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On another page, will be found a brief description of MARCHESE'S process for the electrolytic extraction of copper from copper mattes, as practiced at the Stolberg lead-works. This process presents some very interesting and economical features that will undoubtedly attract the attention of our metallurgists.

By a fire at No. 63 Broadway a few days ago, Messrs. C. A. STETEFELDT and CHARLES M. ROLKER, mining engineers, had the misfortune to have their books, drawings, etc., greatly injured, though they were spared the irreparable loss of total destruction. Their temporary addresses are, at present, C. A. STETEFELDT, care of S. R. KROM, No. 93 Washington street; and C. M. ROLKER, care of HENRY ROLKER, No. 25 Beaver street, New York.

On another page, will be found a letter giving, in answer to one of our correspondents, a form of mine lease, as in use in Colorado. There is no

uniformity in the practice in different districts, nor even in the different mines of the same district; and as much litigation is caused by the ambiguous forms in use, and as there is a general request for further light upon this important subject, we hope our readers who may have forms differing from that given by Major FULTON will send copies to us.

THE death, on the 6th inst., of Lieut. HENRY H. GORRINGE is announced. Lieutenant GORRINGE'S name is familiar to our readers as that of the officer who brought over and erected the Egyptian obelisk in Central Park, New York, in 1880, and who has since been connected with the several engineering enterprises, among others the establishment of ship-building works, at Port Richmond, Philadelphia. Lieutenant GORRINGE served with great distinction through the civil war, and was in the navy for twenty-one years, more than twelve of which were in sea service.

THE great strike of the Calumet & Hecla copper-bearing bed in the Tamarack shaft is fully as good as we stated last week in our copper report. The ore will average 4@4½ per cent, as in the Calumet workings, which are only 300 or 400 feet distant from the new shaft. Its effect is already apparent in the value of the Tamarack Company's stock, which now stands at \$60, on \$13 paid up. The company has a capital of \$1,000,000, in shares of \$25 each. The property of the company consists of 1280 acres of land, presumably all underlain by the copper-bearing bed, of which the first important one is the Calumet bed, 9 feet in thickness. This is found at a depth of 2270 feet, and it is proposed to continue the shaft 600 feet farther, to cut the Osceola amygdaloid bed, cutting some other workable beds between these. About 80 acres of the bed can be worked without a slope from the new shaft; but another shaft, probably at least 5000 feet in depth, will probably be sunk to the dip. In this district, no material increase in temperature has been found with depth. Such a shaft can probably be sunk now at the rate of nearly 100 feet a month! Levels can be driven at 100 feet a month. The present shaft, 2270 feet deep, 20 feet by 8 feet in section, is provided with two hoistways and a pump-ladder compartment, and with engines said to be capable of hoisting four-ton cars at a speed approaching 1800 feet a minute. The cost of the shaft-sinking has been about \$140,000, or less than \$62 a foot, and that of the machinery about \$50,000. This property will before long have to be counted in as an important factor in the copper market. That it will ever equal in output the famous Calumet & Hecla is improbable, but by no means impossible. The mere shadow of this possibility of a new spring of 7 or 8 per cent copper is enough to cause a flutter among the producers who are struggling to exist at 10 cents.

COAL AND IRON ORE ROYALTIES.

The extremely low price of iron and the difficulties that its producers have in reducing cost to the point where they can live, is directing attention to the high royalties paid the landlords for coal and iron ore in the ground.

These royalties vary from 25 cents to \$1, and in some cases even more, per ton; while anthracite coal royalties vary from 25 cents to 60 or 75 cents a ton.

At even the high prices—from \$1000 to \$1500 an acre—paid by some of the companies for partially developed anthracite land, a charge of from 5 to 8 cents a ton is found amply sufficient to provide an adequate sinking fund for property and improvement accounts. The present rates of royalties were adopted when the high prices that ruled either during the war or during some "boom" in coal and iron brought this property into great demand, and they should now be reduced to figures based upon the average market values of ore and coal.

The fairest basis for royalty is the market price of the mineral itself, and a number of anthracite leases have been made in this manner in the Lehigh region; the average price of certain sizes of coal at Mauch Chunk having been adopted as the basis, usually, however, with a minimum royalty of 25 cents a ton.

The rentals now paid for both coal and iron ore are far too high. As already stated, the demand for leases always comes when the market is up, and they are not reduced when the market goes down to its average or below its average figures.

What percentage of the market price of anthracite and iron ore at tide-water, New York harbor, would be a fair royalty to pay for ores in the ground? This is a very important question, and one worthy of the attention of our pig-iron producers. And the present time, when interest and profits are being reduced in every other industry, would be a favorable one for united action in an effort to get a general reduction in royalties. A royalty of from 10 to 25 cents a ton for either coal or iron ore should be a fair one, and this rate should be a percentage of the market value of the mineral.

One of the Lake Superior iron companies, the Michigan Land and Iron

Company, has adopted this principle, but has set the sliding-scale too high. Its rentals are as follows:

When non-Bessemer ore is worth \$4 or less per ton, at Cleveland, Ohio, the royalty to be 30 cents a ton. When worth \$6 or over a ton, the royalty to be 50 cents. With Bessemer ore, the minimum royalty is 40 cents a ton when the ore is worth \$6 or less at Cleveland. And the royalty to be 60 cents a ton when the ore is worth \$10.50 or over a ton. Between these extreme figures, the royalty varies directly with the price. The prices actually received during the season for ore from the property leased to be taken as the basis on which to calculate the royalties between the maxima and minima given above. These royalties are a considerable reduction on those elsewhere in force, but they appear to us to be still much higher than the present or future condition of the iron industry can afford to pay. The *Marquette Mining Journal* has steadily advocated this method of adjusting royalties.

In the Lake District, a royalty of 5 per cent of the actual value of the ore at Cleveland, without minimum or maximum limit, would be more nearly what is called for.

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.]

The Fatigue of Iron.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Recently, while in the city of Indianapolis, at the linseed-oil mill of I. P. Evans & Co., I was shown an excellent illustration of the fatigue of iron. While in use, one of the four upright columns that for something more than a dozen years had withstood a pressure of 5000 pounds and over per inch suddenly collapsed at a point near the middle. The column was 5 by 5 inches square, and the portion showing the disastrous results of the fatigue embraced about 140 cubic inches. The remarkable change in the structural condition of the metal was observable in a section about 1 by 5 by 5 inches, and represented the actual breaking-point.

SILVER CITY, NEW MEXICO, June 26.

W. C. H.

Wood Preservatives.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Referring to your issue of June 20th, giving a report of the American Society of Civil Engineers on the preservatives of timber, I would call your attention to a wood preservative process not generally known in this country, the carbolinum avenarius.

It is an antiseptic wood-preserver used for from ten to fifteen years with success in Germany, Sweden, and other European countries. It acts both in a mechanical and in a chemical way; it is a liquid, contains about 20 per cent of antiseptic bodies, and a great deal of oily or fatty matter. It easily penetrates the wood, and in consequence of its great specific gravity (= 1.14) drives out the water contained in the capillary cells and channels of the wood, preventing by its fatty constituents any moisture from re-entering the wood. The antiseptic bodies destroy the germs and seeds of fungus and decay of the timber, and keep out the wood-worms and other insects that are so destructive to our Southern wood in ship-buiding.

The carbolinum avenarius is applied like paint with a brush, or, where circumstances allow, the wood is steeped in it cold, or, better, hot; on contact with the air, it oxidizes on the wood into a nut-brown stain. It is cheaper than oil paint or any other wood-preserver, one quart covering from 3 to 5 square yards, and two coatings being generally sufficient.

It has met with the greatest success among mining companies, railroads, shipbuilders, architects, farmers, builders, and manufacturers of every description in Europe, and the most assuring testimonials of civil and mining engineers, government officials, railroad managers, etc., prove that the carbolinum avenarius is of the greatest interest and value to all that consume timber. Messrs. Schulze-Berge & Koechl, No. 75 Pine street, New York, are the sole agents for the United States, and will be pleased to give further information.

H. SCHULZE-BERGE, M.E.

A New Bismuth-Silver Mineral.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Lately a mineral from Leadville has come under our notice, which, from a number of analyses made by Mr. H. F. Keller in the laboratory of the University of Pennsylvania, appears to be a new variety of kobellite $3\text{PbS} \cdot (\text{BiSb})_2\text{S}_3$, containing, however, no Sb, and having the Pb partly replaced by Ag.

Calculating from the average of three analyses to 100, we obtain the approximate composition:

Pb	44.8 per cent.
Ag	5.7 " "
Bi	34.0 " "
S	15.5 " "

whose formula $3(\text{PbAg})_2\text{S} \cdot \text{Bi}_2\text{S}_3$ has this theoretical composition:

Pb (+Ag)	50.53 per cent.
Bi	33.85 " "
S	15.62 " "

As soon as more of the pure material can be obtained, we shall finish the more complete paper on the subject now in preparation.

LEADVILLE, COLO., June 5, 1885.

