hon. S. M. Stockslager, late Commissioner of the General Land Office, has resumed the practice of his profession in Washington. He will make land and mining law a specialty.

The eighth annual convention of the National Association of Stationary Engineers will be held at Detroit, September 3d to 7th. The corresponding secretary of the association is Charles A. Sink, of Detroit, Mich.

President Harrison has signed the commissions of Charles R. Flint, New York, and Henry G. Davis, West Virginia, as delegates on the part of the United States to the congress of American nations to be held in Washington in October.

Judge Joshua Clayton, Vice-President of the Sonora Gold and Silver Mining Company, created a consternation in Kansas City this week by walking in and greeting his friends who, it seems, had confused with him the well-known mining engineer, Joshua Clayton, whose death was announced in the *ENGINEERING AND MINING JOURNAL* several weeks ago.

The fall meeting of the American Institute of Mining Engineers will be held at Ottawa, Ont., on Tuesday, October 1st, and the days following. The phosphate mines on the Lievres River, the Sudburt copper mines, the asbestos deposits of Wetford and Coleraine, the Oxford copper mines, the Rockland slate quarries and the Capleton chemical works will be visited.

In addition to Admiral Angel Ortiz Monasterio, whose appointment to represent Mexico at the coming International Congress has already been announced, information has been received at the Department of State in Washington of the appointment of Señor Matias Romero, the Mexican Minister. No appointment could be more acceptable, nor could Mexico be better represented.

Superintendent of Census Porter has appointed Dr. William C. Day a special agent of the Eleventh Census to collect the statistics relating to structural materials throughout the United States. Dr. Day took the degree of Philosophy at Johns Hopkins University, and recently has been a special agent of the Geological Survey, in charge of the statistics of mineral structural materials. His work for the census will embrace the statistics relating to granite, marble, common limestone, sandstone and slate. He was engaged in collecting similar statistics for the Tenth Census.

An inventory of the personal effects of the late Charlemagne Tower, the millionaire mine operator and counselor, consisting of stocks and bonds and personal property on farms and in storehouses at Waterville, N. Y., was filed with the Register of Wills, at Philadelphia, Pa., on the 29th inst. The appraisement places the valuation of the personal effects at \$6,461,004, and it is estimated that the real estate held by the decedent, which consists mainly of mining property in Pennsylvania and in Western lands, will reach nearly \$15,000,000.

The meeting of the American Association for the Advancement of Science began really on Wednesday morning, when Major J. W. Powell, the retiring president, surrendered the chair to Prof. T. C. Mendenhall, the president-elect, and the new chief of the United States Coast Survey. The first day was devoted to the several addresses of the vice-presidents, and in the evening the usual president's address was delivered by Major Powell. The following days will be occupied with the reading of papers, except Saturday, when members will have their choice between excursions to Niagara and to Muskoka Lake. At the close of the meeting, on Tuesday of next week, longer excursions will be organized, including one to the Pacific coast.

## OBITUARY.

R. B. Bannister, a civil engineer of Huntsville, Ala., en route home from Arizona, died on the Iron Mountain train between Texarkana and Little Rock, Ark., on the 29th inst.

Samuel W. Hill died at Marshall, Mich., on the 28th inst., aged ninety-five. He was born in Addison County, Vt. He perfected himself in geology and engineering, and went to Wisconsin, engaging in the survey of public lands in 1840. He was connected with the United States Topographical Survey, and in 1841 assisted in running the boundary line between Wisconsin and Michigan. He also assisted Dr. Douglass Houghton in the survey of the upper peninsula in 1845, and in 1847 assisted C. T. Jackson of Boston in the completion of the same work. He was superintendent and a director of the Quincy copper mine at Hancock in 1851, and was engaged for years in the mineral development of the copper producing region of Lake Superior. He was also the first to suggest a ship canal across Keeweenaw Point, which has only been completed within the past few years.

## INDUSTRIAL NOTES.

The Crane Iron Company, of Catsauqua, are experimenting with the Bookwalter process, having put up one converter.

The Illinois Steel Company is constructing a new blast furnace at Joliet. It is to be of the largest capacity and smelting capability, and is being erected adjoining the two old ones now in full blast.

Emaus Furnace, at Emaus, Pa., formerly operated under lease by the Donaldson Iron Company, was leased recently to Pancoast & Rogers, of New York City. Preparations are now being made to put the furnace in full blast.

The puddlers in McIlvain & Son's rolling mill, at Reading, Pa., on the 27th inst., asked for an increase in their wages from \$3.25 to \$3.70 per ton. The firm answered that it would pay the desired increase next week. The men at once quit work until the increase shall take effect.

It is announced that the Bellefonte Nail Works-Governor Beaver's plant, at Bellefonte, Pa., which have been idle ever since June, have been put in operation again, running all departments full blast. During the shut down various improvements have been made to the works to lessen the cost of production, the most prominent of which is the introduction of gas for fuel.

After being shut down for sixteen years, the Ironton Pig Iron Works, with a capacity of 120 tons of iron per day, situated a few miles north of Buffalo, N. Y., on the Niagara River, has been started up by Cincinnati parties, who have leased the plant for five years, with the privilege of purchasing. The plant originally, it is said, cost \$500,000, and has been put in thorough working order.

It is reported that the Center Iron Company's works at Bellefonte, Pa., which were closed recently, ostensibly for repairs, may not again resume operations, and at most would not for some time. The plant has not been paying expenses. An investigation of the books is now in progress, and the result may determine the future of the company, which is composed mostly of Philadelphia capitalists.

A new puddling department is being erected by the rolling mill department of the National Tube Works Company, of McKeesport, Pa. It will be known as Puddle No. 5, and contain twelve double puddling furnaces, engine, squeezers, hammer and all other equipments belonging to such a department. The new mill will be ready for operation about Sept. 10th next, and will give employment to about 100 men.

Carnegie Brothers & Company's Furnace F has been blown out for repairs. This furnace was put in blast in October, 1886, and since then has stopped twice because of strikes. Its production during the period of operation was 224,795 tons. This is believed to be the largest amount of pig-iron ever produced in a single blast for the same length of time. The work on the two new furnaces, which, when built, will be named G and H, is still going on.

The Pennsylvania Steel Company, in connection with its new works at Maryland Steelton, on the Patapsco River, according to a Baltimore dispatch, proposes the establishment of a great ship-building department for the construction of steel vessels. This department of the works will not be developed until the foundries and new mills are all completed. General Manager Wood has made known some of the company's plans for the erection of additional foundries, sheet mills, rolling mills, cupola houses, etc., which, when completed, will be capable of producing, and will be made to turn out everything in the way of steel articles that may be needed in the manufacture of steam engines, steamships, bridges, steel rails, etc. The first of these improvements, a cupola house, which is to be 169 feet, 6 inches long, by 87 feet wide, was begun a few days ago. There is a small army of men at work. The converter house will be 120 feet long by 140 feet wide and 50 feet high, divided into three stories, but will have four cupolas for melting iron and two 15-ton Bessemer converters for converting iron pigs into steel ingots. Next to the latter building there will be built a blooming mill and rail mill. It will be about 80 feet wide and 80 feet long. The minimum production of this mill will be 1,000 tons of steel rails per day. The immense blast furnaces are completed and ready for operation. There is also being dug by the company, from its property front to the Craig Hill Channel, a channel 6,000 feet long, 200 feet wide and 27 feet deep, one-half of which is already finished and in use by the ships now bringing ore from Cuba. The importations at this time reach 1,000 tons a day, and most of this is being shipped by way of the Northern Central Railroad to Steelton, Pa.

## CONTRACTING NOTES.

Manufacturers of machinery, engineers and contractors should consult our directory of "Contracts Open" on page xii. This week proposals are invited for the following work: Sewer Construction; Artesian Well Sinking; Building New Iron Bridge; Constructing System of Water Works; Dredging; Erecting Low Truss Iron Bridge; Furnishing Metal Work for Light-house; Construction of Three Steel Cruisers for U. S. Navy; Furnishing Machines and Tools for Navy Yard.

Advertisements have been reissued from the Navy Department for bids for the construction of the three 2,000-ton cruisers, for which excessive proposals were opened last week. The new advertisements are expected to induce contractors to offer bids that will fall within the appropriation. The department makes several concessions to this end. Six months more time is given, making the contract period two and one-half years; the maximum speed to be obtained is fixed at 17 knots, instead of 18, and the premium rate is altered. There will be a premium of \$25,000 for each quarter knot over the maximum, and a similar deduc-

tion for each quarter knot below, instead of \$10,000 for the first quarter knot, \$20,000 for the second, \$30,000 for the third, and \$40,000 for the fourth and all above. The maximum speed, below which the vessel will be rejected, is to be 16 knots, instead of 16½. The bids will be opened October 26th. No action has yet been taken in the case of the two 3,000-ton vessels, but a readvertisement will probably be issued for them.

## MACHINERY AND SUPPLIES WANTED AT HOME AND ABROAD.

Any one wanting Machinery or Supplies of any kind will notify the "Engineering and Mining Journal" of what he needs, his "Want" will be published in this column.

Any manufacturer or dealer wishing to communicate with the parties whose wants are given in this column can obtain their addresses from this office.

No charge will be made for these services.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning American goods of any kind, and forward them catalogues and discounts of manufacturers in each line, thus enabling the purchaser to select the most suitable articles before ordering.

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

## GOODS WANTED AT HOME.

106. Wanted, addresses of parties who manufacture a boxing or lining that can be used without oil or greasy lubricator.

107. Shingle machine—wanted full description and prices for the complete outfit delivered. South Carolina.

108. Electric motors, ½ to 1 H. P., second hand. New York.

109. Clay-working machinery, especially brick and tile presses: full particulars. Colorado.

110. Water motors; one small motor. Michigan.

111. One 45 H. P. engine and boiler. Alabama.

112. One self-feed cut-off saw. Alabama.

113. Ten slot machines. Alabama.

114. One saw-mill for cutting cedar for pencils. Alabama.

115. Three blocking machines. Alabama.

116. About 100 feet shafting. Alabama.

117. About 30 pulleys. Alabama.

118. Conveyors and elevators. Alabama.

119. A blower fan for a factory for making cedar pencil slats. Alabama.

Nos. 111 to 119, inclusive, are for one concern in Alabama.

120. Electric Light Plant. Wanted estimates complete for lighting two tunnels, one 600 feet and one 1,500 feet; two shafts, average depth 600 feet; mill, office and store. Wyoming.

121. Engine. Wanted prices on a 70 H. P., high-speed, common slide-valve engine.

122. Cable Railroad. Bids on three miles overhead cable railroad, double, or six miles single, for a Western coal mining company.

123. Exhaust fan and pipe for shavings and dust for a lumber company. Georgia.

124. Molding machines, slab cutters, dry kilns, etc., for a lumber company. Georgia.

125. Engine—a sixty H. P. Georgia.

126. Locomotive. Wanted a light motor, standard gauge. New York.

143. Pipe, boiler and pump to irrigate a farm. The amount of water necessary is 200 miner's inches. It will have to be carried half a mile in pipe and raised one hundred feet. Wanted prices and particulars. Idaho.

144. Wanted—Addresses of manufacturers making machines for grinding old fire brick. Second-hand machine will do. New York.

145. Engine, 10 H. P., and machine for turning out buckets and tubs. West Virginia.

146. Boring and mortising machine, trimming lathe, planer and shingle machine. Texas.

147. Now or second-hand outfit for a 50-ton iron furnace, including one iron furnace stack, 20 x 65 feet; one large engine, steam cylinder, 30 x 48; blast, 48 x 64 or 72; six large steam boilers complete; three fire-brick stoves; one hoisting engine, with hoist; three large water pumps, and all other necessary appliances. Ohio.

148. Electric light plant for planing mill. Mississippi.

149. Wind mill and pump. Nova Scotia.

150. Machinery and complete equipment for a large mining, concentrating, and smelting plant. Colorado.

151. Flame furnace, about 10 or 12 inches in diameter, for heating iron for steam hammer in agricultural implement works. Tennessee.

152. Ten-ton ice machine. Florida.

153. Plant for irrigating. Florida.

154. Laundry plant. Florida.

155. Ten-ton ice machine.

156. Incandescent electric light plant, 50 lights, 16 c. p. South Carolina.



years as the Sacramento. It is located south of Alleghany, on Kauaka Creek. It is owned by Harrison Appel and Andrew Grant. There are three tunnels run on the vein at a distance of about forty feet apart. No. 1 tunnel is run 210 feet. At a distance of 200 feet in this adit a rich bunch of ore was encountered a few months ago which yielded the owners several thousand dollars. No. 2 tunnel is in 115 feet, while No. 3 or the upper tunnel, has been run 142. Mr. Appel is now engaged with one man in pushing ahead the lower and middle tunnel. It is his intention soon to put a raise through between the tunnels. The vein is well defined.

**SOUTH END.**—This is the name of a quartz mine located three years ago by W. G. Montgomery. It is situated about one-quarter of a mile south of the Red Cliff claims. The upper tunnel is in 35 ft. In this tunnel the owner struck a rich bunch of ore last year. He pounded it up in a hand mortar, and realized therefrom the sum of \$500. A lower tunnel has been run into the mountain a distance of 230 feet. The ledge in the adit measures 32 feet in width, and shows fine prospects in free gold and sulphurets. The depth acquired on the vein by the lower tunnel is 100 feet.

#### TUOLUMNE COUNTY.

**ROBINSON FERRY MINE.**—It is reported that a 100-stamp quartz mill is about to be erected on this property. The mine has again started up with a large force of men.

#### COLORADO.

**ROARING FORK GOLD AND SILVER MINING COMPANY.**—This company has been incorporated at Denver for the purpose of operating, buying, selling, bonding and leasing mines and operating stamp mills and smelters in the counties of Pitkin, Eagle, Lake and Summit. The incorporators are: Peter McCourt, O. W. Marshall, W. H. Wilson, A. B. Roeder, and L. C. DeMorse; and they, with A. L. Roeder, J. N. Large, Geo. O. Keeler and Wm. F. Hogan, are the directors for the first year. \$500,000 is the amount of the capital stock divided into shares of \$1 each. The corporate existence of the company is 20 years and the business office is to be in Denver.

#### BOULDER COUNTY.

[From our Special Correspondent.]

The attention of mining men in this county is directed toward Ward, which is now the scene of considerable activity. All of the old mines are at work, and new ones are being opened.

The Englishmen who have bought the Niwot are gradually picking up the adjoining claims, and the virtual consolidation of all the claims on the Columbia lode seems to be among the things that can be reckoned on with certainty. Should it be brought about, it seems as though nothing but bad management can prevent success, and there will be no bad management on the part of those now in control.

Mr. Hulins's mine—the Columbia—and mill have been leased and bonded by the Niwot people, whose new mill—erected ostensibly for No. 70—stands just below the Columbia dump; and in the best possible position for use in connection with the Columbia mine. It is hoped that Mr. Hulins will get a good price for his property, as the present prosperity of the camp is owing more to him than to anybody else.

I saw the Fuzzler a short time ago, and thought it looked remarkably well.

Colonel Brainerd is actively and successfully engaged in developing the Gage lode, and, if one can judge by appearances, is likely to have a bonanza. He has put his twenty-stamp mill in running order, and will begin running on the 2d prox.

John Wirth has a good body of good ore in his Celestial Extension mine, in Spring Gulch, but is troubled somewhat with water, this being an unusually wet season.

The Baltimore is looking very well indeed, the vein showing a width of ten feet between walls, and mineralized all of the way across.

The Boston is practically shut down, for some unknown reason; but the Utica, its nearest neighbor, is running full time, under the able management of Mr. John Red.

Sinking has been resumed on the Modoc, with a good outlook.

No. 8 East, on the Columbia, is showing some good ore, and Messrs. Benson, Francis and Dale, the lessees, are likely to make a lot of money.

The forest fires in Montana are sending us clouds of smoke. The sun appears like a ball of fire, and the largest objects appear very indistinct at a distance of half a mile. It is peculiar that the smoke is entirely odorless, and seems to consist solely of finely divided carbon. The wind, which blows to-day from the northwest, seems as though it came from a furnace, and the thermometer reached 90 in the shade before 9 o'clock this morning.

#### CHAFFEE COUNTY.

**SILENT FRIEND MINING COMPANY.**—This company has been incorporated by E. R. Holden, Richard Chase, W. C. Wynkoop, and William H. Bush. Capital stock \$500,000, with a like number of shares. The property is located in the Monarch district, Chaffee County, and has been in the possession of Mr. Holden for many years.

#### GILPIN COUNTY.

**LITTLE JOSEPHINE MINING COMPANY.**—A complaint in chancery has been made in the United States Circuit Court in Denver by this company, whose principal office is in London, E. Glend, against William Fullerton, Ed. F. Clinton, J. V. Kimber, R. W. Mosley, Richard Mackey and John B. Ballard, owners of the Grand Army mine, on Gunnell Hill, in this county, setting forth that the defendants have by

cross-cut levels and drifts entered in upon and worked out certain portions of the Slaughter House lode, owned by the plaintiffs, and that the ground so cut by the defendants' cross-cuts and drifts is within the boundary lines of said Slaughter House lode. The plaintiffs claim that ore has been extracted therefrom which sold for over \$100,000, and that many thousand dollars worth of ore are being extracted by the defendants from the Slaughter House lode. The plaintiffs ask for possession of the property named and for the costs of suit. H. W. Hobson and L. C. Rockwell appear as attorneys for plaintiffs. The defendants are represented by Teiler & Oranhood. The discovery which led to the beginning of the investigation by the plaintiffs was made by sinking the main shaft on the Slaughter House lode, which finally led to the breaking through into one of the levels in the ground that is in dispute.

Judge Hallett has ordered that final decision and action with regard to the motion for an injunction against the defendants be postponed for further hearing, argument and consideration. It is also ordered that within not less than 30 days Hal Sayer and Samuel A. Rusk as surveyors on behalf of the defendants, and William Byrd Page and E. E. Chace, surveyors on behalf of the plaintiff, make a survey and an examination of the entire underground workings and running from the surface ground of the Slaughter House mining claim to a connection with the underground workings owned by the defendants; also, including the shaft sunk upon the Grand Army mining claim. These surveyors also have the power to order any work done to enable them to make the survey, and full instructions are given. When the report shall have been made, the plaintiff shall have the right to renew the motion for an injunction. Either side shall also have the right to produce additional affidavits and proof within certain limits by giving notice.

#### LAKE COUNTY.

**IRON SILVER MINING COMPANY.**—After nearly a year's work, the Iron Silver connection has been made between the sixth level, east of the McKeon shaft, and the second contact ore chute opened in the eleventh level of the winze workings. This necessitated the driving of a drift of over 2,000 feet in length. The ore body at the point of connection is something over eleven feet in thickness, though nothing is known as to its length and width, sufficient development not having been done to determine those points. As soon as the necessary chutes, etc., are completed, all ores from the winze workings and the entire ore chute will be handled through the sixth level of the McKeon shaft, all levels thoroughly prospected, and the shipments very largely increased. The ore in this chute is a sulphide of iron and runs very well.

#### OURAY COUNTY.

**QUEEN GOLD MINING COMPANY.**—This company has been incorporated by H. R. Price, G. T. Simanton and Paul Rodenhauer. It is capitalized at \$1,000,000, and its shares number 100,000.

**YANKEE GIRL MINING COMPANY.**—It is reported that the new superintendent, Mr. Cyprus Lugg, who superseded T. E. Schwarz a week ago as announced in the last issue of the ENGINEERING AND MINING JOURNAL, has opened the richest ore body ever found in this mine. The strike was made between the fourth and fifth levels, and is the main body to the stringer that was worked out by Mr. Schwarz in 1885.

#### PARK COUNTY.

**EXCELSIOR GOLD AND SILVER MINING COMPANY.**—Statement of Adolph Kern, August 1st, 1889, to Committee on Mining Securities of New York Consolidated Stock and Petroleum Exchange:

There has been no change in the title of the properties owned by the Excelsior Gold and Silver Mining Company, such title being still in the name of the company, clear and undisputed. No legal proceedings have been commenced or carried out against the company and none are pending. Development work is being steadily carried on and mineral produced. The company has no debts. Besides the returns for shipments, the company has in its treasury about 80,000 shares of its capital stock, last quoted at 72 cents per share, which are available for any legitimate purposes and are readily sold whenever there is a necessity. The recent inactivity of its stock at your Exchange is due to the absence of two of the principal stockholders in Europe.

#### PITKIN COUNTY.

**MOLLIE GIBSON.**—A four-foot vein of ore running from 34 to 40 ounces in silver and 15½ per cent. lead has been opened up in this mine. The ore, according to the Aspen Chronicle, was found by following a small streak in an upraise at a depth of 140 feet, and widened out, as stated, to four feet. The Mollie Gibson concentrator is treating the low-grade mineral from the Smuggler and Mollie Gibson mines, and, it is stated, can be kept busy for an indefinite period on the ores from these two properties.

**MYRA MINE.**—The reported strike in this property in Hunter Park proves to be an interesting development, but no considerable quantity of good ore has yet been found. The shaft on the property was sunk to a depth of 430 feet, and a drift was run 60 feet eastward from the bottom. Recently a discovery of low-grade lead ore was made on the surface 75 feet northwest of the shaft. A drift was then started from a point 70 feet down the shaft to cut this ore on the dip. The drift has passed through some blue lime, and is now in material that has the appearance of contact matter. This has been penetrated about 14 feet, but it is calculated that the drift will have to be run 60 feet further to catch the lead streak. In the meantime some more work has been done on the sur-

face, and the hole has been sunk to a depth of some six feet. Here seams of chloride ore are found in the lead, and it was this that gave rise to the report of a rich strike. The ore assayed 110 ounces, this being the highest grade mineral yet found in place in that section.

#### DAKOTA.

##### LAWRENCE COUNTY.

**CALEDONIA MINING COMPANY.**—From advices from acting superintendent Wilson just received in New York we condense the following: "We are sinking winze on the new chute of ore from the 300 to the 400 foot level. It is down 16 feet and progressing fairly. Ore looks well." During the week ending July 29th, 1,948 tons of ore were extracted from the mine and delivered to the mill. This amount was produced as follows by the various levels: 500 foot east, 72 tons; 500 west, 588 tons; 400 foot, 499 tons; 325 foot east, 187 tons; 300 foot, 413 tons; 200 foot, 189 tons. The winze from the 500 foot level has now reached a depth of 73½ feet.

##### PENNINGTON COUNTY.

**MONTANA MINE.**—Deeds have been filed conveying from M. H. Day to Edwin Curtis title to the Montana mine, mill site, and water right; the Veta, Alta, Zata, First National, Index, Laprie, and La Plata mines, Rochford District; consideration, \$30,000. Mr. Curtis represents a New Hampshire syndicate which, according to the Deadwood Times, contemplates immediate erection of large works, including a 120-stamp mill, and mining on an extensive scale.

**SULLIVAN CONSOLIDATED GOLD MINING COMPANY.**—Statement of C. M. Sprague, Treasurer, Room 14, 27 Doane street, Boston, Mass., August 2d, 1889, to Committee on Mining Securities of New York Consolidated Stock and Petroleum Exchange:

This company now has on hand \$7,213. The deeds and titles all belong to this company, and stand in this company's name. There has been no legal proceedings against our title. We are now commencing to saw our lumber to complete our flume and mill house. We have the largest and best work house in the Look-out mining district. Our blacksmith shop has rolling track doors and the best of forges, and three tons of charcoal in it ready for work. We have constantly kept to work as far as our means would allow on the whole property; and at the present time Fraser & Chalmers, of Chicago, are making our entire plant for our mine under contract. Here follow results of assay tests of ore.

#### IDAHO

**COLUMBIA & BEAVER MINING COMPANY.**—Statement of S. J. Pardee, Secretary, Room 12, 44 Broadway, New York, August 7th, 1889, to Committee on Mining Securities of New York Consolidated Stock and Mining Exchange: The company is in debt, mainly to the directors and some stockholders, to the extent of \$4,047.11; to this should be added interest for, say, 4 years and 8 months, at 6 per cent. per annum, making \$1,133.16 interest due to September 1st, or a total indebtedness of \$5,180.27. The title of the company to the property is perfect, being secured by the United States Patent, and, as far as I am advised, no legal proceedings whatever have ever been commenced against the company. I believe that no work has been done on the company's property in Idaho since two years ago this summer, when quite extensive work was carried on under the supervision of Mr. W. D. Vernam. A proposition made by the Silver King Mining Company, which holds property of value very near that held by the Columbia & Beaver Company, is under consideration, looking for the consolidation of the two companies. Stock of the Columbia & Beaver Mining Company can be transferred, and new certificates issued upon presentation to me at this address.

#### CASSIA COUNTY.

**SHOSHONE GOLD MINING COMPANY.**—Statement of J. C. Hall, Secretary, 60 Broadway, New York, July 25th, 1889, to Committee on Mining Securities of New York Consolidated Stock and Petroleum Exchange:

The property is being steadily worked in a small way with one set of Burlap sluices, and is doing from \$100 to \$250 per month over and above operating expenses. The company has an absolute title to their property, consisting of over 200 acres of gravel bars in five miles of water ditches that control other valuable ground. There have been several different patent machines tried to save the fine gold more closely than by the Burlap process; these tests have been made at the expense of the company and from the earnings. There are no legal proceedings now pending against the company. The title is perfect, and there has been nothing to change it since the abstract was made and passed by competent attorneys.

#### LEMHI COUNTY.

**IDAHO GOLD MINING AND MILLING COMPANY.**—This company has been recently organized in Boston to develop some gold quartz claims in the Leesburg region, Lemhi County. Coaries F. Blackburn is superintendent and general manager of the mine. The other officers, according to local papers, are business men in Boston. The company is capitalized at \$300,000—30,000 shares at a par value of \$10 each; stock non-assessable. One-third, or 10,000 shares of the capital stock, is being sold in Boston for working capital to develop the mines.

#### SHOSHONE COUNTY.

F. M. Russell, of New York, has arrived at Mullan to take the position of assayer at the Morning mine.

**BUNKER HILL AND SULLIVAN CONSOLIDATED MINING COMPANY.**—Development work is progressing at these mines, and a force of men are engaged in extending the Reed tunnel which has now been run to

distance of 975 feet. A building 25 by 40 feet, adjoining the engine house has recently been erected for the air compressor, which is now kept constantly at work. F. C. Loring is making a survey for a tramway line from the lower Bunker Hill tunnel to the company's mill site below Kellogg on the South Fork.

**EMMA & LAST CHANCE.**—The concentrator at this mine, it is said, will be, when finished, very complete. The old building is being entirely refitted, and according to the *Wardner News* the new addition will afford sufficient room to double the capacity of the former works. An elevated floor, eight feet high, has been put in the old mill for the purpose of placing the jigs in proper position. This will dispense with the elevators formerly used and also with the work of wheeling the concentrates. The frames for the rollers are ready to receive the new rolls, and two automatic feeders, the invention of A. S. Denough, have been introduced to supply both the ore-cruher and rolls; one is already in place and the other is in course of erection. This automatic contrivance was first introduced to the Granite mill on Canyon Creek and has worked successfully. It is found an important improvement in the operation of a mill and one of the best among the latest inventions. The Pelton water wheel is ready for work, and a buthead is now in course of construction at the head of the flume which will be finished by the end of the month.

**FAY TEMPLETON.**—The last run was made by the lessees of this mine was 63½ tons of ore, from which a clean-up was made of 115 ounces, 13 pennyweights and 19 grains gold valued at nearly \$1,800 the expenses, it is said, incurred not being over \$600. In the run referred to 83 per cent. of the amalgam was saved in the batteries and 17 per cent. on the plates. A Huntington mill is used.

**PINE.**—The Pine antimony lode on Pine Creek, owned by H. Beck and others, was bonded last February to Louis Strauss & Co., of New York, for \$20,000. The sale has now been consummated.

**IOWA.**

**KEOKUK COUNTY.**

**WHAT CHEER COAL COMPANY.**—On the 24th inst. the top works and building of shafting took fire in the boiler room on this company's property, and in a few minutes was in a mass of flames. The shaft was put out about 1,000 tons of coal per month. About 200 men were in the bank at the time, but escaped by way of the air shafts. Total loss, \$50,000; insurance, \$12,000.

**MARYLAND.**

Press dispatches report that the water from the old Etna mine of the Boston Company broke into the Allegheny mine of the Consolidation Company at Frostburg, at 11:30 o'clock August 30th. Thirty-five men are known to be shut in the mine. Whether lives are lost is not known yet.

**MONTANA.**

It is now stated on good authority, says the *Helena Independent*, that the Anaconda Company will erect its copper refinery, to be of the new electric process, near Three Forks, at the junction of the Jefferson and Madison rivers. Marcus Daly recently bonded a tract of land, there about two miles square, from the English syndicate which bought a large tract of land around Three Forks several years ago. Mr. Hunter, the syndicate's agent, recently went to England to secure the necessary deeds to make the transfer. The amount of the bonds is not publicly stated, but the sale will involve several hundred thousand dollars. The electric copper refinery to be built will be a mammoth enterprise. Water power and plenty of it is a necessary adjunct to such works as it is proposed to establish, and after careful investigation the Anaconda company has decided upon the city where the Jefferson and Madison rivers meet as the most suitable location for the refinery. At present nearly all the copper matte manufactured at the smelters of this company is sent to Swansea, Wales, to be refined.

**SILVER BOW COUNTY.**

**BLUE BIRD MINING COMPANY.**—Work of getting ready to start a leaching plant at this mine is progressing. The two buildings being put up to accommodate the new process are 116 by 52 and 25 by 25 feet in dimensions. The buildings are about completed. Progress just at present is delayed by the non-arrival of the Oregon pine lumber, which is to be used in the construction of the tanks. It is thought that it will be a month before everything is in readiness to start the leaching process. Should the lumber arrive shortly, everything may be in readiness to start up before the time mentioned. At the mine and mill everything is running as usual. The cross-cut at the 600-foot level is still being driven to cut the vein, which is yet quite a distance away.

**KEYSTONE MINING COMPANY.**—This company has been organized in Butte. Its officers are: W. B. Sparkman, President; J. H. McMasters, Vice-President; J. A. Brent, Secretary, and Jos. A. Hy e, Treasurer. The company is formed for the purpose of developing the George Washington mine in the Oro Fino District. The company is stocked at \$1,000,000 in 500,000 shares of a par value of \$2 each.

**NEVADA.**

**CORTEZ MINES, LIMITED.**—The directors have received the following cablegram from Mr. Welsh, the superintendent at the mines, showing the results for the month of July: Production, 27,000 ounces; expenses, \$17,000. Mills closed nine days in consequence of repairs.