Respectfully, H. A. KELLER.

[Professor Koenig read, in January last, before the American Philosophical Society, a paper giving analyses of three Colorado minerals similar to the above, which we subjoin for comparison:

1. *Cosalite*.—Bi, 43.54; Pb, 26.77; Ag, 1.35; Cu, 8.22; S, 16.54. Formula, $2\text{RS} + \text{Bi}_2\text{S}_3$.

2. *Alaskaite*.—Bi, 53.39; Pb, 12.02; Cu, 4.16; Ag, 7.80; Zn, 0.34; S, 17.04. Formula, $\text{RS} + \text{Bi}_2\text{S}_3$.

3. *Beegerite*.—Bi, 19.35; Pb, 45.87; Ag, 9.98; S, 13.37. Formula, $6\text{RS} + \text{Bi}_2\text{S}_3$. (The original Beegerite, crystallized, from Clear Creek County, Colo., contained no silver.) The above minerals were from Ouray County.—EDITOR ENGINEERING AND MINING JOURNAL.

The Pyrites of the Ely Mine.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I beg leave to object to Dr. Peters's assumption that the Ely ore "possesses all other (except the magnetic) characteristics of pyrrhotite," and to deny that his own figures leave any room whatever for his supposition that its "chemical composition is the same."

His error is not one of nomenclature, which might call for "a new name," but of fact. The suggestion on my part that Dr. Peters should "investigate his figures as to contents of sulphur," took away all justification for his intimation, as if magnetism had by me been stated as "an essential accompaniment" of "pyrrhotite." But certainly should pyrites pure and simple not be called "magnetic" when they are not magnetic, and not "pyrrhotite" when they are of a chemical composition excluding absolutely such qualification.

By Dr. Peters's statement, our ore consists of:

$$\text{S } 32.6 + \text{Cu } 8.2 + \text{SiO}_2 \text{ } 27 = 67.8$$

$$\text{To which should be added Fe } + ? \quad 32.2$$

$$\text{Being } 27 \text{ quartz} + 73 \text{ metallic sulphide} = 100.0$$

As in chalcopyrite we have:

$$\text{S } 34.9 + \text{Cu } 34.6 + \text{Fe } 30.5 = 100,$$

we must have as corresponding to Cu 8.2, as components of chalcopyrite in our ore,

$$\text{S } 8.3 + \text{Cu } 8.2 + \text{Fe } 7.2 = 23.7,$$

$$\text{leaving S } 24.3 + \dots (\text{?} + \text{Fe}) \text{ } 25.0 = 49.3$$

$$\text{out of S } 32.6 + \text{Cu } 8.2 + (\text{?} + \text{Fe}) \text{ } 32.2 = 73;$$

or as eventual components of the sulphide of iron,

$$\text{S } 24.3 + \text{Fe } 25 = \text{S } 49.09 \text{ per cent} + \text{Fe } 50.91 \text{ per cent.}$$

The composition of the three sulphides of iron known as minerals is as follows:

Pyrrhotine,	S 59.5 + Fe 60.5
Marcasite	S 53.3 + Fe 46.7,
Pyrite	

the distinction as between marcasite and pyrite being one of crystallization exclusively, while pyrrhotine is distinct from both, not only by its crystallization, where such is perceptible (in instances also by magnetism), but also by chemical composition.

In order to constitute the remaining maximum of S 24.3 as pertaining to pyrrhotine, there would be required the presence of Fe 37.2, or of 13.2 per cent more than there can be left in 100.

But in considering the sulphide of iron present as pyrite, the remaining S 24.3 require Fe 21.3 out of (Fe + ?) 25 present, which composition leaves 3.7 per cent within 100 per cent undefined, and not only possible, but most probable.

Thus, chemical composition proves the ore not to contain pyrrhotite. That there is no magnetic quality has been admitted, and as our ore is in its totality of an amorphous description, if ever crystallization has been met with, it certainly did not show the hexagonal character as characteristic of pyrrhotine.

In as far as my terminology differs slightly from Dr. Peters's, I see no reason to diverge from Haidinger's oldest and well-established authority, especially not if thus I avoid the danger of making confusion with certain tantaloids or with the orthite of Falun.

F. M. F. CAZIN.

COPPERFIELD (formerly ELY), Vt., June 29.

Mine Leases.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In your issue of April 25th, I noticed an inquiry from a correspondent in Michigan about mine leases. I supposed, of course, that some of your numerous readers would at once furnish the needed information, and that we should all benefit by the experience of men familiar with this method of working mines. As no one has responded, and as mines in this country are worked almost entirely by leases, I have at last plucked up courage enough to send you a copy of a lease that may be regarded as typical of those most in use here, in the hope that it will furnish "J." a basis on which to build.

The lease sent is an exact copy of one under which a number of men are now working on the Snowdrift mine.

The percentage of the proceeds taken as royalty differs greatly in different mines; and even in different parts of the same mine. In this section, it varies from 15 to 85 per cent, depending greatly on the known, or supposed, richness of the ground leased, cost of working, etc. I think it an excellent plan for the owner to take an interest with the lessees. He can do this by paying part wages and his proportional share of the expenses for supplies, or by furnishing men to represent his interest and paying his share for supplies. The lessee then becomes, at once, his partner and foreman—a partner who is always on the ground, who sees that the men working for the firm give a day's work for a day's wages; that the ore is properly cared for, and that nothing is wasted.

If the lessee is fortunate in striking ore the lessor shares with him in his good fortune, instead of being obliged to content himself with the small percentage usually paid as royalty. On the other hand, if the venture prove unprofitable, the lessee—who is often a poor man—does not have to bear the entire loss, while the lessor gets his development-work done at small cost.

Mining for the precious metals is, from necessity, carried on in such a way that very little supervision can be exercised over the men. The temptations to idleness are great; and some have been known to yield to them. The aggregate loss from this cause is really enormous. And when we consider that few men are really saving—of other people's prop-

erty—the reason why so many good properties are worked without profit to the owners becomes apparent.

Our ore-bodies are comparatively small; but the ore is very rich. With large bodies of low-grade ore, or where every thing that is broken out goes to the mill, I have no doubt that the contract system would pay best.

I see by the papers that a number of the Leadville mines have been leased, with good results; but no details are given. Can not you persuade some of your Lake County readers to give particulars?

Should "J." wish for more particular information on this subject, I will gladly answer any questions he may ask; provided, however, that he does not go beyond the limit of my knowledge.

H. F.
GEORGETOWN, COLO., June 25.

THIS MINING LEASE,

Made this.....day of.....A.D. 1885, by and between D. W., lessor and party of the first part, and J. C., P. D., and T. A. J., lessees and parties of the second part.

Witnesseth, That for and in consideration of the terms and agreements herein-after contained, the said first party hereby leases unto the second parties for the purpose of mining for ore, for the term of twelve months only from date hereof, the following described property, to wit: All that certain block or parcel of ground in the crevice of the Snowdrift lode mining claim, on Republican Mountain, in Griffith Mining District, Clear Creek County, Colorado, beginning at the bottom of the engine shaft on said mine and extending westwardly a distance of 100 feet and upward to the level next above the premises hereby leased. Provided, however, that enough ground shall be left undisturbed below said level above to keep it at all times safe for all mining purposes whatever.....

Said lessees hereby agree to sink or raise all shafts perpendicularly, except as to dip of lode, which said shafts shall follow, and to run all drifts and levels horizontally. Said shafts to be of the dimensions of eight feet by four feet in the clear inside of timbering, and not to be closer together than one shaft in each one hundred feet of lode. Said drifts to be four and one half feet wide in the clear inside of timbering, and six and one half feet high in the clear above car track, with a distance of at least sixty feet between floors; all shafts and drifts to be substantially timbered, and all the slopes to be stilled, at least four feet in the clear, from the ends of the leased ground. Said timbering and stull work to be done in a secure, substantial, and workmanlike manner.

Lessees hereby agree to do no underhand stoping and to remove all rock and dirt as fast as it is broken, to the dump. Lessees agree to work six men continuously on said mine and prosecute the same with reasonable diligence during the time of this lease, and a cessation of such work for a period of ten days altogether without the written consent of lessor, shall constitute a forfeiture of the same.

Lessees agree not to set up or make any claim whatsoever to any lode, vein, or deposit of ore discovered in the workings of this lease, but for themselves, employes, and assigns to concede all title in such discoveries to lessor or his agent.

All dumps formed by the working of this lease belong to lessor, and lessees agree not to pick the same, but to protect the same from being picked by others, except by lessor's direction. Lessees further agree that all the workings under and by virtue of this lease shall be under the general direction and supervision of the agent of the lessor, who shall at all times have full and free access to all the leased premises. Lessor reserves the prior right of way through all drifts, shafts, tunnels, or other workings that may be run or made by said lessees, and also reserves any and all rights heretofore granted.