**ELKO COUNTY.**

The Grand Prize concentrating plant is now being increased to the crushing capacity of 100 tons per day, and continues to run on Commonwealth ore until

the contract for working 15,000 tons is fulfilled. This will consume, says the *San Francisco Post*, the greater part of five months, after which the dump pile of the mine itself will be taken in hand for the reduction commenced of 100,000 tons of ore now lying thereon.

**TORNADO GOLD AND SILVER MINING COMPANY.**—Statement of J. Leuchter, President, Room 2, 182 Broadway, New York, August 3d, 1889, to Committee on Mining Securities of New York Consolidated Stock and Petroleum Exchange:

This company is out of debt at both ends, the title good. No law suits on hand, nor any expected; assessment work of this year under way; property in good shape and activity in stock awaiting a better market.

**STOREY COUNTY—COMSTOCK LODE.**

**QUARTERLY YIELD OF THE COMSTOCK.**—In addition to the official statements of the ore and bullion yield for the quarter ending June 30th, 1889, that have appeared in the last two issues of the *ENGINEERING AND MINING JOURNAL*, the following reports have been filed:

Hale & Norcross produced 12,690 tons of ore, yielding bullion valued at \$265,600.58; cost of extraction, \$1,137,313.46; transportation and reduction, \$88,830; total cost, \$224,143.15; bullion yield above cost of production, \$39,457.12. Bullion tax, \$1,183.71; yield in bullion per ton, \$20.

Savage produced 6,45 tons of ore, yielding \$93,052.43 in bullion; cost of extraction, \$40,283.69; transportation and reduction, \$48,815; total cost, \$86,098.69; cost of production above yield, \$3,037.26; yield in bullion per ton, \$12.25.

Following is a summary of the total ore and bullion yield of the lode for the quarter ending June 30th, 1889, and the cost of production: Total ore yield, 88,308 tons; total bullion yield, \$1,511,057; total cost of production, \$1,184,083.58; total yield above cost of production, \$326,974.22.

**PENNSYLVANIA.**

**COAL.**

It is stated that a combination of Eastern capitalists have formed to purchase all the coal property along the Monongahela River and control the river coal business. It has been decided that it will require \$13,000,000 to complete the deal, including the aggregate of stock the sellers are willing to take. The heaviest firms who have given options are Walton & Co., Brown's Sons, Thomas Fawcett & Sons, John A. Wood & Co., Grand Lake Company, Horner & Roberts, George Lytle & Sons, and Sneathen & Wilson. William P. Steun, of New York, it is said, is to be the president of the new company, with headquarters in New York.

**COKE.**

It is announced that H. C. Frick & Co., the largest coke operators of the Connellsville region, have secured control of the J. M. Schoonmaker coke plant, which includes 5,000 acres of coal land, 1,500 coke ovens and 400 cars. This, with the 579 ovens recently purchased from J. W. Moore, will give Frick & Co. control of over 9,000 of the 14,000 coke ovens in the region. Before long, it is said, their holdings will be further increased. The price paid Schoonmaker and Moore is not known. Beginning with September 1st, the selling price of coke will be advanced from \$1 per ton to \$1.35 per ton to furnacemen, \$1.50 to dealers and \$1.65 to foundrymen. This advance was made to meet the recent increase in the wages of the coke workers.

It is reported that the H. C. Frick Coke Company have about concluded negotiations with the Cambria Iron Company for the purchase of the Wheeler plant of 100 ovens, the Morrell plant with 400 ovens, and the Mahoning plant with 100 ovens. The reason given for the sale by the Cambria Iron Company is that the latter has concluded that it can buy coke as cheaply as it can make the fuel.

**OIL.**

The Globe Refining Company, of Philadelphia, according to advices from that city, will build an independent pipe line to connect its refining plant on the South Delaware River front, which is rapidly nearing completion, with the oil fields in Western Pennsylvania. The route which the line will follow has not yet been made known. The principal oil fields controlled by the Globe Company are in southwestern Pennsylvania. They are connected by pipe with Pittsburg. The carrying out of the company's present plans will involve the laying of a pipe almost the entire length of the State, and call for a heavy expenditure of money.

Exports of refined, crude, and naphtha from the following ports, from January 1st to August 24th:

	1889.	1888.
	Gals.	Gals.
From Boston.....	3,075,357	2,426,756
Philadelphia.....	92,367,170	85,071,258
Baltimore.....	3,592,275	5,341,892
Perth Amboy.....	12,230,066	15,108,447
New York.....	278,015,089	225,190,080
Total exports.....	389,329,957	334,328,433

**VIRGINIA.**

**ALLEGHANY COUNTY.**

The Iron Gate Company will sell 250 lots on Sept. 5th. The company intends to reeve every alternate lot. Work on the new rolling mill is being rapidly pushed. The Hanging Rock Store Company, of Ohio, will remove their works to this place.

The Longdale Iron Company has made recent discoveries of valuable seams of ore in addition to those formerly worked.

**LAWRENCE COUNTY.**

A company will be organized at Ironton for the purpose of manufacturing hydraulic cement, for which the local fire clays and limestones are well suited.

**ROCKBRIDGE COUNTY.**

The firm of Chamberlain, Wheeler & Co. have become incorporated under the name of the Virginia Iron Company, capital \$100,000. They have changed the name of the Victoria Furnace to that of Rockbridge Furnace, and will sell their iron under the brand of Rockbridge. Mr. Ed Orton has resigned his position as founder and Mr. Beck, of Lynchburgh, has taken charge. Output 125 tons per day.

**WISCONSIN.**

**ASHLAND COUNTY.**

Preliminary steps have been taken by W. H. Jacobs to wrest from the Wisconsin Central Railway Section 33, near Hurley, where the Montreal and other iron mines are located. He claims that the section is outside the 20-mile indemnity limit, where the road had a right to go and make up deficiencies in the land grant, and he has claimed possession of the land under soldier strip entry. His father has engaged ex-Secretary William F. Vilas as one of his attorneys.

**FOREIGN MINING NEWS.**

**BOLIVIA.**

**FLAMENCA MINES.**—The *Sucre Dia* recently said, respecting these mines: "This prospect is the talk of the day, and is causing a sensation. In the No. 1 shaft a lode of pure rosicler was struck, and from it 43 sacks of metal were obtained, giving about 8,000 ounces of silver to the ton. One piece weighs 53 pounds, and it is pure ruby silver (*rosicler*)."

**BRITISH COLUMBIA.**

Major A. P. Patrick, of Ottawa, states that he has discovered petroleum at Crow's Nest Pass in the Rockies, the largest ever found in that region, within reach of the railway. According to an exchange, Major Patrick says: "For eleven weeks we have been prospecting among the mountains for coal and deposits. I am happy to say we have been eminently successful. We have located a considerable quantity of oil lands, some on the eastern slope and some on the British Columbia side. So soon as we felt perfectly certain and justified as to the importance of our discoveries, we took the necessary precaution to have several of the samples assayed. The result is 91 per cent lubricating oils, 5 per cent heavy oil, 1 per cent water and 3 per cent foreign matter. This is the best oil ever discovered—far ahead of the Pennsylvania oil fields. I have made choice and registered in my own name 40 acres on this side of the summit, and about 500 acres in British Columbia; also two other claims not yet surveyed. There is also plenty of head; being about 4,500 feet above the level of the sea, the crude oil can be run off in pipes any distance. I understand the Galt Company have stated that they will lay pipes for us to Lethbridge free if we will pump the oil from them."

A correspondent of the *ENGINEERING AND MINING JOURNAL* further says: "There is some talk of the C. P. R. putting in a line through this pass and joining their present system at Hope via south end of Kootenay and Arrow lakes."

**MEXICO.**

Coke-making promises to become a Mexican industry. Soisson, Kilpatrick & Co., of Connellsville, Pa., have just received an order for fire-brick for six coke ovens from the Camranja de Carbon de Coahuila, of Coahuila, Piedras Negras, Mexico, having already shipped them bricks for ten ovens. The bricks, according to the *Connellsville Courier*, cost about \$110 per 1,000 delivered. The Coahuila Coal Company have also erected a plant of 12 ovens at Sabmas, in the same locality. The coal is obtained from the Añamos and Hondo mines of the company. It cokes in 24 hours, just one-half the time required to coke Connellsville coal.

**SOUTH AMERICA.**

**REPUBLIC OF COLUMBIA.**

**SANTIAGO GOLD MINING COMPANY.**—Statement of Francis Daniels, Secretary, 5 Wall street, New York, July 15th, 1889, to Committee on Mining Securities of New York Consolidated Stock and Petroleum Exchange.

The company has 200,000 shares, par value \$2 each. The company has no bonded debt and the floating debt does not exceed \$20,000. The title to the mines and to a 20-stamp mill erected on the property is in the name of the company. The new manager to take the place of the one who died left here on June 20th to take charge of the working of the property. No legal proceedings to my knowledge have been commenced against the company.

**MEETINGS.**

Arravo Seco Gold Mining Company, 43 Vesey street, New York City, Sept. 2d, at eleven A. M.

Santa Fe Copper Company, office of Francis Downs, Santa Fe, New Mexico, Sept. 5th, 1889, at twelve o'clock noon.

**DIVIDENDS.**

Comr d'Alene Silver Lead Mining Company, dividend No. 3, four cents per share, or \$20,000, payable September 16th by Hoge, Brownlee & Co., Butte, Mont.

Consolidated Kansas City Smelting & Refining

Company, ninth quarterly dividend, two and a half per cent, payable September 7th, at No. 20 Nassau street, New York City. Transfers close September 3d.

## ASSESSMENTS.

COMPANY.	No.	When levied.	D't'nt' in office.	Day of Sale.	Amn't per share.
Alpha Cons. Mill. & Mg., Nev.	3	July 15	Aug. 22	Sept. 12	.25
Alpha Cons. Mg., Nev.	25	July 15	Aug. 22	Sept. 12	.87½
Argenta, Nev.	19	July 22	Aug. 26	Sept. 16	.10
Bulwer Cons., Cal.	6	Aug. 6	Sept. 12	Oct. 10	.25
Centre Shot, Dak.	2	June 25	Ag. 17	Sept. 4	.002
Challenge Con., Nev	5	Aug. 6	Sept. 9	Sept. 30	.50
Chollar, Nev.	27	July 15	Aug. 20	Sept. 10	.50
Cons. New York, Nev.	1	Aug. 14	Sept. 18	Oct. 9	.25
Crown Point, Nev.	51	July 9	Aug. 12	Sept. 2	.50
East Mount Diablo, Nev.	5	July 18	Aug. 22	Sept. 12	.10
East Sierra Nevada, Nev.	1	Aug. 8	Sept. 13	Oct. 7	.16
Golden Fleece, Cal.	14	May 21	July 20	Sept. 16	\$17.00
Grand Frize, Nev.	21	July 27	Aug. 30	Sept. 20	.30
Hartshorn, Dak.	4	July 27	Aug. 30	Sept. 17	.005
Kentuck, Nev.	19	July 30	Sept. 2	Sept. 20	.30
Mexican, Nev.	38	July 9	Aug. 13	Sept. 3	.25
Mono, Cal.	28	July 24	Aug. 28	Oct. 1	.50
Overman, Nev.	60	July 27	Aug. 30	Sept. 20	.25
Platt & Gilson, Cal.	2	July 30	Sept. 10	Sept. 25	\$2.00
Ruby Bell, Dak.	9	July 22	Aug. 24	Sept. 10	.002
Savage, Nev.	73	July 19	Aug. 21	Sept. 10	.50
Scorpion, Nev.	1	Aug. 8	Sept. 13	Oct. 7	.10
Utah Cons., Nev.	7	July 9	Aug. 13	Aug. 30	.25
U. S. Grant, Dak.	2	July 15	Aug. 19	Sept. 7	.001

## MINING STOCKS.

For quotations see pages 196 and 197.

## New York.

FRIDAY EVENING, Aug. 30.

As a whole, the market has not materially improved, but to some of the "specialties" the operations of "insiders" have created an appearance of activity.

Phoenix, of Arizona, after opening on Monday at 16c., advanced to 19@20c., on Wednesday, and today, on liberal buying, quickly reached 25@27c. At the close, 28c. was bid and 30c. was asked. We understand that the control of the company has completely passed into other hands, the objectionable element being eliminated. At a meeting of the stockholders, to be held early in October, a new board of trustees will be elected, and a definite plan of future operations will be presented. Advance proofs have been furnished us of the following circular which will be issued to-morrow: "The committee appointed at the meeting of stockholders held on Dec. 22d, 1888, to protect the interests of the stockholders, have now the pleasure of reporting that the objects for which they have labored during the past eight months seem to be in a fair way of accomplishment. The difficulties with which the committee have had to contend have been numerous and serious. As referred to in their last circular, dated June 14th, 1889, delays have been unavoidable. But they can now consider that the principal obstacles have been removed, and that the way is open to a conduct of the affairs of the company upon an economical and business basis. This, they think, can only result in the proper development of the property itself and the demonstration of the value of the mine, which, from all the information that the committee have obtained, is capable under legitimate management of yielding at least fair dividends to the shareholders. After protracted negotiations the committee have been able to insure a satisfactory management of the company and the election of an entirely new board of trustees, in which the committee is represented. Proper provision has been made for the permanency of such management. The new board and its officers are pledged to devote their attention solely to the proper development of the property and the working of the mine, and to abstain from any manipulation of the stock of the company in the market. The financial arrangements referred to in Circular No. 3 (see ENGINEERING AND MINING JOURNAL, June 15th, 1889.) of the committee will be carried out, and the committee trust that in a reasonable time they will be able to detail to their constituents the steps which have been taken to work the property in Arizona and increase its facilities for profitable operation. Signed, Charles I. Hardy, Henry E. Wallace, George F. Chamberlain, Committee."

Holders of Plymouth Consolidated stock of late have been subject to a number of disquieting rumors, which have perceptibly weakened their confidence in the value of the shares, and the management of the company at an early date should make public a clear and complete statement as to the condition of the property. The monthly financial statements are in themselves satisfactory, but they do not go far enough. The latest rumor is the following, which originally appeared in the San Francisco Evening Post some ten days ago, and has just reached New York. "It is generally understood that Martin & Ballard have just closed negotiations for the purchase of hoisting works and water-works belonging to the Plymouth Consolidated mine from Hayward & Hobart for the sum of \$75,000. Superintendent Montgomery, who is now here, will probably assume charge of the Mulattos mine of Mexico, when transfer of that property is finally concluded, which it will probably be this week, and Charles Lane, who has acted for years in a similar capacity at the Calaveras mines of the firm, will likely go down to assist him."

Messrs. Hayward and Hobart are San Francisco parties, and are stockholders in Plymouth, the former,

Mr. Alveriza Hayward, being the treasurer of the company. This report, therefore, has a semi-official air. Judging from the context, it would appear that Superintendent E. L. Montgomery has resigned his position with the Plymouth company.

At the New York office of the company in the Equitable building, neither a confirmation nor a denial of the truth of the above report could be obtained. President Warner Van Orden has been out of town since June, and is not expected back until about September 1st. Secretary H. W. Lazelle, who is uniformly courteous to all inquirers, stated that he had not been advised of any such occurrences as are mentioned above, and he doubted the truth of the statements. Superintendent Montgomery has been in ill health recently, and for this reason he may have taken a vacation; but Mr. Lazelle has not been informed of his resignation, and it certainly has not been acted upon by the board of directors, as no meetings of the board have been held during the summer.

A letter from the mine dated August 16th, says that No. 2 drift, at the 1,157-foot level, has been opened 220 feet from shaft, and is now in the Indiana ground. The stock sold this week to the extent of 110 shares, at \$3.87@4.

The only other Amador County stock that changed hands was Astoria at 20c., of which 3,570 shares were sold. Brunswick was sold at 5c. In our mining news columns the official statement of President Murray is given. Quicksilver common stock is on record at \$6.

Among the Bodies Mono appears on the list at 90c. @ \$1.15, closing at the former figure, and Bodie Cons. at 85c. @ \$1.05, also closing weak.

The North and Comstock shares developed considerable strength, Union advancing from \$3.40 to \$4.20, and Mexican from \$3.85 last Saturday to \$5.25 yesterday. Belcher sold at \$2.95@3.00. Chollar at \$2.30. Con. Cal. & Va active at \$7.63@8.00. Crown Point at \$3.20@3.25. Gould & Curry at \$2.50. Hale & Noncross at \$3.25@3.40. Opher at \$5.00@5.38. Savage at \$2.40. Sierra Nevada, \$2.80@2.85. Yellow Jacket at \$3.35@3.80. Best & Belcher at \$3.65@3.75. Bu'ion at 70c. Occidental active at \$1.75@1.95. Oriental & Miller at 6@7c., Potosi at \$1.50@1.70. Sutro Tunnel old stock, to which we again call your attention, members of the Committee on Mining Securities, sold at 4@6c., and the Sutro Tunnel Trust Certificates at 57@59c. All together, the Comstock shares have been more active than usual.

Eureka Cons. has been in good demand, and sales are reported at \$2.50@2.65.

The Tuscarora shares are represented by sales of North Belle Isle at 85@90c., Commonwealth at \$2.50, and Nevada Queen at 65c.

Horn Silver is a stock which, according to its supporters, is selling far below its intrinsic value. The company, on August 1st, had a cash surplus of \$239,000, drawing interest with the United States Trust Company at the rate of two per cent., and the company also holds, as collateral, for its claim against its ex-president, Charles G. Francklyn, land in Kentucky and mining property in Nevada, on which, according to Secretary A. I. Harrison, at least \$450,000 could easily be realized. The friends of the company therefore argue that as it has assets of about \$690,000 in addition to its mine and equipment, which up to 1884 paid \$4,000,000 in dividends, the shares are altogether too low, at about a dollar and a quarter each, the present quotation. There are 400,000 shares in the company.

On the other hand, it must be remembered that the recent expert report on the property was not such as to encourage hopes that the mine may ever again be "in bonanza," and years of expensive development work making serious inroads on the present surplus, may be in store for the stockholders and furthermore there must always be some doubt as to the value of Francklyn's collateral until it is converted into cash.

Inasmuch as the Horn Silver surplus has now reached about \$240,000, there is some speculation as to when a dividend may be expected. We are informed that it is President Washington's desire to wait until the cash surplus amounts to \$360,000, when he will be able to pay four quarterly dividends of \$40,000 each, 10 cents a share, and will still have a surplus fund of \$150,000 to provide for the thorough exploitation and development of the property. The annual meeting of the stockholders will be held as usual in Salt Lake City, on October 1st. No great contest over the election of trustees is at present anticipated, but no one knows how much opposition may develop within the next few weeks. It is to be presumed that the friends of the ex-treasurer, J. T. Little, may not be feeling altogether pleasant, and there is always a possibility that ex-President Francklyn and his friends may endeavor to regain control. The stock this week was liberally inquired for at \$1.15 @ \$1.30.

A dividend on Alice stock was predicted some months ago, but as yet it has not materialized. The mine is turning out its usual quantity. Sixty stamps of the mill have been steadily in operation, and the grade of the product is said to be as good if not better than it has been for some years past. We understand that the postponement of dividends is due to the fact that President Joseph Walker has determined not to pay a dividend until the company has on hand a surplus sufficient to ensure dividends continuously for some time to come. No transactions in the stock are recorded this week.

The Colorado stocks contributed their usual quota of the business this week. Aspen is in no better demand and sold at \$5.50, Dunkin at \$1.05, Iron Silver

at \$2.10 and Leadville Cons. at 7c. Little Chief was in good demand at 32c. and Small Hopes sold at 82c. The manipulators of Ward Cons. have not relaxed their efforts. We note sales aggregating 13,800 shares at \$1.55@1.75.

Columbia & Beaver was resuscitated by a zealous friend in order to show the committee that there is still some life, and consequently some hope, in the enterprise. The quotation made for the shares was 3c.

About 1,700 shares of El Cristo were sold at 95c. @ \$1. Rappahannock is quoted at 4@5c., and has been quite active at these figures.

A member of the exchange has posted an inquiry for shares of the stock of the Batopilas Mining Company of Mexico. The last sale was made at \$1.50. We understand that \$2 is now bid.

We get quotations for St. Joseph Lead Company, of Missouri, an unlisted stock which ranks as a dividend payer, at \$13.50 bid and \$15 asked.

Homestake is firmer at \$9.13, and there has been some inquiry for Caledonia at \$3. Holders ask \$3.25.

The attention of investors in mining shares is particularly called to the official statements made to the Committee on Mining Securities by the officers of the Brunswick, Hector, Hollywood, Sutter Creek, Shoshone, Tornado, Santiago, Excelsior, Silver Queen, Sullivan Consolidated, and Columbia & Beaver mining companies. These statements are published in a condensed form in our Mining News columns.

Boston. Aug. 29.

[From our Special Correspondent.]

The market continues to rule extremely dull and inactive, with very little change to note in prices. Boston & Montana is the stock most largely dealt in, and is steady at \$35½@36, with sales of less than 2,000 shares. Calumet & Hecla, very dull and heavy, selling down to \$220. There seems to be a lack of orders to buy it, and there is no pressure to sell at present prices. The output last week was over 600 tons, which does not look much like curtailing the production.

Quincy holds firm at \$54, and is in fair demand, with very little stock offered.

Tamarack dropped from \$105 to \$103½ on small sales, with a recovery to \$104.

Franklin sold at \$9½@10 for a lot of 100 shares only. This stock is well held under expectation of a dividend ere long if they can sell their copper at 12c. per pound.

Osceola is also steady at \$11½ on small sales, and Atlantic at \$9½. The last three companies are dividend payers, and, if the copper question is definitely settled, will resume payment of dividends at an early day, and at present prices are a purchase to hold with that expectation.

Huron sold at 87½c., and Santa Fe 65@60c. Balance of the list neglected.

Napa Quicksilver sold at \$3¼@3½, and Dunkin at 97½c. to \$1.

At the afternoon call Osceola declined to \$10½@ \$10½ on sale of 200 shares.

Santa Fe sold at 60c. (1,000 shares). C. & H., \$220 bid, \$225 asked. Market closed dull and lifeless.

## San Francisco.

The San Francisco Stock and Exchange Board has appointed a committee, composed of Coll Deane, J. H. Crocker and Oscar V. Walker, to investigate the affairs of the Savage Mining Company, in response to a communication from the directors of that corporation, in answer to charges made against them by the Mining Stock Association.

## St. Louis.

The affairs of the Tour Delotte Mining Company, of Pitkin County, Colo., are in a muddle. The officers refuse to give up the books, the company is in debt, and the stockholders are disgusted.

## Electric Stocks.

According to a press dispatch the Robinson Foster Electric Motor Company, of Peabody, Mass., has shut down. The works at South Peabody are in the hands of a keeper, placed there by F. W. Prescott, who holds a chattel mortgage against the company. The property was to have been sold on the 26th inst., but the auctioneer was stopped by an injunction obtained by the company at the last minute. It is expected that a settlement will be made. Work was started in April, and seventy-five hands were employed turning out 150 motors. Most of these have been put out on trial, but the company hopes to raise money on them and continue business. The stock was floated during the spring boom of the Thomson-Houston, and was bought largely by the wage earners of Peabody and surrounding towns, who paid as high as \$10 a share for it. The last quotation of the stock was 75 cents, with no bidders.

## PIPE LINE CERTIFICATES.

Special report by Messrs. WATSON & GIBSON.

The petroleum market has been so entirely destitute of interest that it scarcely demands any notice. Commission brokers are doing absolutely nothing in it, and the stock market is diverting attention completely from petroleum. It is difficult to form an opinion concerning the value of Pennsylvania oil, for nothing new has been discovered which establishes the actual value of Ohio oil as an illuminant. If it be conceded that Ohio oil can be successfully refined, then there is no object whatever in buying Pennsylvania oil at its relatively high price; but if only the lowest

grades of refined can be made out of Ohio, or it can be merely used as a fuel, then the rapid and continuous depletion of the stock of Pennsylvania oil necessarily involves higher prices.

NEW YORK STOCK EXCHANGE.

	Opening.	Highest.	Lowest.	Closing.	Sales.
Aug. 24.....	98 3/4	98 3/4	97	97 1/2	103,000
26.....	97 3/4	98	97	98	55,000
27.....	98 3/4	98 3/4	97 3/4	97 3/4	35,000
28.....	98	98 3/4	98	98 3/4	176,000
29.....	98 1/4	98 3/4	98 1/4	98 3/4	90,000
30.....	98 1/2	98 1/2	97 3/4	98 3/4	77,000

Total sales in barrels..... 606,000

CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.

	Opening.	Highest.	Lowest.	Closing.	Sales.
Aug. 21.....	98 3/4	98 3/4	96 3/4	97	443,000
23.....	97 3/4	98	96 3/4	98	479,000
27.....	98	98 3/4	97 3/4	97 3/4	525,000
28.....	97 3/4	98 3/4	97 3/4	98 3/4	437,000
29.....	98 1/4	98 3/4	97 3/4	98 3/4	406,000
30.....	98 1/2	98 3/4	97 3/4	97 3/4	396,000

Total sales in barrels..... 2,686,000

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Aug. 30.

Statistics.

PRODUCTION OF ANTHRACITE COAL for week ended August 24th and year from January 1st.

	1889.		1888.
Tons of 2,240 lbs.	Week.	Year.	Year.
P. & Read, R. R. Co.....	169,433	4,286,279	3,938,323
Cent. R. R. of N. J.....	129,246	3,634,033	3,410,338
L. V. R. R. Co.....	172,867	4,369,667	4,013,369
D. & W. R. R. Co.....	1135,000	3,179,740	4,118,983
D. & H. Canal Co.....	71,714	2,477,579	2,746,640
Penna. R. R.....	51,192	2,092,569	2,837,572
Penna. Coal Co.....	34,960	809,906	1,062,347
N. Y., L. E. & W.....	120,000	733,628	585,491
Total.....	794,412	22,133,401	22,713,063

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent. of the whole production.

Production for corresponding period:

1884.....	19,679,124	1886.....	19,402,866
1885.....	18,175,516	1887.....	21,525,554

\*These figures are undoubtedly too large and some deductions have to be made for duplications. We are unable to make the necessary corrections this week owing to the reluctance of the carrying companies to furnish information, but we hope to do so in later issues.

†Estimated.

PRODUCTION OF BITUMINOUS COAL for week ended August 24th, and year from January 1st:

EASTERN AND NORTHERN SHIPMENTS.

	1889.		1888.
Tons of 2,240 lbs.	Week.	Year.	Year.
Phila. & Erie R. R.....	2,463	45,479	39,588
Cumberland, Md.....	66,735	1,962,397	2,264,561
Barclay, Pa.....	1,454	73,175	114,063
Brook Top, Pa.....	5,986	204,215	224,790
Clearfield, Pa.....	69,336	1,972,685	2,168,600
Allegheny, Pa.....	17,126	495,694	503,682
Beach Creek, Pa.....	30,998	945,059	981,937
Pocahontas Flat Top.....	39,941	1,106,917	909,588
Kanawha, W. Va.....	40,860	1,111,290	1,040,408
Total.....	274,899	7,916,911	8,247,315

WESTERN SHIPMENTS.

Pittsburg, Pa.....	14,683	395,514	460,374
Westmoreland, Pa.....	35,731	909,852	997,308
Monongahela, Pa.....	8,947	257,095	250,534
Total.....	59,361	1,562,461	1,708,216

Grand total..... 334,260 9,479,372 9,956,031

PRODUCTION OF COKE on line of Pennsylvania R. R. for week ending August 24th, and year from January 1st, in tons of 2,000 lbs.: Week, 79,927 tons; year, 2,758,465 tons; to corresponding date in 1888, 2,488,206.

Anthracite.

The market does not gain anything in point of activity. The general sales agents of the several producing companies, at their monthly meeting this week, very sensibly refrained from advancing schedule quotations, as it was predicted they would do, and as some of them probably wished. At the meeting the question of restricting production was exhaustively discussed, and it was agreed that the output for the month of September shall not exceed 3,000,000 tons. If this plan is strictly adhered to, the production on October 1st will be, we are informed, about 2,000,000 tons less than it was at that date in 1888.

The present dullness is due to the delay on the part of consumers in ordering and taking away their coal, and if, as a result of this waiting policy which has been pursued, the business of six full months is crowded into the three months closing the season, consumers may find that they have profited nothing by waiting. Purchases for fall and winter requirements are inevitable and the only thing necessary to enable the companies to advance prices is a general and judicious curtailment of output. The producing companies, therefore, have the situation in their own hands; it remains to be seen what their action will be.

Quotations this week are unchanged. We get quotations for stove at \$4.00@4.15 alongside; Lehigh broken, \$3.90@4.00, free burning; \$3.75@3.80; egg, \$4.00, and chestnut, \$3.90@4.00 alongside.

A Washington dispatch, bearing date of August 24th, says: Simpson & Watkins, of Scranton, Pa., have entered complaint with the Inter-state Commerce Commission against the New York, Lake Erie & Western Railroad Company and the Delaware & Hudson Canal Company; and Andrew Langdon & Co., of Buffalo, N. Y., have entered a complaint before the Commission against the Delaware & Hudson

Canal Company. All three complaints allege unjust discrimination in coal freights, and those of Simpson & Watkins allege unjust discrimination in the distribution of coal cars. Franklin B. Gowan is counsel in all three cases.

In the complaint against the New York, Lake Erie & Western corporation Simpson & Watkins allege that that road discriminates in favor of the Delaware & Hudson Canal Company and the Hillside Coal & Iron Company, which latter corporation it controls, the discrimination in freight rates amounting to from 25 to 50 cents a ton on anthracite coal. The favored corporations are selling it at the point of destination for less than the market value at the point of departure. It also charges that coal cars are furnished the corporations named in the busy season when they are denied to complainants. It alleges that 1,000 new coal cars numbered from 10,000 to 10,999 are known as "Delaware and Hudson exclusive," and are kept for the exclusive use of the Delaware and Hudson Canal Company. The complainant of Simpson & Walters against the Delaware and Hudson Canal Company makes similar charges; also that no specific rates for coal can be obtained from that corporation. All it will furnish is two freight tariff sheets containing rates for six classes, without saying which class coal comes under. But even the rates for the lowest class are unjustly and unreasonably high. Its discriminations are in favor of its own coal shipping business, both in rates and cars. It carries bituminous coal for one-third the rate charged for carrying anthracite, whereas the complainants allege that the rate for both should be the same. They also complain that in the busy season the Delaware & Hudson Canal Company discriminates in its own favor against complainants by refusing the use of a proper proportion of gravity cars on its gravity road between Carbondale district and Honesdale. The railroads have been notified to make reply.