Any failure to comply with the agreements of this lease by lessees shall operate as a forfeiture of the same, and entitle the lessor to immediate and exclusive entry upon and possession of the leased premises without notice, demand, or any other proceedings. No interest whatever in this lease shall be transferable without the written consent of the lessor and the signature hereto of the assignee to the covenants herein.

All ore taken out of the leased premises is the property of the lessor, and lessees agree to deliver the same to the lessor as fast as the same is properly dressed, either at the dump of the mine or at any mill or ore market mutually agreed upon by both parties hereto. Said lessor then agrees to dispose of the ore at the best market price, and after first deducting the charges for freight beyond Georgetown toward Denver, milling and assaying from the proceeds thereof, shall pay to the lessees 65 per cent of the balance. All hauling and packing charges, except as aforesaid, shall be paid by or for lessees out of his said percentage.

It is agreed and understood that lessees have the full privilege with the lessor of seeing to the proper sampling and assaying of all ore, and in assisting lessor to obtain the highest market price for the same.

All ore-shipments shall be in lessor's name, and no shipment shall be made until after at least twenty-four hours' previous notice thereof to lessor or his agent.

All necessary mining timbers, car track, and ties shall be furnished by and belong to lessor, and be by him delivered on the main tunnel dump..... of said lode. The same shall on delivery be properly put in place by lessees at their sole expense. All hoisting hereunder by engine shall be done by lessor; lessees shall deliver all material to be so hoisted into the bucket or skip, ready for hoisting. They shall further do all necessary tramming hereunder. Lessees also covenant and agree to drive the level the full distance of 100 feet through their ground before doing any stoping whatever.....

Lessees agree at the termination of this lease, or forfeiture thereof by violation of its agreements, to surrender to lessor the peaceable possession of the leased premises, with all ore, yards, houses, dumps, and properties whatsoever belonging thereto. Lessees further agree and declare this to be their letter of attorney to the acting Sheriff of Clear Creek County, hereby fully authorizing and empowering him, at the request of lessor, on the termination or forfeiture of this lease, to enter into and take possession of said leased premises and properties thereto belonging, and deliver the same to the possession of lessor without process of law.

Witness hereto the hands and seals of the parties, the day and year above written.

Signed,	D. W. [SEAL.]	Signed,	T. A. J. [SEAL.]
Signed,	J. C. [SEAL.]	Signed,	[SEAL.]
Signed,	P. D. [SEAL.]	Signed,	[SEAL.]

A New Explosive.—A Swedish engineer, Herr Sjöberg, has produced a new explosive, which he calls romite, and with which experiments have just been made at the fortress of Waxholm. The manufacturer claims that the explosive may be manufactured without any elaborate machinery; that it can not explode even when closely confined, except when ignited; and that it can not freeze; while its strength is very great, and its cost small. The experiments carried out were with a breech-loader discharging shells to a distance of 1090 yards, all the shells exploding with great effect, while the blasting operations were entirely successful. A number of engineers and military officials witnessed the experiments, which were declared highly satisfactory.

CHARGING SECONDARY BATTERIES.

London *Engineering* says that Mr. Preece has made a communication to the Royal Society on the charging of some Planté accumulators, made for him by the Elwell-Parker Company, of Wolverhampton. Each cell contains fourteen plates of plain sheet-lead, 17 inches by 11 inches in size, suspended in sulphuric acid 1 part to water 19 parts. The plates are connected in groups of seven by lead strips, which form the poles, and are kept apart by ebonite separators. The total surface of each group is 9.1 square feet, that is to say, 9.1 square feet of peroxidized lead surface is opposed to 9.1 square feet of spongy lead. Twenty-four of these cells are employed in lighting Mr. Preece's house at Wimbledon. The charging current varies from 3 to 3½ ampères per square foot, while the discharging current used for lighting is from 1 to 1½ ampères per square foot. The total weight of each cell is 120 pounds. A charge of 120 ampère-hours is put into the battery twice a week. By hourly measurement of electro-motive force, current, and density of liquid, he learned the condition of the battery during charge and discharge. The variation of the electro-motive force and current strength was found to be due to the counter electro-motive force of the cells, which becomes a maximum only when the plates are fully formed. The counter electro-motive force partakes of the character of a higher resistance opposing the changing current, and increasing the proportion of the current through the shunt of the dynamo. Hence the changes of electro-motive force are more marked than those of the current. Indeed, the changes of electro-motive force, as given by the voltmeter, are, Mr. Preece states, sufficient to indicate the progress and completion of the charge, and are more reliable than the evolution of gas. The electrical leakage is overcome by standing each cell on four porcelain supports having cups half filled with resin oil, the plan adopted by Messrs. Johnson & Phillips in their liquid insulators. The electro-motive force of the cell at the terminals is 2.25 volts when charging, 2.05 volts when idle, and 1.90 volts when discharging. The internal resistance is .0060 ohm when charging, and .0017 when discharging. The latter quantity varies, however, with the current of discharge. Thus 4.39 ampères of discharge gave 0.7608 ohm; 7.25 ampères gave 0.4607 ohm; 15.84 ampères gave 0.2816 ohm; 25.07 ampères gave 0.1969 ohm; a variation not due to heat in the opinion of Mr. Preece. He therefore now measures the internal resistance with a current of the same strength, 10 ampères. The capacity of the batteries (Mr. Preece asserts) is improved with age, and up to the present time he has seen no signs of deterioration. There is always a core of lead in the peroxidized plate to give it strength. When the electro-motive force falls, it falls very rapidly. Now and then, a plate becomes mature from local action or a bad connection; but it is brought right again by being put into a "hospital" cell, and treated with reversals. Reversing has a beneficial action on a cell; improving its capacity and removing any cause of irregular working.

MARCHESE'S ELECTROLYTIC EXTRACTION OF COPPER.

It is generally understood, says London *Engineering*, that several of our largest English copper-works have of late been paying special attention to the electrolytic separation of metallic copper, especially in the case of argentiferous copper ores and regulus. But as considerable care is taken to prevent publicity, very little is known as to actual details and results outside the circles immediately concerned. Some of the German metallurgical journals are just now taking considerable notice of a process that is being adopted at the large works of the Stolberg Company, in Prussia. The process is that brought out by Marchese, an Italian engineer and chemist, and said to be working successfully on copper ores at Casarza, near Sestri Levante, not far from Genoa. The method so far mostly, if not almost exclusively, in use, has been to produce, first of all, an impure metallic copper ("black copper" of the Germans), and to refine this by electrolysis, separating out any silver and gold it may contain at the same time with the impurities. But Marchese has adopted another arrangement. Having to work poor copper ores at Casarza, he first smelts a portion of the ore to copper regulus containing some 30 per cent copper and 40 per cent iron. This regulus is cast into thin slabs, to form the anodes in the depositing-tanks, a strip of copper being cast into each anode to serve for the connection to the conductors from the dynamo machine. Another portion of the ore is calcined and then lixiviated with water containing a little sulphuric acid, to dissolve the copper. The resulting solution, containing sulphate of copper and sulphate of iron, is fed into the depositing-tanks in which the regulus anodes are suspended, the cathodes consisting of a corresponding number of copper sheets. The copper in the solution is deposited on the cathodes, the anodes being at the same time consumed, with solution of the copper contained in them. It is stated that the salts of iron formed, and the sulphuric acid, prevent the deposit of any of the iron from the sulphate solution, and also prevent any disengagement of hydrogen, so that the copper is deposited in a firm and perfectly pure state. The liquor is kept in constant circulation between the ore in the lixiviation-tanks and the depositing-tanks. It is said that "the greater portion of the electro-motive power requisite for the decomposition of the sulphate of copper is supplied by the oxidation of the iron contained in the anodes," so that the power required to be supplied for the work of this process is very small. When in course of time the solution becomes too much saturated with sulphate of iron, it is withdrawn from circulation, and all the copper removed from it by sulphureted hydrogen (generated by the action of the solution itself on some of the copper regulus). The remaining solution of iron is then crystallized for copperas if it pays, or run to waste if it does not pay. The above is Marchese's process in outline. It attracted the attention of the Stolberg Company as a possibly good one for it to adopt for working a quantity of copper regulus that it produces every year in the course of smelting silver-lead ores containing copper. Experiments were tried during some months under the supervision of Marchese himself, and it is stated that they were so satisfactory that a permanent plant is now in course of erection, and will soon be ready for use. The experimental work was done on regulus containing from 15 to 16 per cent of copper, 14 per cent of lead, and 16 ounces of silver per ton. A portion of this was cast into anode plates, as above described. There were six depositing-tanks, each with seven anodes and eight copper sheet cathodes. The six tanks stood side by side, forming

TOTAL PRODUCTION AND SHIPMENT FROM THE MINE INSPECTORS' DISTRICTS FOR THE YEARS 1883 AND 1884, WITH THE COLLIERY AND LOCAL CONSUMPTION.