Mr. John H. Jones, Chief of Bureau of Anthracite Coal Statistics, furnishes the following statement of anthracite coal production for the month of July, 1889, compared with the same period last year, compiled from the returns furnished by the mine operators:

	July, 1889.	July, 1888.	Difference.
From Wyoming Region	2,001,763	1,717,686	Inc. 284,077
From Lehigh Region.....	598,655	705,313	Dec. 106,657
From Schuylkill Region.....	1,027,103	943,273	Inc. 83,830
Total.....	3,627,522	3,366,272	Inc. 261,249

	For year, 1889.	For year, 1888.	Difference.
From Wyoming Region	10,053,468	11,870,849	Dec. 1,817,381
From Lehigh Region.....	3,440,040	1,524,436	Inc. 1,915,604
From Schuylkill Region.....	5,281,215	5,126,442	Inc. 154,773
Total.....	18,774,724	19,521,728	Dec. 747,003

The stock of coal on hand at tide-water shipping points, July 31st, 1889, was 788,060 tons; on June 30th, 1889, 833,764 tons; decrease, 45,695 tons.

Bituminous.

The only change to be noted in the soft coal market is in consequence of the difficulty in getting coal to the seaboard, cars being scarce. Vessels are abundant and freights have again weakened. We hear of freights from Philadelphia offered at about 95@1.00 the Sound and \$1.10@1.15 to Boston from Baltimore; \$1.15@1.20 to the Sound, and \$1.35 to Boston; and from New York 80@90c. to Boston. There is apparently no prospect of a better supply of cars for some little time ahead but some of the principal coal-carrying roads, the Pennsylvania particularly, have recently ordered a very large number of cars. This is a need that has been long and sorely felt.

A liberal inquiry for coal is generally reported, and prices are not quotably changed.

Boston. Aug. 30.

[From our Special Correspondent.]

There is little change to report in the market for anthracite coal; trade continues dull, as consumers are not buying at retail. The meeting of the 28th in New York was devoid of interest for this market, and we only hear of small transactions at or near June circular prices. We quote Stove coal \$4, f. o. b., other sizes in proportion. There is an ample supply now of Broken, but Reading Stove is scarce, while other kinds are plentiful. The salesmen say that their business is at a standstill.

The bituminous trade is steady, with a decline in freight of 10c., and a further reduction is anticipated, owing to the lack of anthracite orders. The local retailers are doing a small but profitable business.

Buffalo. Aug. 29.

[From our Special Correspondent.]

No changes in conditions of the anthracite coal market, and no special features of interest to report. Bituminous coal firm and not plenty. Prices are from 10@25c. higher, according to location from whence coal obtained.

It is reported that at the last meeting of the Buffalo Freight Committee the action of the Grand Trunk Railway of Canada in carrying coal from Buffalo and Suspension Bridge to Chicago for \$1.75 per gross ton was considered, and that company was requested to restore rates to the figures it agreed to last July of \$2 per ton on and after September 1st, as the present

action of the Grand Trunk is likely to lead to a general demoralization of rates in coal traffic.

Mr. Daniel O'Day, the president of our Natural Gas Fuel Company, has been interviewed. He says that there is not nor will be any gas for the use of factories. The present supply does not meet the demand for domestic purposes, and as it would cost over \$1,000,000 to lay another main into Pennsylvania, nearly 70 miles away, the company is not willing to expend so large a sum. Mr. O'Day says: "We cannot compete with the cheap grades of coal that are used. Even in Pittsburg, I am told, right in the neighborhood of the gas fields, they cannot do it. The manufacturers understand that we are unable to furnish them with fuel gas at the rates for which they can get cheap bituminous coal. We can compete with anthracite."

Messrs. Andrew Langdon & Co., of Buffalo, and Messrs. Simpson & Watkins, of Scranton, Pa., have made complaint to the Inter-State Commerce Commission calling the Delaware & Hudson Canal Company and the New York, Lake Erie & Western Railroad Company to account for unjust discrimination against them in favor of certain companies. The Commission will hear the complaint next October. Doubtless you will print a full statement of the affair, hence only this brief allusion thereto.

The shipments of coal from this port by lake from August 22d to 28th, both days inclusive, aggregated 75,830 net tons, namely: 40,630 to Chicago, 23,950 to Milwaukee, 4,300 to Superior, 2,500 to Green Bay, 1,960 to Toledo, 1,000 to Marquette, 1,100 to Detroit, 400 to Sheboygan, none to Duluth; total for the season to date, 1,187,449 net tons.

The rates of freight were: 60c. to Chicago; 50c. to Milwaukee, Sheboygan, Sault Ste. Marie and Green Bay; 40c. to Duluth and Superior; 30c. to Toledo and Detroit, closing with moderate demand and steady.

The serious break in the canal at Shelby's basin, near Lockport, which occurred last Monday morning, will be repaired, and water let in this evening.

The receipts by canal of coal for third week in August, 4,017 net tons; the shipments, 865 net tons. The engagements were 1 boat load of coal to Syracuse at 60c., and 2 loads at 65c. per gross ton, free off only.

Pittsburg. Aug. 29.

[From our Special Correspondent.]

Coal.—The situation remains about the same, as, except in the fourth pool, there is very little coal being mined. The price of mining varies from 2 to 2 1/4 @ 2 1/2. Navigation is suspended to all points, and from present indications is likely to remain so for some time. The story started that an Eastern syndicate had purchased the entire Monongahela Valley coal business did not contain a particle of truth.

The nominal rates are:

PRICE OF COAL PER 100 BUSHELS = 7,600 LBS.

First pool.....	\$4.75	Fourth pool.....	\$3.25
Second pool.....	4.50	Railroad coal.....	5.00@6.00
Third pool.....	3.90		

Connellsville Coke.—Great changes are going on in the coke regions. Prices on Monday will be advanced to \$1.25@1.35 for the present. A further advance will follow in the near future. During the week the H. C. Frick Coke Company purchased J. W. Moore's plant of 579 ovens. Yesterday they purchased the entire plant of J. M. Schoonmaker & Co., consisting of 1,336 ovens, together with coal lands and everything connected with the plant. This makes them the largest coke owners in the country, and they now control 8,050 ovens out of 14,060 ovens in the region, and it is not improbable that they will own the balance before long.

METAL MARKET.

NEW YORK, Friday Evening, August 30, 1889.

Prices of silver per ounce troy.

Aug.	Sterling Exch'ge.	London Pence.	N. Y. Cts.	Aug.	Sterling Exch'ge.	London Pence.	N. Y. Cts.
24	4.86 1/4	42 5-16	92 1/2	28	4.86 1/4	42 1/2	92 1/2
26	4.86	42 1/2	92 1/2	29	4.86 1/4	42 1/2	92 1/2
27	4.86 1/4	42 7-16	92 3/4	30	4.87	42 9-16	92 3/4

United States Assay Office at New York reports total receipts of silver for the week 98,000 ounces.

Silver market has been strong and advancing. Council Bills advancement 3/8 on Wednesday's allotment. Owing to easier money market here and Bank of England's rate being raised to 4 per cent. exchange market also jumped up.

Domestic and Foreign Coin.

The following are the latest market quotations for American and other coin:

	Bid.	Asked.
Trade dollars.....	.72	—
Mexican dollars.....	.73 1/4	.73 3/4
Peruvian soles and Chilean pesos.....	.72	.73 1/4
English silver.....	4.85	4.90
Five francs.....	.94	.95
Victoria sovereigns.....	4.85	4.89
Twenty francs.....	3.90	3.95
Spanish marks.....	4.74	4.78
Spanish doubloons.....	15.55	15.75
Spanish 25 pesetas.....	4.80	4.85
Mexican doubloons.....	15.55	15.70
Mexican 20 pesos.....	19.50	19.65
Ten guilders.....	3.96	4.00

Foreign Bank Statements.

The governors of the Bank of England at their weekly meeting advanced its minimum rate for dis

count 1 per cent. to 4 per cent. During the week the bank lost £206,000 sterling bullion, and the proportion of its reserves to its liabilities was reduced from 41.71 to 40.72 per cent., against an advance from 43.47 to 44.17 per cent. in the same week last year, when its rate of discount was 3 per cent. The weekly statement of the Bank of France shows an increase of 4,225,000 francs gold and 13,000 francs silver.

**Copper.**—In opposition to what was generally, if not universally expected, the new arrangement between the producing companies seems not yet to have been actually signed, and it is reported that a serious hitch in the progress of that desired consummation has arisen.

The parties credited with exhibiting this want of harmony are the producers interested in the Arizona output. A meeting to ratify the committee's arrangements was intended to have been held on the 26th inst., but the fact that no such meeting has yet been called clearly indicates that the work of the committee has proved to be much more difficult than was anticipated.

In our last issue we pointed out the advantages, and also the disadvantages, likely to accrue from the projected arrangement. As to the final success of any combination of the kind we are not very sanguine, because the selling prices are fixed at a level calculated to stimulate rather than diminish production, and even if the companies individually profess to unite in the arrangement the profits that can still be made at present prices are so handsome that there will always be a strong temptation to evade the clause which applies to curtailing production.

The opinion seems to gather strength that even if all the companies ultimately sign the compact, disagreements and differences are likely to be matters of frequent occurrence, and these disputes will eventually lead to a complete break-up of the combination.

Under these circumstances the feeling on the part of the general body of consumers continues the same as before the new arrangement was announced, and that feeling is decidedly one of distrust as to the stability of present values, the natural result of which is that orders are only given out to meet actual current necessities.

We still maintain that a reduction of prices to meet the natural conditions of supply and demand would have produced a much healthier market and better results to the producers in the long run than any attempt on their part to sustain an unnatural level of values by means of combination or any other artificial means. For proof of this we can point to the European markets, the activity and generally healthy tone of which are in strong contrast with the prevailing distrust and inactivity in our domestic market.

All reports from Europe agree that consumption is going on at a very satisfactory rate, and all branches of business in which copper is employed appear to be in a thriving condition.

During the past week the London market for Chili bars and G. M. B.'s has continued firm with moderate fluctuations. The closing quotations at the end of last week were spot, £42 17d. 6s. @ £43 and futures £42 2d. 6s. is £42 5s. and the latest cable prices to hand to-day quote spot £43 7s. 6d. @ £43 10s., and 3 months £42 @ £42 2s. 6d., showing a rise of about 10s. for the week on spot. The latest quotations for refined sorts are: English tough, £47 @ £48; best selected, £48 @ £49; strong sheets, £55 @ £56; India sheets, £53 @ £54, and yellow metal, 5½d.; which mark important advances from last week's quotations.

The exports of copper from New York during the past week were as follows:

To	Copper	Lbs	
To Liverpool—			
By S. S. Celtic.....	500 bars	213,919	\$19,000
By S. S. Guido.....	340 bars	146,882	13,000
By S. S. Teutonic.....	335 bars	168,382	15,000
By S. S. Navarro.....	1,959 bars	539,088	51,900
To Rotterdam—			
By S. S. Thetis.....	90 bbls.	112,000	13,500
“ “ “.....	378 pigs	112,956	11,300
“ “ “.....	130 bars	56,085	5,000
“ “ “.....	130 bars	56,072	5,000
“ “ “.....	54 bars	22,524	2,000
To Havre—			
By S. S. La Normandie....	260 bars	87,240	10,000
To Liverpool—			
Copper Matte			
By S. S. Spain.....	5,244 sacks	568,778	25,300
“ “ “.....	161 bbls.	168,575	7,500
By S. S. City of Rome....	160 bbls.	168,324	7,500
“ “ “.....	1,087 bags	111,512	8,000
By S. S. Gaditano.....	4,135 sacks	450,139	20,000
By S. S. Navarro.....	1,438 bags	161,599	7,200
To Hamburg—			
By S. S. Italia.....	2,113 bags	243,487	15,367
To Stettin—			
By S. S. Hecla.....	17 cks	21,250	2,404

**Tin.**—Business is still rather quiet in the tin market, but the scarcity of spot tin continues, and will become more pronounced soon, owing to the interruption of shipments from Europe through the London strikes. It is, therefore, not at all improbable that a great scarcity of the metal will be experienced in the course of next month. Our closing quotations to-day are spot 20.60 September 20.50, October 20.40. The fluctuations in the London market during the past week have not been important and the closing quotations to-day are spot £91 2s. 6d. @ £91 5s. Futures £91 15s. @ £92.

**Lead.**—Demand has been a little better during the past week, but the improvement in this respect has not been sufficient to advance values. Offerings continue light, however. A few hundred tons were sold at 8.85, and at the close of the market to-day nothing

could be bought below 3.90. The European markets remain steady at last week's quotations, viz.: English lead £12 17s. 6d. @ £18; Spanish, £12 12s. 6d. @ £12 15s.

**The St. Louis Market.**—Messrs. John Wahl & Co., telegraph us to-day as follows: Our market has developed no new features and business is dull. Both common and refined are obtainable and in light demand in small quantities at 3.65c.

**The Chicago Market.**—Messrs. Everett & Post telegraph us to-day as follows: There is little change to report since last week, and sales have been very light. The closing prices, 3.70 @ 3.75c. Spot lead is very scarce, and only to be had from second hands.

**Antimony** continues very strong. The demand is good and the metal is exceedingly scarce. We quote to-day: Hallett's at 16½ @ 16¾, Cookson's at 18½ @ 18¾. In London, prices have again been advanced, and Hallett's is now quoted there at £66 10s., with nothing whatever obtainable for either September or October delivery; the earliest delivery now offered being November.

**Spelter.**—The market for this metal evinces a firm tendency, with offerings very light at 5.15 for prime Western brands. The Western markets are decidedly stronger than the New York market, and demand there is very satisfactory at 4.95 @ 5, which, including the freight, is equal to 5.20 @ 5.25 in N. Y. European advices all agree that the market for spelter on that side is in an exceedingly satisfactory condition, from the producers' standpoint, and that a very active demand continues. It is also reported that most of the producers are already entirely sold out for some time to come, while important wants have still to be covered. Altogether, the tone is exceedingly strong, and prices are naturally advancing. The latest London quotations are: Ordinaries £21 10s. @ £21 15s., and specials, £21 15s. @ £22; American sheet zinc, 6½d.

**IRON MARKET REVIEW.**

NEW YORK, Friday Evening, Aug. 30.

**Pig Iron.**—Two weeks ago, after it had become clearly apparent that the activity of the early summer had subsided, in our outline of the situation we stated that the market was unusually evenly balanced, and that the future of prices would be determined by the ability of consumers to hold aloof, and on power of sellers to keep from pressing the market. At the time, we noted that the advantage was in the sellers' favor, and during the fortnight the only essential change that has occurred is that the confidence of sellers has been somewhat increased. It is difficult to say whether consumers have entered the market any more freely. As a rule this appears to have been the case this week, but then again we know of instances in which attempts to sell iron on the spot have met with discouraging results. On the whole, however, it may be said that the inquiry has been rather more liberal and that the tendency is apparently toward a further stiffening in prices. A fair schedule of prices should read as follows: Standard Northern brands, No. 1 Foundry, \$17 @ \$18; No. 2, \$16 @ \$17; Gray Forge, \$15 @ \$15.50. The top figures for the first and second grades are rather exceptional. Southern brands, No. 1 Foundry, \$16.50 @ \$17; No. 2, \$15.50 @ \$16, and \$15 for Gray Forge. The Tennessee Coal, Iron and Railroad Company announce that after September 1st their quotations will be advanced twenty-five cents per ton, making their minimum selling price for No. 1 Foundry Pig \$16 75; No. 1 Soft, \$16 50; No. 2, \$16; No. 3, \$15.50, and Gray Forge, \$15 @ \$15.25.