INSPECTION DISTRICTS.	No.	Inspectors.	1883.			1884.		
			Shipment.	Colliery and local consumption.	Total production.	Shipment.	Colliery and local consumption.	Total production.
First Schuylkill	1	Samuel Gay	1,759,589	95,799	1,855,388	1,678,455	100,959	1,779,414
Second Schuylkill	2	Robert Mauchline	4,684,531	281,072	4,965,603	4,246,847	270,792	4,517,639
Third Schuylkill	3	James Ryan	4,540,917	272,455	4,813,372	4,280,487	268,865	4,549,352
Middle Carbon and Luzerne	4	G. M. Williams	7,233,227	433,994	7,667,221	7,435,816	44,149	7,881,965
Eastern Carbon and Luzerne	5	Patrick Blewitt	8,360,192	543,011	8,903,203	8,046,521	482,791	8,529,312
Southern Carbon and Luzerne	6	James E. Roderick	5,295,951	370,717	5,666,668	4,777,156	520,643	5,297,799
Total production of hard anthracite			31,874,407	1,997,048	33,871,455	30,465,282	2,090,199	32,555,481
Loyalsock field, Sullivan County (soft anthracite)					84,376	84,551	1,467	86,018
Total production of all anthracites					33,955,831	30,549,833	2,091,666	32,641,499

one series for the current. The dynamo machine used was by Siemens & Halske, Class C₀. The conductors were copper rods of 1 cm. thickness. Another portion of the regulus was calcined and lixiviated as above described, and the resulting liquor filled the depositing-tanks to within 1 cm. of the top edge of the anodes. It then overflowed from each tank into a launder, which conducted it back to the lixiviation-tank. After again saturating itself with copper, it passed to a settling-tank, from which it was pumped back to the depositing-tanks. The liquor varied between 3 and 4 per cent of copper. The iron in solution of course constantly increased, but during two months of work it did not reach saturation and require removal. The dynamo machine ran for two months with scarcely a minute's interruption, the average speed being 1118 revolutions a minute. The average current equaled 92 ampères. The copper deposited amounted to 2'261 kilos. per tank per twenty-four hours. The plant now erecting at Stolberg is intended to produce, from copper regulus, from 500 to 600 kilos. of copper every twenty-four hours. There are to be fifty-eight depositing-tanks, in each of which will be twenty anodes with a surface of 25 square meters, and an equal surface of cathodes. The twenty anodes, each weighing 125 kilograms, give 2½ tons regulus per tank, or 145 tons for all the fifty-eight tanks. In order to attain the usual thickness, the cathodes will have to remain three months in the tanks. Calculating the average amount of copper locked up in the anodes and cathodes on the above basis, it is shown that the amount of capital "immobilized" in this manner will be 40,000 francs for an annual production of 210 tons of copper. Compared with the cost of ordinary smelting processes for extracting copper from regulus, the interest on this sum will form no bar to the economical success of the process, even apart from considerations as to the better price obtained for pure electrolytic copper. Full details of the process and of the experiments at Stolberg may be obtained from a treatise written by Marchese, and published in Genoa, *Traitément électrolytique des mattes cuivreuses au Stolberg, par le procédé E. Marchese.*

THE ANTHRACITE PRODUCTION OF PENNSYLVANIA IN 1883-1884.

We are indebted to the courtesy of Mr. Charles A. Ashburner, geologist in charge of the Survey of the Anthracite Coal-Fields, for advance-proofs of his report on the production of anthracite in 1884. We make the following extracts:

AREA AND TOTAL PRODUCTION OF INDIVIDUAL COAL-FIELDS.

FIELDS.	Square miles (approximate).	1883. Tons.	1883. Percentage.	1884. Tons.	1884. Percentage.
Northern Field	200	16,570,425	48'80	16,411,277	50'28
Eastern Middle Field	40	5,586,397	16'45	5,098,684	15'62
Western Middle Field	90	8,552,915	25'19	7,896,049	24'19
Southern Field	140	3,161,718	9'31	3,149,471	9'65
Loyalsock Field	Unknown.	84,376	0'25	86,018	0'26
Total production	470+	33,955,831	100'00	32,641,499	100'00

RAILROAD DIVISION OF SHIPMENTS.

RAILROADS.	1883.		1884.	
	Tons shipped.	Per-centage.	Tons shipped.	Per-centage.
Philadelphia & Reading	12,232,402	38'47	11,163,920	36'34
Central of New Jersey				
Lehigh Valley	6,271,773	19'72	5,935,254	19'32
Delaware, Lackawanna & Western	5,079,123	15'97	5,204,362	16'94
Delaware & Hudson Canal Company	3,512,971	11'05	3,369,680	10'95
Pennsylvania	2,773,419	8'72	3,169,287	10'32
Pennsylvania Coal Company	1,541,145	4'85	1,397,948	4'55
New York, Lake Erie & Western	382,194	1'22	484,844	1'58
Total	31,793,027	100'00	30,718,293	100'00

DISTRIBUTION OF SHIPMENTS.

	1883.	1884.
To Penna., New York, and New Jersey	21,830,504	20,656,297
To New England States	5,387,760	5,112,825
To Western States	2,537,174	2,736,099
To Southern States, incl. Del., Md., D. C.	1,284,093	1,336,070
To Pacific coast	24,635	8,839
To Dominion of Canada	690,498	837,185
To foreign ports	38,423	30,978
Totals	31,793,027	30,718,293

The Geological Survey assumes no responsibility for the figures of production of each colliery, as given in the inspectors' reports, and indeed there is a little uncertainty about them, a general allowance of about 6½ per cent of the shipments being taken to represent the consumption at the colliery and the sales of coal not carried over and reported by the railroads. The proper allowance to make for this local consumption is very variable. At one time, in the early history of the trade, it amounted, according to Mr. B. Bannan—the best authority in his time—to as much as 27 per cent of the shipments, while, for obvious reasons, it has steadily decreased. Some ten years ago, having gone quite carefully into the question, we concluded that at that time the "local consumption" not reported by the railroads would then amount to 6 or 7 per cent. We are inclined to think it is now much less than 6½ per cent, and probably less than 5 per cent, though we have no actual recent returns upon which to base this opinion.

The uniform tendency is to concentrate work on fewer collieries and to secure a larger output from each. Thus, in 1884, about 366 shafts or mine openings were worked, and though the curtailed production was probably not more than two thirds of their capacity, they yet had an average output of about 90,000 tons to each working colliery; and no less than 18 collieries exceeded an output of 200,000 tons during the year, while the following made phenomenal records:

Susquehanna No. 5 (Pennsylvania Railroad)	506,631 tons production.
" " 2	443,289 " "
Capouse (Delaware, Lackawanna & Western)	375,307 " shipments.
Nottingham No. 15 (L. & W. C. C.)	342,688 " production.
All in the Northern or Wyoming field; and the	
Williamstown (Philadelphia & Reading Coal and Iron Company)	389,917 tons production.
Brookside (same company)	339,200 " "
Of the Lykens Valley District.	

Paper Bottles.—In the production of paper bottles—a French article—sheets of paper are used, somewhat on the plan of rocket-cases, but the cementing material is a mixture of blood, albumen, lime, and alum. Neither water, wine, nor alcohol has, it is stated, any action on such bottles.

A Galvanometer for Cornell.—There has just been completed at Cornell University the largest galvanometer in the world. It was built under the direction of Prof. William A. Anthony, of the department of physics, and over a year was spent in its construction. The instrument contains all that is necessary for making the most complete and accurate measurements of any kind of electrical apparatus. There are four circles, each two meters in diameter.

Volatilization of Silicium.—The aluminium of commerce is generally alloyed with a certain proportion of silicium, iron, etc., but the action of chloride of aluminium vapor on the impure metal raised to a temperature of 1300 degrees Cent. in a porcelain tube produces globules of pure aluminium in the colder parts of the tube. MM. Troost and Hautefeuille have attributed this effect to the successive production and decomposition of a subchloride of aluminium. MM. P. Hautefeuille and A. Perrey, in passing vapor of chloride of aluminium over aluminium heated to 440 degrees Cent. in a glass tube, have recently effected the transport of an amorphous substance, forming a fine powder or a metallic mirror, according to the conditions of the experiment. This substance is formed of silicium, with a certain proportion of iron and a small quantity of aluminium. In presence of the chloride of aluminium, the silicium, it would appear, is therefore fixed at 1300 degrees Cent., and volatilized at 440 degrees Cent. The silicium is concentrated in the aluminium at a temperature above its fusing-point, and abandons a plate of aluminium heated to a temperature below its softening point.

Artificial Asbestos Packing.—Prof. L. C. Levoir, of the Technical School, Delft, writes to the *Chemical News* as follows: "The mineral asbestos is but a very poor packing material in steam-boilers. Moreover, it acts as a strong grinding material on all moving parts. For some years, I have tested the applicability of artificial precipitates to close the holes in boilers, cylinder covers, and stuffing-boxes. I took, generally with the best success, alternate layers of hemp cotton, thread, and absorbent paper, all well saturated with the chlorides of calcium and magnesium. The next layers of the same fiber are moistened with silicate of soda. By pressure, the fluids are mixed and the pores are closed. A stuffing-box filled with this mixture has worked three years without grinding the piston-rod. In the same manner, I close the screw-thread holes in gas-tubes used for conducting steam. I moisten the thread in the socket with oleic acid from the candle-works, and dust over it a mixture of one part of minium, two parts of quicklime, and one part of linseed powder (without the oil). When the tube is screwed in the socket, the powder mixes with the oleic acid. The water coming in at first makes the linseed powder viscid. Later, the steam forming the oleate of lime and the oleate of lead, on its way to the outer air, presses it in the holes and closes them perfectly. After a year in use, the tubes can be unscrewed with ease, and the screw-threads are perfectly smooth. With this kind of packing, only one exception must be made—that is, it is only tight under pressure; condensation or vacuum must be avoided."

THE PROGRESSIVE PULVERIZER.

This novel machine, which we illustrate herewith, presents some features of interest. It consists of a hemispherical iron vessel with a ribbed concave disk bottom that revolves horizontally, being keyed to the head of a vertical shaft, as shown in the cut.

Projecting through the sides of the dome or hemisphere, are bars of hard white iron, against which the lumps of ore are thrown by the revolutions of the ribbed horizontal disk. When crushed to the desired fineness, the particles of crushed material pass out all around the disk by an opening that can be made larger or smaller by lowering or raising the disk by means of the set-screw, shown below the vertical shaft.

The manufacturer states that the concave plate is 20 inches in diameter; height of casing from concave plate, 22 inches; height of entire machine, 8 feet; weight of entire machine, 2500 pounds; price of the entire machine, including shafting, frame, etc., \$700.

It is claimed that the capacity of the pulverizer is from 1 to 1½ tons an hour, crushed to a No. 60 size, and though the machine has but recently been completed, many tons of various kinds of rock have been pulverized with no appreciable wear to the machine. The machine runs about 600 revolutions a minute.

The outlet around the disk is the only part that is liable to wear, according to the manufacturer, and this part is protected by a white iron ring. The bars, which stand out from the dome like "quills upon the

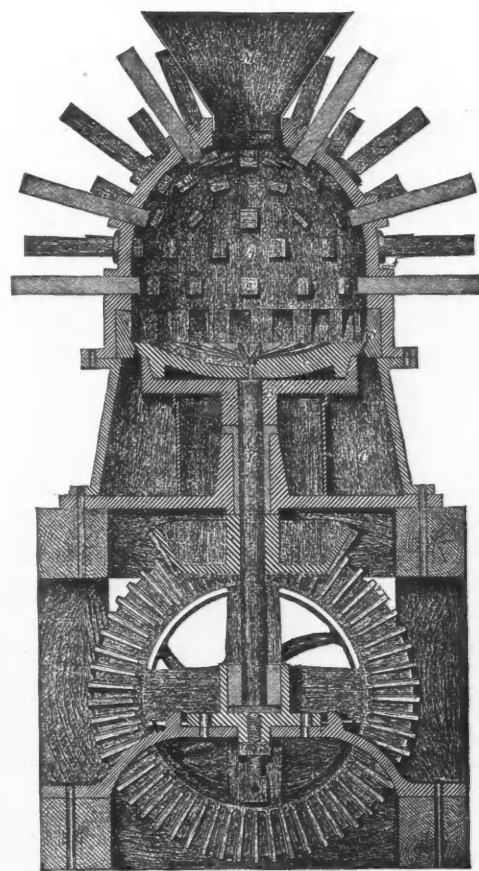
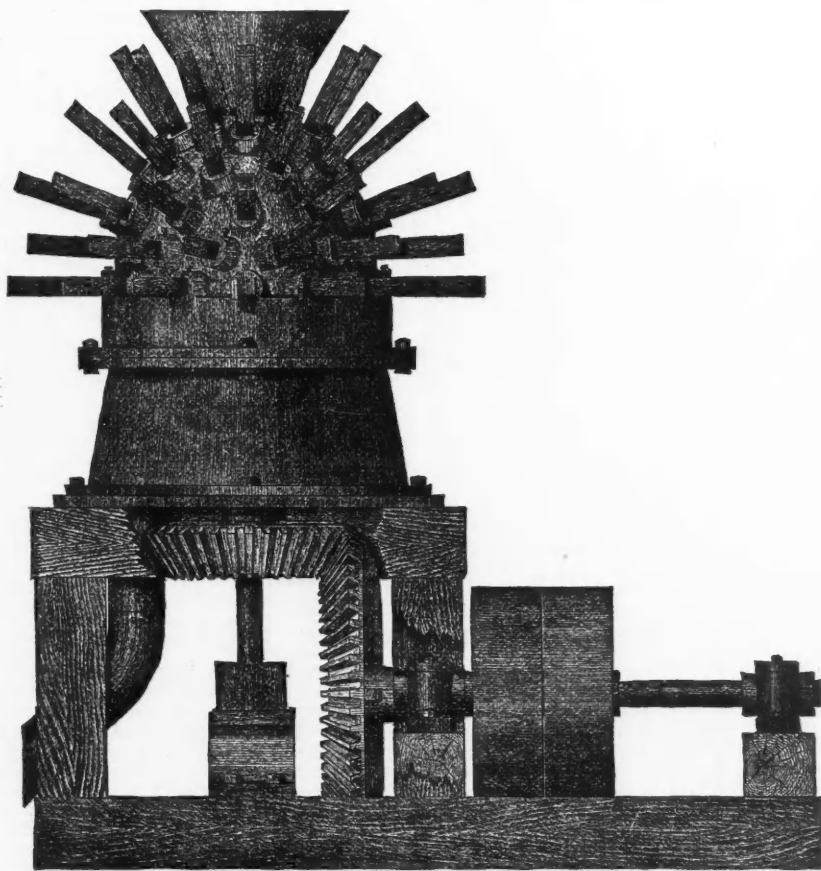
MODERN AMERICAN METHODS OF COPPER SMELTING.*

By Edward D. Peters, Jr., M.E., M.D.

CHAPTER VI.

THE STALL ROASTING OF MATTE.

This is a method well known in the Eastern States, and practiced first in this country, so far as any record can be found, at the old Revere Copper-Works in Boston, and in more modern times at Copperas Hill in Vermont, and at the noted Vershire mine in the same State, where some sixty or seventy stalls still stand in a greater or less state of preservation. The partial suppression of the excessively disagreeable fumes generated in the heap roasting of this substance; a gain of at least one third in the time of treatment—no unimportant item in the handling of such valuable material; and a very great diminution in the losses caused by the elements, are the principal reasons for the selection of stalls in preference to heaps. On the other hand, must be placed a heavy investment in buildings and in the stalls themselves, with their flues, stacks, etc. The mere grate-bars for a single matte stall cost in the neighborhood of \$75, and the constant repairs that are peculiarly necessary in the case of mason-work saturated with the products of volatilization, and racked by the frequent and extensive fluctuations in temperature, due to the ever-recurring heating and cooling of the interior, render them



THE PROGRESSIVE PULVERIZER.

fretful porcupine," are of white iron from 1½ to 2 inches square, and project about 2 inches into the interior of the dome. The impact of the pieces of rock on the projecting bars and on each other pulverizes the ore from the largest size down to dust. It is said that no preliminary crushing is necessary. No dust escapes through the feed-hopper, which is left open.

The manufacturers claim that, for equal capacity, it requires less power than other mills; that it is not liable to wear, and will run steadily, being a comparatively slow-motion machine; and that the product is of a uniform fineness.

Paper Manufacture in New Zealand.—The New Zealand government offers a bonus of £500 for the production of the first fifty tons of printing paper made by machinery permanently established and working in the colony.

Frobach's New Sugar-Making Process.—Bradstreet's says: The new process of sugar-making discovered by Frobach, of Berlin, if it proves equal to all that is claimed for it, will completely revolutionize the sugar trade. For years, it has been conceded that the present method of extracting the sugar from the cane is defective and expensive. The new process dispenses altogether with crushing and pressing. The cane being cut into strips, the water is first extracted by alcoholic vapor, the saccharine being left in the cane. This is then treated with liquid alcohol. It is asserted that this extracts all the saccharine. Afterward, the sugar is extracted from the alcohol by being filtered through lime and chalk. If this process proves successful, it will at once add a third to the present production of cane sugar, or at least 1,500,000 tons.

a somewhat expensive portion of the plant, as will be seen in detail in its proper place.

It will be sufficient to select for description a single typical matte stall from the great variety of forms and variations that local conditions or individual fancy have originated.

The grate-bars being thoroughly cleansed and freed from all clinkers and debris of the preceding operation, and replaced in position, and the brick walls forming the sides and back of the stall receiving a fresh coat of plaster (clay) where necessary, a layer of fuel is placed upon the grate-bars, and the broken matte thrown upon this by means of a closely tined fork, to separate the fine stuff, which is scattered over the top after the stall is filled with an average charge of from five to six tons.