**Scotch Pig.**—The continuance of high prices in sympathy with the foreign market makes business of a decidedly retail character. The only sale of Summerlee reported is a small lot of about 25 tons. Imports, of course, are only for actual requirements. Prices are quoted as follows: Dalmellington, \$20.25 @ \$20 50; Eglington, \$20; L-nelcan, \$22; Summerlee, \$22.50; Shotts, \$22.25 @ \$22.50; Coltness, \$22 50.

The following are latest cable quotations: Scotch Warrants, 46s. 3d.; Coltness, 60s. 6d.; Langloan, 53s. 6d.; Summerlee, 59s.; Gartsherrie, 59s. all at Glasgow; and Glengarnock, 55s.; Dalmellington, 49s.; Eglington, 47s. 9d., all at Ardrossan. Makers of Ohio "Scotch" brands quote \$19 per ton.

**Pig-iron.**—There has to some extent been a renewal of activity this week in this line. The scarcity of available supplies has further stiffened quotations, and quotations now are high enough to discourage buying, except for pressing necessities. We get quotations from \$20 @ \$22 for 20 per cent., either English or German F. iron-manganese; 80 per cent. is also considerably firmer. This week's asking prices range from \$61 @ \$63. No business of importance can be reported.

**Billets, Slabs and Rods.**—The cost of importation of the foreign products is still so high as to make sales very rare and to divert the demand to American mills, which are already overcrowded with orders, and in some cases have advanced their quotations. American mill slabs are held at \$30, and tank and shell are proportionately higher. For wire rods, Western mills are asking \$42.50, and claim to be full of orders.

**Steel Rails.**—The transactions reported this week aggregate only about 3,000 tons, but inquiries continue plentiful, and the general sentiment of the trade seems to be that when the returns from the crops are received and the financial season is again in full

swing, the inquiry for rails will be sufficiently liberal to warrant higher prices. In the interval, no weakening either in confidence or in price is apparent. It is claimed that most of the mills are behind with their deliveries on old sales, and that they have enough work before them on their books to make them rather independent as to prices, all of which we hope is as accurate as it is satisfactory. Quotations continue at \$28 at Eastern mills, and \$30 at Pittsburg.

**Structural Iron and Steel.**—It is expected that a number of large orders will shortly be placed, and in addition to these there will be some large contracts ready for "capture," it is believed, in the late fall. The plans for the new structure at Madison Square Garden are attracting some attention as are also those for the building to be erected by the New Jersey Central Railroad Co. on West street. Apart from these purely local features, business is generally reported as brisk.

Prices for structural material continue as follows, at mill: Bridge plate, 2.1c.; angles, 2 @ 2.1c.; tees, 2.5 @ 2.6c.; steel angles, 2.5c.; beams and channels, on wharf, 2.8c.

Steel plates are held as follows: Tank and Ship, 2.25; Shell, 2.4 @ 2.5; Flange, 2.8; Fire-Box, 3.50 @ 4.

Iron Plates are quoted as follows on wharf: Common tank, 2.25c.; refined, 2.3 @ 2.4c.; shell, 2.4 @ 2.5c.; flange, 3.5 @ 3.7c.; extra flange, 3¾ @ 4c.

**Bar Iron.**—Trade continues active and prices generally are firm. At mill common is quoted at 1.6c. and refined at 1.7c. Deliveries from store are quoted as follows: Common, 1.9c. base; Refined, 2c. base; "Ulster," 3 @ 3.1c. base; "Norway," 5c. Shapes, and Norway nail rods, 5c.

**Merchant Steel.**—Prices hold their own, which, considering the season, is all that can be expected, and no complaints are heard. We continue to quote: Best English tool steel, 15c net; American tool steel, 7½ @ 10c.; special grades, 13 @ 24c.; crucible machinery steel, 5c.; crucible spring, 3¾c.; Bessemer machinery, 2½ @ 2¾c. Bessemer spring 2½ @ 2¾c. Open hearth standard grades and spring steel range from 2½ to 3c. Tire steel at 2¾c.

**Pipes and Tubes.**—So far as can be ascertained there has been no relaxation of activity, and the opinion prevails that some of the manufacturers will make an effort to have discounts reduced at the September meeting of the Association. Rates of discount on wrought-iron pipe remain as follows: Butt-welded, plain and tarred, 50 per cent. discount; galvanized, 42½ per cent. discount; lap-welded, plain and tarred, 62½ per cent. discount; galvanized, 50 per cent. discount. A discount of 57½ per cent. is allowed on boiler tubes of 2 inches and larger, and 52½ per cent. on 1½ inches and smaller.

Cast-iron pipe remains at \$25.50 @ \$30, according to size.

**Rail Fastenings.**—While a generally free consumption is reported, it is noticeable that competition in some quarters is very close, as an instance of which we learn that 6,000 pairs of fish-plates have been sold at 1.78c. delivered, in the South. Ruling quotations at mill are as follows: Spikes, 1.95c.; angle fish-plates, 1.7c.; bolts and sq. nuts, 2.70 @ 2.75c.; bolts and hex. nuts, 2.9 @ 3c.

**Old Material.**—There is still some uncertainty as to the value of old T-rails. Holders have either withdrawn from the market at present quotations, or else their asking prices are so far above buyers' views that little or no business results. Most, if not all, of the rails on the spot are those in store, which have cost their holders probably \$26, and of course they are not inclined to dispose of them at a loss. We get quotations for those in store at \$25, but it is believed that old rails can be imported for this figure and in any case purchasers at present seem to be unwilling to bid more than \$24. We can learn of no offerings of double-heads, which we may quote nominally about fifty cents or a dollar higher than Tees.

A small sale of No. 1 wrought scrap is reported. Holders are asking \$21.

The freight committee of the Mahoning and Shenango valleys met at Cleveland on the 29th inst., and arranged the iron tariff in conformity with the new basis adopted at Chicago Wednesday, \$2.20 per ton on pig iron from the valleys to Chicago. Rates from the valleys to Cleveland were fixed at 80 cents for pig iron and 4 cents manufactured iron, and to Pittsburg 80 cents pig iron and 5 cents manufactured. From the valleys to Boston the rate September 3 will be 20 cents and 23½ cents car load and less than car load lots manufactured iron and \$4 per ton pig iron. That will make the Cleveland rate on manufactured iron to Boston 21½ and 25 cents car load and less than car load respectively.

The Iron Committee of the Central Traffic Association met at Chicago on the 28th inst., and agreed that, taking effect September 16th, rates on articles of iron and steel between all points in the territory of the association shall be on the basis of fifth class in less than carloads and sixth class in carloads. This is an advance of about 25 per cent., and makes the rates between Buffalo and Chicago 17½ cents a hundred pounds on less than carload shipments, and 15 cents when shipped in carload lots. It was also agreed that the rates on pig iron shall be advanced to the basis of \$2.50 a ton, Pittsburg to Chicago, and \$2.20 from the Mahoning Valley to Chicago, with corresponding advances from other points.

One of the chief topics of conversation in the iron trade has been the attempt of an English syndicate to purchase the entire plant and property of the Thomas



Iron Company, of Lehigh County, Pa., one of the best known iron producers of the country, and one that has had a powerful influence in the Northern market.

President Benjamin G. Clark and directors John T. Knight and Samuel Thomas ask the stockholders of the company for proxies to be used in acting upon the Englishmen's proposition in a circular that reads as follows:

Propositions having been made to the officers of this company looking to the purchase of its real property, buildings, plant and other machinery, it has been thought wise to ask from the stockholders an authority to the directors to enter upon negotiations for such sale and effect the same if satisfactory terms can be secured. The question will be submitted to the stockholders' meeting September 10.

President Clark informs us that when he first received the proposition he attached little importance to it, and named a valuation for the property which he thought would close the matter. He asked in cash \$5,000,000, or the equivalent of \$125 on every fifty dollar share of the company's stock. Those negotiating the purchase are the same parties who recently successfully transferred the property of the Otis Steel Works, of Cleveland, Ohio, to English hands. Their usual terms of purchase have been one-third cash and two-thirds in equal parts of bonds and stock, but President Clark will listen only to a strictly cash proposition. This seems to be the only point at issue at present.

One of the conditions of the trade is that the present managers shall continue with the property for three years. The company was started about thirty-three years ago. It has paid its stockholders about \$3,800,000 in dividends, and increased its capital stock from \$325,000 to \$2,000,000. President Clark says that the profits for the past year compare favorably with those of any of the past ten years, in spite of the fact that the iron market has been depressed and the competition of Southern furnaces has been unusually fierce. This has been made possible by more economical management and consequent lessening of the cost of production. President Clark, although seventy years of age, is full of vigor and energy, and well deserves the enviable reputation he has made for himself and his company.

**Louisville. Aug. 27.**

(Special market report by Hall Brothers & Co.)

Transactions in the local field for the past week have probably been the lightest at any time for several weeks, owing to the fact that there has been comparatively little iron offering, while the trade on the other hand have their wants fully supplied for some time to come. While it may be said the market has been stationary during the period under review, there are no especial features to note in the way of sales. One encouraging feature is the gradual diminishing of stocks in coke irons, though there is plenty of iron to supply the trade wants.

Prices remain the same, which are f.o.b. cars at Louisville as follows:

Hot Blast Foundry Irons.	
Southern Coke No. 1	\$14.75@15.25
" No. 2	14.00@14.50
" No. 3	13.75@14.25
Mahoning Valley, Lake ore mixture	17.50@18.00
Southern Charcoal No. 1	16.50@17.00
" No. 2	16.00@16.50
Missouri " No. 1	17.50@18.00
" No. 2	17.00@17.50
Forge Irons.	
Neutral Coke	13.25@13.75
Cold Short	13.00@13.25
Mottled	12.00@12.25
Car Wheel and Malleable Irons.	
Southern (standard brands)	21.50@22.00
(other brands)	17.50@18.00
Lake Superior	22.00@22.50

**Pittsburg. Aug. 29.**

**Raw Iron**—The market continues in a very healthy condition. Of course there is a falling off in the amount of transactions, still we can report a good business doing, with a strong undercurrent as regards prices. Sellers are not showing any particular anxiety to sell; they have set the figures, and parties who are not disposed to accept them have to go elsewhere or go without. Prices will apparently be higher before there will be any decline, and our reason for this opinion is, most, if not all, the iron now selling was made with dollar coke. That made after this week by parties whose contracts have expired will have to pay \$1.25@1.35 per ton for coke for the present, and in the near future \$1.50 per ton. It takes one and a half tons coke to make a ton of iron, and therefore it does not require much calculation to show how much the cost of a ton of iron will be increased; but this is not all. The railroads have come to the conclusion that the present is a good time to advance the rate of freights, commencing Monday, September 2d. If, under the circumstances named, there is any prospect for cheaper iron we fail to see it.

The furnaces here and at points where large supplies are obtained for consumption here are well sold up, some of them for the balance of the year. Sellers seem to have about all the business they can handle for some time to come, and while present bids are in most cases very much better than prices realized on present deliveries, they may be very much too low by the time deliveries would be called for on the contracts now offered. Cost has already increased nearly in proportion to the advance in selling prices. Consumption is enormous, with no indications of abatement. But rather the reverse, while from Great Britain we learn that prices are advancing daily—the demand greater than at any time during the last twenty-five years.

**Sales. Coal and Coke Smelted Lake Ore.**

3,000 Tons Bessemer September to Feb'y 1	\$ 8.00 cash.
2,000 Tons Bessemer	17.75 cash.
2,000 Tons Gray Forge, October	16.00 cash.
1,500 Tons Bessemer	17.80 cash.
1,000 Tons Bessemer at furnace	16.85 cash.
1,000 Tons Bessemer	17.75 cash.
1,000 Tons Bessemer	17.75 cash.
1,000 Tons Gray Forge	15.50 cash.
1,000 Tons Gray Forge	15.65 cash.
750 Tons Gray Forge	15.00 cash.
500 Tons Gray Forge, October	16.00 cash.
500 Tons Gray Forge	15.50 cash.
Coke, Native Ore.	
150 Tons No. 1 Foundry	16.65 cash.
150 Tons Silvery	16.50 cash.
150 Tons White and Mottled	14.25 cash.
100 Tons Gray Forge	15.00 cash.
100 Tons No. 2 Foundry	16.00 cash.
50 Tons Silvery Extra	19.00 cash.
Muck Bar.	
1,800 Tons Neutral October	28.50 cash.
1,000 Tons Neutral September	28.00 cash.
900 Tons Neutral	28.50 cash.
400 Tons Neutral	28.40 cash.
Steel Wire Rods.	
700 Tons American Fives	42.50 cash.
500 Tons American Fives	43.00 cash.
Ferro-Manganese.	
200 Tons, 80 per cent	62.50 cash.
100 Tons, 80 per cent	62.40 cash.
100 Tons, 80 per cent	62.00 cash.
Bloom Ends.	
800 Tons Bloom Ends	19.00 cash.
500 Tons Bloom Ends	19.50 cash.
Steel Slabs and Billets.	
1,500 Tons Billets and Slabs	29.25 cash.
500 Tons Nail Slabs	29.25 cash.
500 Tons Nail Slabs	29.50 cash.
300 Tons Billets	29.15 cash.
Skelp Iron.	
1,200 Tons Sheared, per 100 lbs	2.25 4 mo.
750 Tons Wide Grooved, per 100 lbs	1.90 4 mo.
700 Tons Narrow Grooved, per 100 lbs	1.80 4 mo.
Old Iron and Steel Rails.	
1,500 Tons American Ts.	25.00 cash.
400 Tons Long Steel Rails	20.50 cash.
400 Tons American Ts.	24.87½ cash.

**Prices.**

<b>Coke or Bituminous Pig—</b>	Muck-Bar	28.00@28.50
Foundry No. 1	28.00@28.50	
Foundry No. 2	29.00@29.50	
Gray F. No. 3	18.50@19.00	
No. 4	19.00@19.50	
White	62.00@63.00	
Mottled	28.50@29.00	
Silvery	24.75@25.00	
Bessemer	18.00@20.00	
Low Phos.	19.00@20.00	
<b>Charcoal Pig—</b>	No. 1 W. Scrap	17.50@18.00
Foundry No. 1	No. 2 W. Scrap	28.50@29.00
Foundry No. 2	light sec.	29.00@32.00
Cold-Blast	Bar Iron, nom.	1.70@1.80
Warm-Blast	Iron Nails	@ 1.90
10 + 12½ Speigel	Steel Nails	@ 1.90
20½ Speigel	Wire Nails	2.15@ 2.20
		36.00

**Philadelphia. Aug. 30.**

[From our Special Correspondent.]

**Pig Iron**—Doubts as to the probability of an advance in desirable grades of pig iron are beginning to be dispelled by certain small happenings, among which are the quiet placing of large orders by a few large consumers, especially of forge irons. Another significant fact is that a great many inquiries have been made during the past few days and some of them from consumers who already are well supplied. Brokers interested in sellers are talking of the strong probability of \$16 forge. A few days will probably settle things. Furnace representatives could sell much more now than they are selling if they would shade a little. Forge quotations are \$15@15.50; No. 2, \$16@17; No. 1, \$17.50@18.

**Blooms**—A further advance took place on Monday and nail slabs are now held at \$30. Some makers name a higher figure. Tank slabs are held at \$33. Shell slabs at \$34 to \$35. Flange at \$37.50 to \$39. For blooms there is not a decided quotable change. Charcoal are \$52@53, anthracite \$43 and scrap \$33.

**Muck Bars**—Some makers have refused to book orders this week at less than \$30, some \$30.50, yet business can be and has been done away below these figures.