The fuel employed is wood in 4 or 6-foot lengths, and split to a comparatively uniform size. From 10 to 20 cubic feet are used for each charge, metal of low grade rich in sulphur requiring less fuel than the higher varieties of matte. Experience has taught the great advantage obtained by the use of hard wood, and too much care can not be bestowed upon the selection of the fuel, which should be of the best quality and thoroughly seasoned, as the result of the operation depends to a remarkable extent upon the quality of the fuel used.

Matte of any grade, from the lowest coarse metal to the highest quality of regule, may be treated in these stalls with almost equal results as regards desulphurization.

With regard to the value of this method of calcination as compared with matte-roasting in open heaps, much the same may be said as in the case of ore-roasting, excepting that the greater value of the material

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under treatment heightens the force of all arguments based on the time during which it is tied up, as well as on the question of wastage and losses from the elements.

On the other hand, as the heap roasting of matte occupies but a small fraction of the time necessary for the same process when applied to ore, the advantage gained in this direction by the employment of covered stalls is not so great as in the treatment of the crude material.

The stalls are always covered by rude sheds, to protect the brick-work from the weather, and should be paved with slag blocks, flat stone, or, much better, heavy iron plates, as the constant hammering that it must undergo during the spalling of the matte and the breaking of the huge clinkers that form an almost necessary accompaniment of this process quickly destroy any other description of pavement.

The results of desulphurization by this method being no more thorough than by heap roasting, the same number of burnings is necessary as in the latter case, and, owing to the difficulty of removing the heavy clinkers from the walls and grate-bars of these little furnaces, as well as the constant bill of expense for repairs, the cost of the process is about the same as in heap roasting. The almost complete identity of the two methods in this respect renders any further details of expense unnecessary.

The imperfections of all the methods of roasting matte in lump form, as well as the great waste of time and metal, and the annoyance caused by the fumes, are serious objections, and it is only under exceptional circumstances that these crude and dilatory methods can be recommended. In nearly all advanced works, they have given place to the much more rapid and perfect method of calcination in reverberatory furnaces.

The ordinary dimensions of the stalls in use, now or formerly, at some of the principal works in this country are as follows:

Width	5 feet.
Depth (front to back)	6 feet.
Depth of ash-pit	1 foot 6 inches.
Height from grate to spring of arch	4 feet 8 inches.
Thickness of division walls	1 foot 4 inches.
Thickness of rear walls	1 foot 8 inches.
Area of flue opening in rear wall	160 square inches.

A stall of this size will contain from five to six tons of matte, and will burn for four days at the first firing, and for about three days at each subsequent operation.

Where three burnings take place, the capacity of each matte stall may be placed at one half-ton daily, and the amount of wood required for the three burnings will be one twelfth of a cord per ton of ore.

From the measurements already given, aided by the estimates for brick-work found in a succeeding chapter, the cost of a block of such covered stalls may be easily arrived at; the covering arch consisting of a 9-inch semicircle of red bricks, and the main flue section being at least equal to the combined area of the flues that enter it.

The anchoring of a block of such stalls is very simple, consisting of longitudinal $\frac{1}{2}$ -inch rods, while the uprights may be iron rails or stout wooden timbers. Each side wall should also be braced from front to back in the usual manner, while the front wall of the stall is a temporary structure of brick laid loosely upon the grate-bars and braced with a few lengths of flat iron. Fire-brick are ordinarily used for this purpose, the common red brick of which the entire permanent portion of the structure is built being too light and fragile to stand the repeated handlings and the fluctuations of temperature.

Since the ordinary charge only fills the stall about two thirds full at the front, and slopes up against the rear wall to nearly the height of the flue opening near the top of the walls, or even in the arched roof, a large space exists between the upper edge of the temporary front retaining wall and the high, semicircular brick roof. Through this, the sulphurous fumes and the products of the combustion of the fuel during an early stage of the process escape in such clouds as to render the atmosphere of the shed unfit for respiration. To partially obviate this difficulty, a sheet-iron curtain, suspended by wires running over a pulley in the roof, and furnished with a counter-weight, is used, and if properly fitted and luted to the side walls with a paste of stiff clay, is of great service.

It may be assumed with safety that, by the process of matte-roasting in lump form—whether executed in heaps or covered stalls—from two thirds to three fourths of its original sulphur contents is eliminated, by not less than three consecutive burnings.

THE ROASTING OF ORES IN LUMP FORM IN KILNS.

By the term kiln, as used here, we understand a comparatively small, shaft-like furnace, provided with a grate or opening for the admission of air from the bottom, and connected with a draught flue. The action is a continuous one, and the necessary heat is derived entirely from the oxidation of the sulphur and the other constituents of the ore.

No other class of furnaces has received greater attention or been brought to a greater state of perfection; but it is as an adjunct to the manufacture of sulphuric acid rather than to the calcination of ore that this apparatus must be esteemed, and consequently to the works treating on that subject that we must look for detailed descriptions and estimates of the same. The student is referred to Lunge's exhaustive work on Sulphuric Acid for full details of construction and management.

While the various processes of roasting hitherto described are suited to almost every variety of sulphureted copper ore, and yield equally good results whether the percentage of sulphur and copper are small or large, a much closer selection of material is indispensable for successful roasting in kilns, and their range of usefulness is restricted to comparatively narrow limits.

This very question of selection, however, varies greatly with the purpose in view, and depends upon whether it is desired merely to desulphurize a given ore without any attempt to utilize the volatile products of oxidation, or whether the manufacture of sulphuric acid is to be combined with the process of roasting.

The conditions necessarily present before any pyrites can be utilized for the manufacture of sulphuric acid are of two kinds, commercial and technical.

The commercial conditions are sufficiently obvious to any thoughtful mind, and are very plain, such as sufficient supply of ore at a fixed and low rate for a reasonable length of time, and contiguity to water, railroads, or some cheap means of transportation to the manufactory,

which, owing to the nature of its product, must be situated in the immediate vicinity of its market.

The technical conditions, though more numerous, are almost equally easy of comprehension. An almost absolute freedom from gangue is essential, for the simple reason that the presence of foreign substances lowers the percentage of sulphur and necessitates the handling of worthless material, thus lessening the capacity of the works and producing other unfavorable results. For the same reason, though in a less degree, the presence of any other sulphides, aside from the bisulphide of iron, which forms the ore proper, is disadvantageous; for no other compounds of sulphur that occur in this connection contain either so high a percentage of the sulphur or part with it so freely. Even the copper pyrites, which in many instances forms the principal value of the ore, is detrimental to the manufacture of sulphuric acid, both because it contains less sulphur and because it is too fusible to permit the proper regulation of the temperature. Beyond the limit of eight per cent of copper in the pyrites, it can not be profitably employed in the manufacture of acid. The Spanish pyrites, from which so large a proportion of the acid produced in England is made, contains on an average about three per cent of copper, and about 48 per cent of sulphur, this remarkably high percentage of sulphur showing its freedom from gangue.

An analysis of the average ore from the celebrated Rio Tinto mine may be of interest, as a type of a very favorable cupriferosus pyrite for acid making:

ANALYSIS OF RIO TINTO PYRITES BY PATTINSON.			
Sulphur	48.00	Magnesia	0.08
Iron	40.74	Arsenic	0.21
Copper	3.42	Insoluble	5.67
Lead	0.82	Oxygen and moisture	1.00
Lime	0.21		
Total	100.15		

The ore used by three large acid-works in Boston and New York is obtained principally from Canada, some thirty miles from the Vermont line, and although somewhat variable in purity, averages about 3.5 per cent of copper and 45 per cent of sulphur, the percentage of gangue being greater than in the Spanish ores.

An excellent quality of pyrites is mined from a large deposit in Western Massachusetts, and in both Virginia and Georgia are beds of pyrites now under process of development, which, on competent authority, are said to rival the Spanish mines in almost every particular, although it is hardly probable that they will be found concentrated in such immense masses.

The presence of arsenic and antimony has a deleterious effect on the quality of the resulting acid, while lead heightens the fusibility of the charge, and any foreign substance, however harmless otherwise, lessens the percentage of sulphur.

An important point, sometimes overlooked by non-professionals in determining the value of a sample of pyrites, is its mechanical behavior during the process both of crushing and of roasting. A granular ore, soft or easily disintegrated, will increase the proportion of fines, which, although now utilized with great success in the manufacture of acid, are still undesirable as requiring a more expensive plant and entailing a greater cost in their treatment. A still more serious production of fines may take place in the kiln itself in the case of ores that decrepitate, sometimes occurring to such an extent as entirely to choke the draught and render their employment impossible.

(TO BE CONTINUED.)

DIAMOND MINING IN AUSTRALIA.

Iron says: Diamond mining bids fair to become as important and profitable an industry in Australia as it is in Africa. The Australian Diamond Mining Company has done much to develop the diamondiferous resources of New South Wales. In 1883, it bought a mining lease of forty acres, at Bingera, for which it paid several thousand pounds. It procured the services of an experienced diamond mining manager, formerly at the Kimberley fields, who designed a machine, similar to that in use at the Cape, for treating the diamondiferous wash. Pending the completion of the machinery (which was made in Melbourne) and its erection at Bingera, sinking for water went on, and with a rough-and-ready machine as a makeshift preliminary, trial washings were begun, with the result that in a short time a fair-sized parcel of diamonds was obtained and sent to Europe for report. Since that, two other large parcels have been forwarded to England, with the result as stated above. The machine, fixed up in due course, is capable of putting through 200 loads of wash-dirt daily; but from the fact that the sinking operations have not been successful in obtaining any abundant supply of water, the company has, up to the present, been unable to work the machine for any length of time. However, with the aid of a light dam that has been constructed, and a partial supply of water that has appeared in the well sunk, several days' washings have been successfully accomplished. The first series of washings comprised a total of 198 loads, yielding 648 stones, weighing 140½ carats. But of these 198 loads, most of the first charge was put in by the workmen by mistake, and was pure surplus mullock from the top of the drift. It showed 63 loads, and gave 7½ carats only. Deducting this, it will be seen that the result was practically, on the first washings, 135 loads yielding 612 stones, weighing 132 carats, or nearly one carat to the load; while the one washing of 20 loads yielded 170 stones, weighing 39½ carats, or nearly two carats to the load. A second series of test washings comprised 81 loads, yielding 282 stones, weighing 56½ carats. Of large stones, none was found; but at the famous Kimberley mines, a large stone in 10,000 is about the general run, while half a carat a load is considered a remunerative return; and it must be remembered that the Australian diamond is nearly 50 per cent more valuable than the Cape stone. It costs about 2s. 6d. to work a load of wash-dirt; thus, a carat a load at (say) 20s. a carat will yield a net profit of 17s. 6d. At 200 loads a day, this will total to immense profits in the year, apart from the finding of big stones, which will doubtless appear from time to time, as they have done elsewhere.

A Deep Bore-Hole.—On one of the German railroads, there is said to be a bore-hole 4559 feet deep. The diameter at the top is 28 cm., and at the bottom 5 cm. (say 11 inches and 1¼ inches).

THE REMINGTON SHOVEL.

There are few more important tools in use than the common shovel, and few that exert so important an influence on the productive capacity of workmen.

The substitution of the light, highly polished steel shovel for the heavy, rough, old iron article certainly made a difference of from 15 to 20 per cent in the amount of work that a navvy could continuously perform. The advantages of greater strength and polish and less weight that the use of steel gave constituted a real progress; but there were still improvements to make in the method of attaching the handle to the blade.

The Remington Agricultural Company, of Ilion, N. Y., has arrived at a high degree of perfection in the shovels of all kinds that it makes. These are fashioned from one piece of superior cast-steel; the part usually represented by straps upon the handle, in the Remington shovel forms a complete socket without a weak point, and the blade being without a rivet will wear for months under severest trial before yielding to the effects of continued use. Where other shovels are weakest, this is strongest. The advantages offered by this shovel are not accompanied by a high price, as the following extracts from the manufacturers' price-list show:

BEST SOLID CAST STEEL.		Black per doz.	Polished per doz.
No.			
2.	Best cast-steel, L or D handle, square point shovels, 9½x11½.....	\$14.50	\$15.25
4.	Best cast-steel, L or D handle, square point shovels, 10½x13.....	16.50	17.25
8.	Best cast-steel, L or D handle, square point shovels, 13x15.....	20.50	22.00
2.	Best cast-steel, L or D handle, round point shovels, 9½x12.....	15.00	15.75
3.	Best cast-steel, L or D handle, round point shovels, 9½x13¾.....	17.00	17.75
2.	Best cast-steel, L or D handle scoops, 10½x14½.....	16.00	16.75
6.	Best cast-steel, L or D handle scoops, 13x17½.....	20.50	21.50
TAMPING SHOVELS.			
2.	Tamping shovel, solid mail. D. 9½x11½.....	15.80	16.80
COAL SHOVELS.			
1.	D handle, square point, 13x14 inch.....	15.75	16.25
3.	D handle, square point, 14¾x15½ inch.....	18.50	19.00

WORKING AURIFEROUS PYRITES IN TRANSYLVANIA.

A considerable quantity of ores, chiefly pyrites that contain gold and silver, are still mined and worked in Transylvania. Of late years, owing to a falling-off in the produce of the ores, several mines and works are closed, but the smelting-works at Zalathna are still at work, making

per. It is then treated by heating with stronger acid, to extract most of its copper. The residue returns again to the smelting, while sulphate of copper is obtained from the liquor by crystallization, or copper is precipitated by means of iron, as best pays. One of the most interesting portions of the work done is the production of sulphur by the utilization of the well-known reaction by which sulphureted hydrogen and sulphurous acid decompose one another into free sulphur and water. The sulphureted hydrogen from the treatment of the matte with sulphuric acid, and a portion of the sulphurous acid from calcining the ores, are brought together in wooden towers provided with shelves, over which a solution of calcium chloride trickles down the towers. As is well known, if the two gases act on one another in the presence of water only, the separated sulphur is obtained in a form almost impossible to collect, either by letting it deposit or by filtering. But the presence of some salt in solution has a very marked and curious action, causing the sulphate to be separated in a form that rapidly and completely settles. This was discovered some years ago by Schaffner and Helbig. The sulphur so obtained is finally melted under water at a pressure of 1½ atmospheres. The yearly production of sulphur is some 16 tons, and most of it is used at once for manufacturing sulphide of carbon for use in the vineyards.

THE UNITED STATES GEOLOGICAL SURVEY.

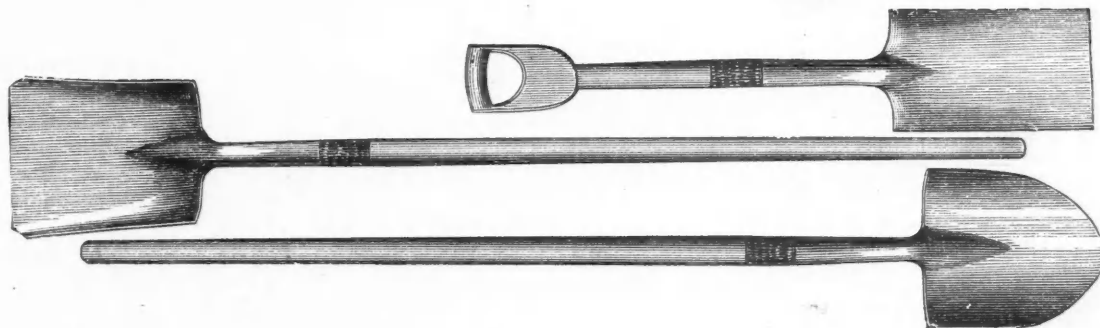
The coming fiscal year's work of the Geological Survey has been mapped out by Major Powell, and the plans have received the approval of Secretary Lamar. Topographical parties will continue the work already begun in Massachusetts and New Jersey, whither they have been invited by the State authorities, which co-operate with the government to the extent of defraying one half of the expense of the survey. It is expected that the work in these States will be completed within two years.

THE WORK LAID OUT.

Professor Pumpelly will study the Archæan rocks of the eastern portion of the United States extending from New England southward to Georgia. This includes the study of the origin, age, and structure of the Appalachian system.

Professor Shaler, in charge of the Atlantic coast division, studies the elevations and depressions of the coast, the conditions under which land is formed by the accumulation of sand bars and reefs, the growth of peat bogs, and their availability for agriculture when reclaimed by drainage.

Professor Gilbert deals with the rocks of the Appalachian region of



use of a combination of processes recently introduced in place of old ones that no longer yielded any profit. The ores containing any paying amount of free gold and silver are amalgamated at the mines. The residues from these and other ores not amalgamated are taken to the smelting-works, where at present about 1600 tons a year are treated, containing an average of from 260 to 300 grams of auriferous silver per ton of ore. The ores are first calcined partly in heaps and partly in shaft-burners on Bode's system. The sulphurous acid formed is made use of, partly for the production of sulphuric acid, and partly for producing sulphur, as will appear below. The calcined and uncalcined ores are smelted in cupolas in conjunction with other substances, so as to yield a matte or regulus. In this matte, the precious metals are concentrated, as also the small quantity of copper and lead contained in the ores. The amount of gold and silver together is from 550 to 650 grams per ton of matte. The copper in the matte is a little over one half of one per cent, so that it is really almost wholly sulphide of iron. This matte is now treated directly with sulphuric acid. It is ground fine and sieved, and then fed into lead-lined boxes filled with acid and provided with agitators. The cover of the box or tank has three openings, one for feeding in the matte and acid, one for drawing off the sulphureted hydrogen gas for the manufacture of sulphur, and another for burning this gas, when it is not convenient to utilize it for producing sulphur. The tanks are heated by steam. The work is carried on so that in twenty-four hours 1600 kilograms of matte are worked in six tanks by fifteen workmen. By this treatment about half the iron is dissolved out from the matte, the corresponding sulphur being liberated as sulphureted hydrogen. The insoluble residue amounts to some 25 per cent, and in this the auriferous silver is concentrated to from 1800 to 2500 grams per ton; the copper to 34 per cent of the residue. The solution of sulphate of iron is worked up for sale as copperas crystals. The rich residue is smelted with rich ores, and materials containing lead, in order to obtain most of the precious metals in lead ready for cupellation. The mixture is so arranged that for every kilogram of auriferous silver in the charge there shall be 250 kilograms of lead. The result of the smelting is a rich lead containing at least 5000 grams auriferous silver per ton, and a matte containing from 800 to 1000 grams per ton of the precious metals, with about 10 per cent of copper and 10 per cent of lead. The rich lead is cupelled directly, and the auriferous silver sent to the mint. The enriched matte is treated with acid, like the first matte, and the residue returned again to the smelting with lead. This is repeated two or three times, till finally a matte results with up to 25 per cent of cop-

later than Archæan formation. These are the richest coal-bearing strata of the continent, and much of the iron of this region is found within them.