**Merchant Bars**—Manufacturers think that before September passes 2c. rates for small lots will be paid. So far business has averaged 1'80@1'90. Some mills are taking large orders at less. Common and medium run from 1'65@1'75.

**Nails**—Car lots are moving at \$1.80@1.85.

**Skelp**—Grooved is supposed to buy 1'90, and some business, it is claimed, has been done at that figure. Sheared has advanced fully a tenth, and buyers are hurrying in, but there are some exceptions.

**Wrought Iron Pipe**—The very satisfactory market condition continues.

**Sheet Iron**—Most of the larger buyers have placed their heavy orders. There is an appearance of less activity, but work at mills is heavy. Store sales are large, and stocks light, full card rates.

**Plate and Tank Iron**—Notwithstanding the rush of business, mills are not getting top prices in all cases. Manufacturers do not like to miss an exceptionally large order, but for the ordinary run of business quotations are 2'15@2'20c.; universal plates, 2'25c.; shell, 2'40@2'50c.

**Structural Iron**—Heavy orders were booked this week for bridge plate at 2'12½@2'15c.; angles are 2'10@2'20c.; tees, 2'60c.; beams and channels, 2'80c. **Steel Rails**—Quotations, \$28@28.50. More inquiries are arriving and some big business is assured

for September, but outsiders claim that some of it will go in at \$27.50.

**Old Rails**—Sales at \$24.50. Buyers are numerous enough, but the rails are not to be had.

**Scrap**—All the agents are doing a good business. Car lots are \$21@22 L.50; choice lots, \$22@22.50.

**CHEMICALS AND MINERALS.**

New York, Friday Evening, August 30

**Heavy Chemicals**—The market for heavy chemicals, for a reason which is alike satisfactory and important, viz., a notable increase in consumption, is in a decidedly better condition. Prices are pretty firmly maintained and at present show a tendency toward higher figures. Of course, this feeling has been encouraged to some extent by the belief that the combination of English makers will shortly be effected, and if this falls through there may be a reaction, but consumption appears to have sufficiently increased to warrant increased confidence.

The one exception that can be taken to the above is in regard to bleaching powder, which has been depressed since the opening of the year and in light demand. In this case we fear that makers must attribute the depression to some other cause than the general inactivity of this line of material. We will not hazard the statement that bleaching powder has apparently seen its best days, and that its consumption is destined to decrease; but it is a fact, as we have before stated, that the larger use of wood pulp in the manufacture of paper and the introduction of various electrolytic processes of bleaching, or partial bleaching, have in many quarters lessened the use of the English article.

No definite news has yet been received concerning the progress of the efforts to effect a combination in Liverpool despite the fact that letters bearing date of the 21st inst. are at hand. We are advised, however, that, with the exception of one maker, all have agreed to the plan proposed, and there is a probability that this one obstinate maker will eventually fall into line. Brunner, Mond & Co. are also not formally included, but they are making neither caustic soda nor bleach now, and at any rate are understood to be in favor of combination.

Prices this week are firmer but not notably changed.

**Acids**—Instead of the contraction of the volume of business, which is often caused by an advance in prices, trade in acids seems to improve at the schedule rates. The advance was not too great, and consumers, as a rule, appear to be willing to stand it. For two or three years past the market has been exceedingly demoralized; no buyer knew when he reached bottom prices, and consequently it must be a satisfaction even to purchasers to know that they can find a solid "combination" bottom which is at least fairly secure.

Present prices are fairly profitable to the manufacturer, but we do not believe they are sufficiently high to induce any enlargement of plant, over-production or outside competition, and the members of the combination, when the subject of prices is next discussed, will be wise to "leave well enough alone."

At the meeting of the manufacturers on Wednesday next, September 4th, at about noon, a full attendance is requested and expected. The report of the Committee on Permanent Organization will probably be presented, and a protracted meeting is looked for.

Prices for nitric, muriatic and sulphuric acids, oil of vitriol and aqua fortis remain as per schedule. Acetic acid is nominally \$1.87½@2.00 per 100 pounds, and oxalic continues at \$9.50@10.50 per 100 pounds.

**Fertilizing Chemicals**—Business in crude fertilizing materials continues rather quiet as it has been for some weeks past, but it is believed that manufacturers are, and have been, buying in a quiet way about all the crude supplies that they will want until they are assured of a free consumption of fertilizers by the farming community this fall. These purchases of crude material have not been large, because in view of the uncertainty as to the condition of the crops manufacturers have been careful not to "overload." This fact, however, affords the consolation that they may yet be considered as buyers and possibly within a few weeks may be obliged to replenish their supplies. Most of the information at hand is to the effect that the crops in this vicinity will not prove as good as might be desired on account of the excessive rains, the New England potato crop being particularly unfortunate.

In the South, however, according to the senior partner of a well-known New York commission house who has recently returned thence, the outlook is more encouraging. As yet, however, all news must be more or less indefinite. Prices according to the latest quotations, stand as follows: Azotine, \$2.30; dried blood (city), low grade, \$2.25@2.30 per unit; Western high grade, \$2.35@2.37½ per unit for ground material; tankage, high grade, \$24@25 per ton; low grade, \$22@23 per ton, as to quality. Fish scrap, \$33 per ton, f.o.b. factory. Sulphate of ammonia at \$3.05 per cwt. Refuse bone-black, guaranteed 70 per cent. phosphate, \$20@20.50 per ton. Dissolved bone-black is 92½c. @ \$1 per unit for available phosphoric acid, and acid phosphate 80c. per unit for available phosphoric acid. Steam-d bones, unground, \$20.00@23.50; ground, \$26.00@27.00.

Charleston rock, undried, \$5.50 per ton; kiln dried, \$6.75 @ \$7 per ton, both f.o.b. vessels at the mines. Charleston rock, ground, \$11, ex-steamer at New York. Those in this city well posted on the phosphate rock industry are disposed to attach little importance to the statements that capitalists are succeeding in securing the control of the Charleston deposits. These

attempts have been made from time to time, but always unsuccessfully, and now that the market is better, and prices are higher than for some years past, it is not to be supposed that the owners of the deposits will be any more disposed to sell than heretofore, especially as they are now making more money.

It is claimed that the recent advance in the price of kiln or hot-air dried Charleston rock at the mines was due solely to legitimate causes—to a largely increased consumptive demand and a consequent scarcity of supply. Production has been fully as large as last year, but general consumption has very greatly increased. Prices are now considerably above the figures of minimum selling prices established by the Charleston Exchange.

Muriate of Potash.—No further accumulation in spot supplies is noticeable, but the demand continues light. We continue the official quotation, \$1.80 per 100 pounds, basis 80 per cent.

Double manure salt, basis 48 per cent., is held at \$1.20 per 100 pounds on the spot, and \$1.15 for futures. High grade manure salt, basis 90 per cent. potash, is quoted on the spot at \$2.32 1/2 per 100 pounds. The syndicate price for futures is \$2.50.

Kainit.—No particular animation can be recorded. There are about 200 tons on the spot, which are offered at syndicate prices. Official quotations remain at \$10 per ton actual weight, and \$9.75 foreign invoice weight.

Miscellaneous.—Brimstone is dull. Inquiries from consumers are neither large nor frequent, and in the present state of the market there is apparently little inducement to speculation. Advances from Sicily show that during July the shipments from Messina to New York consisted of one cargo of 1,000 tons seconds and three cargoes of thirds, 500, 1,500 and 200 tons respectively. Shipments from Licata consisted of the steamer Pocasset with 1,524 tons seconds and 500 tons thirds, and steamer Suez, with 1,100 tons seconds and 700 tons thirds. We continue to quote \$19.50 per ton for best unmixed seconds on the spot, and \$19 for thirds.

Nitrate of soda is still at \$1.85, but holders are hoping that the supply will eventually become sufficiently decreased to warrant higher prices. The ship "Wm. McGilvery," of Searsport, Me., is reported as having been burned at sea on a voyage from Pisagua, June 30th, for New York, with 1,700 tons of nitrate of soda for Hemenway & Brown, of Boston. The "McGil-

very" was a first-class ship of 1,270 tons, owned by J. C. Nichols and others, of Searsport, and was valued at \$30,000. There was an insurance of \$5,500 on the vessel and \$4,800 on cargo.

NOTES OF THE WEEK.

Mr. Heller, of Heller, Hirsh & Co., has returned from an extended Southern trip.

President Chas. V. Mapes, of the New York Fertilizer and Chemical Exchange, is expected back from Europe next week. Another meeting of the Exchange is then looked for.

Appropos of the recent fertilizer legislation in Georgia, it is said that the "honest farmer" is the greatest rascal alive.

Chlorate of potash dealers will be interested to learn that advices from Stassfurt state that the Vereinigten Chemischen Fabriken zu Leopoldshall, Actiengesellschaft, have discharged in the first half year of 1889 165,708 ctrs. chlorate of potash, against 162,647 ctrs. in the similar period of 1888.

The following are the directors and officers of the New York Fertilizer and Chemical Exchange: Charles V. Mapes, President; John Kehoe, of New York, William H. Bowker, of Boston, Emil A. Becker, of Boston, Vice-Presidents; Frederick W. White, Secretary; George B. Forrester, Treasurer; H. J. Braker, Adolph Hirsh, John T. Williams. The committees appointed by the Board of Directors stand as follows: Executive Committee, John Kehoe, Chairman; George B. Forrester, John T. Williams. Committee on Legislation, Geo. B. Forrester, Chairman; William H. Bowker, H. J. Braker, Cord Meyer, Jr., Emil A. Becker. Committee on Analyses and "Valuations," John T. Williams, Chairman; Geo. B. Forrester, H. J. Braker. Advisory Committee on Trade Rules, Adolph Hirsh, Chairman; Geo. B. Forrester, John T. Williams, Frederick W. White, Arthur L. Sardy. Committee on Arbitration, Geo. B. Forrester, Chairman; A. S. Malcolmson, John Kehoe. Alternates on Arbitration Committee, Frederick W. White, Ed. V. Z. Lane, H. J. Braker. Meetings of the Exchange are held at 158 Frontstreet, subject to the call of the president.

The chief topic of interest in the fertilizer trade at present is the legislation which has been under consideration in the Georgia State Legislature for some time past. The lower House of the State Legislature has passed a bill introduced by Col. Wright

Brady, which provides "that the purchaser of commercial fertilizers, guanos, or manures who shall give a promissory note or other instrument in writing for the same, may plead and prove, when sued in any court of the State, a failure of consideration when said fertilizers, guanos, or manures have proven worthless or of no value." Fertilizers are usually sold to the farming community on a year's time, and the promissory notes above referred to are consequently drawn for this period. In substance, therefore, it will be seen that the bill virtually allows any purchaser of fertilizers at the end of a year, if his crops have not been successful, to refuse payment for the fertilizer bought twelve months before. This is obviously unjust. Crops may fail owing to drought, excessive rain, poor seed and innumerable other causes, and this failure may, under the Brady bill, be directly charged to the inefficiency of the fertilizer. No one who knows the Southern agricultural community will doubt that this advantage will be promptly seized by many users of fertilizers, and the manufacturer of the latter who does business "on time" will stand very little chance of ever getting paid for his goods. Fertilizer manufacturers realize this, and if the bill becomes a law we understand that they will thereafter refuse to make sales in Georgia except strictly for cash. And as the farmers are unable to pay cash in all instances, many of them may be compelled to do without fertilizers altogether, which, in Georgia particularly, is almost fatal. It must, therefore, be apparent that the real effect of this measure, if it passes the Senate and Governor, will be simply to embarrass the farmer and to check the sale of fertilizers in the State. We do not believe that it was prepared by one familiar with the true interests of the farmer.

Another measure of the same sort, although less unjust, is the so-called Sanford bill, introduced in the Senate of the same State, which provides that on the demand of the purchaser of any commercial fertilizer, a fair sample of the same, securely sealed in a glass bottle, shall be deposited in the office of the clerk of the county in which the purchaser resides, or in which the fertilizer is delivered, and that such sample shall be analyzed by the chemist of the State Agricultural Bureau, and the analysis shall be received in the courts as evidence should a purchaser claim that the commodity has been found worthless. No consideration has evidently been given to the fact that during the time the sample is on

IMPORTS AND EXPORTS OF METALS AT NEW YORK AUGUST 17 TO AUGUST 24, 1889, AND FROM JANUARY 1.

Table with multiple columns listing metal types (Spelter, Nickel, Pig Lead, Tin, Pig Iron, Steel Sheets, etc.), quantities, and prices. Includes sub-sections for Sheet Zinc, Sheet Iron, Old Rails, Scrap Iron, and Charcoal Iron.

STOCK MARKET QUOTATIONS.

Table with columns: COMPANY, Bid, Asked. Includes entries for Atlantic Coal, Balt. & N. C., Big Vein Coal, Conrad Hill, Cons. Coal, Diamond Tunnel, George's Crk. C, North State (Balt.), Silvr Va ley.

Prices bid and asked during the week ending Aug. 29th, 1889.

Birmingham, Ala.

Table with columns: COMPANY, Bid, Asked. Includes entries for Ala. R. Mill Co., Ala. Con. C. & C. Co., Alice Furnace, Anna Howe G. Mg. Co., Bess. Land Co., Bir. Fur. & Mg., Bir. Mg. & M. g., Broken Arrow, De Bardeleben C. & I. Co., Decat. L. Imp., Decatur Min. L., Enterprise Mg., Eureka, Hen. S. & M. Co., Jagger Towley C. & C., Mag. Ellen, Mary Pratt, Sloss I. & S., Sloss I. & S., Tuscaloosa C., L. & L. Co., Tenn. C. & I. Co., Williamson, Woodstock I. Co.

Prices bid and asked during week ending Aug. 27th. Bonds: † First mortgage, †† Second mortgage.

Kansas City, Aug. 25.

Table with columns: COMPANY, Par value, Bid, Asked. Includes entries for Burch, L. & Z., Mo., Ida Hill, S., N. Mex., K. C. Colo., Kentucky, Z. Mo., La Motte, Mo., Maverick, S. Colo., Minnequa Zinc, Sonora, G. & S., Mex., Standard, S. S., Colo., Templar, N. Mex., Webb City, L. Z., Mo., Wichita, L. Z., Kan., Granite.

Pittsburg, Pa.

Table with columns: COMPANY, H, L, Closing. Includes entries for Allegheny Gas Co., Bridgewater Gas Co., Chartiers Val. Gas, Consolidated Gas Co., Forest Oil Co., La Noria Mining, Manufact. Gas Co., Nat. Gas Co. of W. Va., Ohio Valley Gas, Pennsylvania Gas, People's Nat. Gas Co., Philadelphia Co., Pittsburgh Gas, Silvertown Mg. Co., South Side Gas, Tuna Oil, Washington, W. house A. B. Co., W. house E. Light, Wheeling Gas, Sales during the week ending Aug. 22, La Noria, Philadelphia.

St. Louis, Aug. 28.

Table with columns: COMPANY, Bid, Asked. Includes entries for Adams, Colo., American & Nettie, Anderson, Mont., Arizona, Aztec, N. Mex., Bi-Metallic, Mont., Black Oak, Cal., Black Spar, Buckskin, Cariboo, Idaho, Central Silver, Cleveland, Colo., Cleveland, Idaho, Concepcion, Mex., Dinero, Colo., Golden Era, Mont., Golden King, Golden West, Gold Run, Granite Mountain, Mont., Hope, Mont., Ingram, Iron Clad, N. M., Ivanhoe, Colo., I. X. L. Colo., Jumbo, Colo., Keystone, La Union, Little Giant, Major Budd, Mont., Mexican Imp., Mex., Montrose Placer, Mountain Key, Mountain Lion.

Table with columns: Neath, Colo., Old Colony, Pat. Murphy, Colo., Phillips, Colo., Pine Grove, Idaho, Queen of the West, Idaho, Raspberry, Mont., Rena, Rosalis, San Francisco, Mont., San Pedro, Silver Age, Colo., Silver Bell, Tourtelotte, Colo., West Granite, Mont., Wire Patch, Yuma, Ariz.

Auction Sales of Stocks, Aug. 30.

The following securities were sold at public auction in New York this week: 1,000 shares Central American Reduction Company, 5c. per share; 1,000 shares Monserrat Mining Company, 5c. per share.

Electric Stocks, Aug. 30.

Table with columns: Stocks, Par value, Market price. Includes entries for Brush, Illuminating, Daft, Consolidated, Edison, Illuminating, Julien, Traction, United States, Westinghouse, Thomson-Houston, Thomson-Hous. Welding Co.

Trust Stocks, Aug. 30.

The following closing quotations are reported to-day by C. I. Hudson & Co., members New York Stock Exchange: American Cotton Oil Certificate, Cattle Trust, Distillers' & Cattle Feeders' Certificates, Lined Oil Certificates, National Lead, Natural Gas, Standard Oil, Sugar Refineries Certificates.

Foreign Quotations, London, Aug. 17.

Table with columns: COMPANY, Highest, Lowest. Includes entries for Alituras Gold, Arizona Copper, Callao Bis, Venez., Carlisle, N. Mex., Colorado United, Columbian, S. A., Comstock, Utah, Cons. Esmeralda, Nev., Denver Gold, Colo., Dickens Custer, Idaho, Eberhardt, Nev., El Callao, Venezuela, Elmore, Idaho, Empire, Mont., Flagstaff, Utah, Gambley Freehold, N.C., Hex, Cal., Jay Hawk, Mont., Josephine, Cal., Kohinoor, Colo., Mason & Barry, Port., Montana Lt., Mont., New California, Colo., New Consolidated, New Emma, S. Utah, New Hoover Hill, N. C., New La Plata, Colo., Old Lout, Colo., Pittsburg Cons., Nev., Quebrada, Venezuela, Richmond Con., Nev., Ruby & Dunderberg, Nev., Russell Gold, N. C., Sierra Buttes, Cal., Stanly, N. C., United Mexican, Mex., U. S. Placer, Colo., Viola Lt., Idaho.

Paris, Aug. 15.

Table with columns: Belmez, Spain, Boleo, Mex, Callao Bis, Venez., East Oregon, Ore., Forest Hill Divide, Cal., Golden River, Cal., Lexington, Mont., parts, Ouray, Colo., Rio Tinto, Spain, Tharsis, Spain.

CURRENT PRICES.

These quotations are for wholesale lots in New York.

CHEMICALS AND MINERALS.

Table with columns: Acid-acetic, Muriatic, Nitric, Oxalic, Sulphuric, Alkali-36 p. c., Alum-Lump, Aqua Ammonia, Arsenic-White, Asbestos-Am., Asphaltum, Barites-Sulph., Bleach, Borax, Brimstone, Bromine, Chalk, China Clay, Chrome Yellow, Cobalt-Oxide, Copper-Sulph., Gypsum-Calcined, Iodine-Resublimed, Kaolin, Lead, Lime Acetate, Litharge, Magnesite, Manganese-Crude, Mercuric-Chloride, Mineral Wool, Mica, Ochre-Yellow, Potassium, Potassium-Cyanide, Potassium-Bromide, Potassium-Chlorate, Potassium-Iodide, Potassium-Nitrate, Potassium-Nitrate, refined, Potassium-Bichromate, Sulphate, Yellow Prussiate, Red Prussiate, Pumice Stone, Pyrites, Quartz-Ground, Selenite Stone, Salt-Liverpool, Salt-Turk's Island, Salt-Cake, Saltpeter-Crude, refined.

Soda Ash-Carb., Caustic, Soda Caustic, Sal, English, Sal, American, Nitrate, Strontium-Nitrate, Sulphur-Roll, Flour, Crude Brimstone, Crude Brimstone, 3ds., Tale-Ground French, Domestic, c. i. f. Liverpool, Vermillion-American, English, Vitriol-Blue, Ordinary, Extra, Zinc Oxide-Am., Dry, Antwerp, Red Seal, Paris, Red Seal, Spot.

Table with columns: Soda Ash-Carb., Caustic, Soda Caustic, Sal, English, Sal, American, Nitrate, Strontium-Nitrate, Sulphur-Roll, Flour, Crude Brimstone, Crude Brimstone, 3ds., Tale-Ground French, Domestic, c. i. f. Liverpool, Vermillion-American, English, Vitriol-Blue, Ordinary, Extra, Zinc Oxide-Am., Dry, Antwerp, Red Seal, Paris, Red Seal, Spot.

THE RARE METALS.

Table with columns: Aluminum, Arsenic-Metallic, Barium, Bismuth, Cadmium, Calcium, Cerium, Chromium, Cobalt, Didymium, Erbium, Gallium, Germanium, Iridium, Lanthanum, Lithium, Magnesium, Manganese-Metallic, Molybdenum, Niobium, Osmium, Palladium, Platinum, Potassium, Rhodium, Ruthenium, Selenium, Sodium, Strontium, Tantalum, Tellurium, Thallium, Titanium, Thorium, Tungsten, Vanadium, Yttrium, Zirconium.

BUILDING MATERIAL.

Table with columns: Bricks-Pale, Jerseys, Up Rivers, Haystraw seconds, Haystraw firsts, Fronts, nominal, Croton, Wilmington, Philadelphia, Trenton, Building Stone-Amberst, freestone, Brownstone, Granite, rough, Granite, Scotch, Cement-Rosendale, Portland, American, Portland, foreign, Portland, special brands, Roman, Keene's coarse, Keene's fine, Slate-Purple and green roofing, Red roofing, Black roofing, Lime-Rockland, Rockland, finishing, St. John, com. and finish, Glens Falls, com. and fin., Labor-Ordinary, Masons, plasterers, carpenters, plumbers, painters, stone-setters, tilelayers, bricklayers.

THE ENGINEERING AND MINING JOURNAL will thank any one who will indicate any other articles which might with advantage be quoted in these tables or who will correct any errors which may be found in these quotations.

DIVIDEND-PAYING MINES.

NON-DIVIDEND-PAYING MINES.

Main table with columns: NAME AND LOCATION OF COMPANY, CAPITAL STOCK, SHARES, ASSESSMENTS, DIVIDENDS, and NON-DIVIDEND-PAYING MINES. Includes entries for Adams, A., Almas Cons., Alturas, etc.

Gold, Silver, Lead, Copper. Non-assessable. This company, as the Western, up to Dec. 10th, 1881, paid \$1,400,000. Non-assessable for three years. The Deadwood previously paid \$75,000 in eleven dividends, and the Terra \$75,000. Previous to the consolidation in Aug., 1881, the California had paid \$31,330,000 in dividends, and the Con. Virginia, \$250,000. Previous to the consolidation of the Copper King with the Atlanta, Aug., 1885, the Copper King had paid \$1,350,000 in dividends. \$1,500,000.

NEW YORK MINING STOCKS QUOTATIONS.

DIVIDEND-PAYING MINES.

NON-DIVIDEND-PAYING MINES.

Main table of New York Mining Stocks Quotations, divided into Dividend-paying and Non-dividend-paying mines. Columns include Name and Location of Company, dates from Aug 24 to Aug 30, and Sales figures.

\*Ex. dividend. †Dealt in at the New York Stock Ex. Unlisted securities ‡Assessment unpaid. Dividend shares sold, 29,471. Non-dividend shares sold, 31,710. Total New York, 61,181.

BOSTON MINING STOCK QUOTATIONS.

Table of Boston Mining Stock Quotations, listing company names and prices from August 23 to August 29, 1889.

Boston: Dividend shares sold, 2,718. Non-dividend shares sold, 2,000. Total Boston, 4,718.

COAL STOCKS.

Table of Coal Stocks, listing company names and prices from August 24 to August 30, 1889.

\*Sale on August 23d. †Of the sales of this stock, 25,300 were in Philadelphia, and 87,570 in New York. Total sales, 212,870.

San Francisco Mining Stock Quotations.

Table of San Francisco Mining Stock Quotations, including a sub-section for Closing Quotations from August 23 to August 29, 1889.

deposit, owing to chemical or atmospheric causes, a material change in its composition may result. The only fair analysis is the one taken when the fertilizer is delivered, just before it is applied to the soil. Moreover, all the necessary analyses can be obtained from the State Agricultural Experiment stations, which were established for this very purpose, and it is therefore clear that the provisions of this Sanford bill are not only entirely unnecessary, but reveal either an ignorance of the true situation or else a demagogic attempt to capture the votes of the "honest farmer."

**Destruction of Property at Barren Island.**—The high tides which have prevailed along the Atlantic coast during the past week have caused sad havoc at Barren Island. On Tuesday morning a large slice of the most easterly point of the island was carried away, taking with it valuable buildings, machinery and stock. The Barren Island Oil and Guano Company occupy several acres of land for their manufactories and large buildings filled with valuable machinery. About five o'clock on Tuesday morning an unusual heavy sea broke upon the island. A large dock and a frame building 100 x 150 were wrecked, several hydraulic presses, a forty horse power engine, sixteen tanks full of fish oil and forty carboys of acid were carried away, and they are now lying in water forty feet deep. Judge Andy White's factories adjoining the Barren Island Company's works were damaged, and some small buildings, machinery and stock were swept away. The total damage is estimated at \$25,000.

London. Aug. 16.

(Special report by Messrs. Cooper, Millar & Co.)

We have to report a continuance of the firmness of prices of all raw materials and a somewhat larger volume of business than is usual at this time of year.

**Mineral Phosphates.**—Although shipments of Canadian have been coming forward with fair regularity, there still remains a large quantity to be shipped, and the rise in price is counterbalanced by the increased rates of freight; 80 per cent. is quoted 12½d. @ 12¼d., according to port, and 70 per cent. finds a ready market at 10½d., both with one-fifth rise. South Carolina is quoted 10½d., but even at this figure the raisers do better by selling to U. S. A., where the increase in the consumption of super-phosphates is still going on. Very few fresh sales are reported in the high grades of Somme phosphate, and prices show signs of rising still further when the autumn season sets in. There is a good demand for 50, 55 and 60 per cent. qualities. Belgian 40 to 45 and 45 to 50 per cent. we can offer at the usual prices, both for this year and next.

**Bone Ash, Bones and Meal.**—There is a demand for bone ash, but very little offering, and as buyers are not yet prepared to pay the price asked we have no business to report. Sales of bones include River Plate at £4 5s. to £4 8s. 9d., and a cargo of Rosario, price of which has not transpired. Indian bone meal is firm at £5 2s. 6d. to £5 5s. ex ship, but little or no business doing at present.

Nitrate of soda is quoted at 8s. 31. spot ordinary, and 8s. 9d. per cwt. for refined.

Sulphate of Ammonia.—A fair business is being done at £12 to £12 2s. 6d.

Ammoniacal materials continue to be inquired for, and good prices are being paid for the better qualities of fish guano, ground hoofs and horns, and dried blood; the latter article is quoted at 11s. 9d. to 12s. per unit, with very little offering.

Muriate of Potash.—We quote at £7 4s. on 80 per cent., and Kainit at 27s. in bags, and 23s. 6d. in bulk, f. o. b. Hamburg. Net cash. Stassfurt weights and sampling.

Liverpool. Aug. 21.

(Special report by Messrs. J. P. Brunner & Co.)

**Chemicals.**—There is a better tone in chemicals all round, buyers now showing more disposition to take hold.

Soda ash is in good request, and a considerable business done in 48 per cent. caustic ash on private terms. We quote: Caustic ash, 48 per cent., 1½d. to 1¾d.; high test, 1¾d. to 1¾d. Carb. ash, 48 per cent., 1¾d. to 1¾d.; high test, 1¾d. to 1¾d. Soda crystals continue steady at £2 10s., and in some cases makers hold for 2s. 6d. more money. Caustic soda is in small compass and firmly held. Sixty per cent. has been selling at £5 17s. 6d. to £6, but not easy to buy at under the higher figure; 70 per cent. is dearer, at £6 17s. 6d. to £7, and few sellers at under the latter quotation; 74 per cent., very scarce, and £7 10s. nearest value; 76 per cent., £8 to £8 5s., and some small sales reported at the higher figure.

Bleaching powder has improved, and for American orders £7 has been paid, while there is little to be had even at this figure for prompt delivery. Chlorate of potash is quiet, and prices irregular, ranging from 4½d. to 5d. according to position of sellers. Bicarb soda steady at £4 12d. 6s. to £4 15s. per ton, for one cwt. kegs, according to brand and quantity, with usual allowances for larger packages. Sulphate of ammonia firm at £12 per ton, for good grey 24 per cent. f. o. b. here."

**BUILDING MATERIAL MARKET.**

New York, Friday Evening, Aug. 30.

**Bricks.**—Supply and demand have been quite evenly balanced this week, and no definite advantage in the matter of price has resulted to either buyers or sellers. Best quality Haverstraw brick are quoted at \$6.25, and probably some of exceptional quality has been disposed of at this figure, but the bulk of the business has been at from \$5.50 to \$6 per M. For Fish-kill, we get quotations of \$5.50@5.87½, and for up-

river, \$5@5.75. Jerseys are held at from \$4 50@ \$5.25, and Pale are unchanged at \$3.25@3.75. Not so much "washed" brick as was expected has appeared on the market, but there must be a considerable accumulation at the yards. We notice that there has been quite an inquiry for the "washed" article this week from those who are searching for cheap brick, and when some of it gets to market there will probably be little difficulty in finding an outlet for it at from 50 to 25 cents less than the current quotations for smooth brick.

**Lime.**—Despite the fact that the receipts of Rockland lime at this port during the month of August have been unusually large, the market has not been perceptibly depressed, nor has there been any apparent sluggishness of movement due to the over-supply. To a great extent this must be attributed to the judicious handling of arrivals in this market. All sales of the lime of members of the Knox County Lime Association are made in New York through three firms only. Between these sellers, there is no apparent friction, and Association rates are more easily maintained than would be possible under other circumstances.

"State" or Glens Falls lime is handled in much the same manner. The six companies of the producing district, four at Glens Falls, one at Bald Mountain, and another at Smith's Basin, make all their New York sales through one agent, the Jointa Lime Company, and the arrangement is said to be extremely satisfactory.

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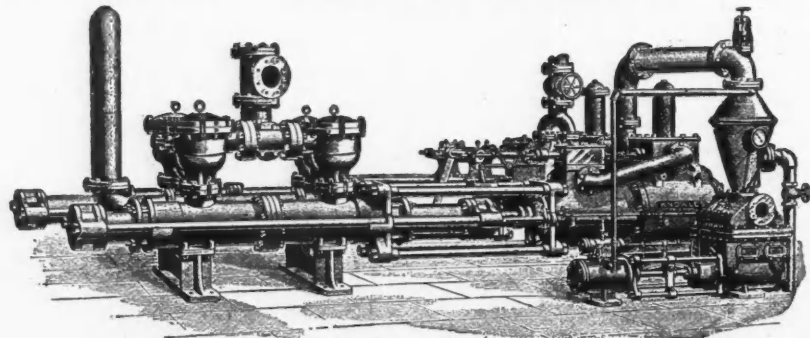
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