Prof. Roland D. Irving is studying the copper-bearing formations of the Lake Superior region.

Mr. Lawrence C. Johnson is to examine the formations of Northern Louisiana with reference to the development of the iron ores that have recently been discovered there, the value of which, however, is as yet unknown.

Dr. Hayden continues his work in the Upper Missouri region.

Mr. Arnold Hague will further study the geysers of the Yellowstone Park, and their relation to the volcanic formations of that district. In prosecuting this work Mr. Hague has carried on experiments in the laboratory, and during the last winter has succeeded in producing small geysers by the generation of steam under peculiar conditions.

Mr. S. F. Emmons will work in the mining districts of Colorado, devoting special attention to the discovery of the sources and the supply of artesian waters, problems in which all the dwellers in the so-called arid regions have a direct and deep interest.

Mr. George Becker is engaged in the study of the quicksilver deposits of the Pacific coast; Mr. Curtis is at work among the silver-lead deposits of Utah; and Capt. Clarence E. Dutton is examining the volcanic phenomena of the Cascade range.

Professor Chamberlain continues the study of the glacial formations of the northern part of the United States. He has a ready prepared one valuable work for publication on this subject. The paleontologists and botanists of the institution are Professor Marsh, Dr. White, Mr. C. D. Walcott, Mr. Dall, and Mr. Lester F. Ward. These have no fixed plan of field-work for the coming year, but will study in their laboratories the fossil forms sent in by the field parties, visiting in person any localities where especially rich deposits may be found.

Gypsum.—In the Atlantic States, from Maine to Virginia, 65,000 long tons of land plaster and 60,000 tons of stucco, total 125,000 tons, were made in 1884, of which nearly all was from Nova Scotia gypsum. The statistics for Michigan have not been reported; but the production did not vary greatly from that in 1883, in which year it was 60,082 short tons of land plaster and 159,100 barrels (of 300 pounds) of stucco. In Ohio, 4217 short tons of land plaster and 20,307 barrels of stucco were produced. There was also a small production in other parts of the country; but the total amount of domestic gypsum used is not known.

A MINER'S ELECTRIC LAMP.

Mr. George G. André has invented a miner's electric lamp, which he describes in the *Colliery Guardian*, introducing his description as follows: Let the reader not be deluded into the expectation that he is about to learn something concerning a great invention. I hasten to assure him nothing great has happened. I wanted an electric safety-lamp. I could not find what I wanted in the market; I therefore made one for myself. That is all. I have used it, and it satisfies me. Many—not all—who see it like it, and want to use it too; and as the number of these has now become large, I have shunted the responsibility of the thing on to other shoulders. That is to say, I have induced Messrs. Capito & Hardt, electrical engineers, of No. 23 Queen Anne's Gate, Westminster, London, to undertake the manufacture and sale of these lamps, of whom all inquiries are in future to be made, and against whom the kindly remarks of all rival inventors are to be directed.

I may as well say at once that I have not reached perfection in the design of this lamp. This is a great deal for an inventor to admit; but as somebody is sure to discover the shortcoming, I think it prudent to make the admission at once. I can not even persuade myself that I have arrived within a "measurable distance" of perfection; but such as it is, I offer it to the notice of my fellow-miners, with the assurance that it is sufficiently good to serve a useful purpose. The task of improvement I leave to better men. The lamp consists of a small secondary battery of a novel design—I believe it is a novel design—contained within a cylindrical case, about 4½ inches in diameter and 6 inches in height, upon the top of which the lamp is set, and protected by a strong glass cylinder covered with wire gauze. Height over all, 8½ inches; weight, 4½ pounds. It is designed to burn eight hours, but, with a diminished light, it may be kept burning two hours longer. As my experience has taught me that miners are not particularly careful men, and that delicate instruments are apt speedily to get out of order in their hands, I have made this lamp capable of being kicked about, sworn at, and otherwise despitely used. This, I take it, is a quality of prime necessity in a miner's safety-lamp, especially if it be distinguished by any novel features. Beauty of design must come after. When the lamp is brought up out of the mine, it is to be hung up in the lamp-room, which is the usual way of disposing of such apparatus during the intervals of rest. But the hooks that these lamps are hung upon are in communication with some source of electricity, dynamo machine, accumulator, or primary battery, so that they are receiving a charge during the time they are left in that situation, and when again wanted, they will be ready for use. As dynamo machines are not found at every colliery, I have designed a simple primary battery to do the work of charging the lamp cells. This battery is inexpensive and requires but very little attention. One word more, and I have done. I desire to see electric lamps introduced into collieries for the miners' sakes, and not on account of any pecuniary advantage I might derive from their adoption. If, therefore, other manufacturers of such lamps see any thing to be gained in efficiency by combining my improvements with their own, they will meet with no opposition from me.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

GRANTED APRIL 7TH, 1885.

- 315,013. Operating Compressed Air Apparatus. Anthony C. Douglass, Washington, D. C.
 315,020. Method of Riveting Sheets of Metal. Joshua P. Gould, Bangor, Me.
 315,028. Magnetic Separator. Charles F. Hilder and Ernest Scott, Newcastle-upon-Tyne, England.
 315,036. Muffle-Furnace for Assaying and Annealing. John Hoskins, Chicago, Ill.
 315,064. Clay-Pulverizer. Granville C. Pratt, Anoka, Minn.
 315,072. Hot-Blast Stove. Joseph O. B. Richards, St. Louis, Mo.
 315,089. Process of and Apparatus for Roasting Ores. Orville B. Tobey, Chicago, Ill., and William W. Tobey, New York City.
 315,096. Puddling-Furnace. Job Webb, Alameda County, Cal.
 315,098. Feed-Water Regulator for Steam-Boilers. W. White, London, England, Assignor to William Stein, same place.
 315,116. Apparatus for Making Sand Molds for Casting Metal. Edward Breslauer, Berlin, Germany, Assignor to Theodore Rolle, same place.
 315,123. Dumping-Car. Dominick M. Carey, Canton, Ohio.
 315,142. Apparatus for the Combustion of Gaseous Fuel. James Henderson, Bellefonte, Pa., Assignor of one half to Charles G. Francklyn, New York City.
 315,145. Smoke-Consuming Furnace. Adelbert T. Kinney, Cleveland, Ohio.
 315,146. Pulverizing Apparatus. William A. Koneman and Hiram H. Scoville, Chicago, Ill.; said Scoville Assignor to Azel F. Hatch, same place.
 315,147. Ore-Concentrator. William A. Koneman and Hiram H. Scoville, Chicago, Ill.; said Scoville Assignor to Azel F. Hatch, same place.
 315,150. Bessemer Process. George Lauder, Pittsburg, Pa.
 315,187. Device for Feeding Air to Furnaces. William Thomas, Pittston, Pa.
 315,192. Mold for Casting Copper Ingots. William R. Walton, Ansonia, Conn., Assignor to the Ansonia Brass and Copper Company, same place.
 315,235. Caster-Wheel for Hoisting-Buckets. Alexander E. Brown, Cleveland, Ohio.
 315,239. Friction-Drum. William J. Carlin, Alleghany, Pa.
 315,265. Apparatus for Refining Copper by Electrolysis. Moses G. Farmer, New York City.
 315,266. Apparatus for Obtaining Aluminium. Moses G. Farmer, New York City.
 315,269. Roll for Reducing Old Rails to Homogeneous Bars. Hervey W. Fowler, Chicago, Ill.
 315,270. Cam. Hervey W. Fowler, Chicago, Ill.
 315,271. Combined Boring-Bar and Centering-Mandrel. Philetus W. Gates, Chicago, Ill.
 315,318. Rotary Engine. John Moffet, New York City.
 315,326. Rock-Drill Chuck. A. Ingram Parsons, New York City.
 315,338. Machine for Reducing Ores, etc. George Raymond and Albert Raymond, Chicago, Ill.
 315,349. Machine for Rolling Screws. John Sheldon, Birmingham, County of Warwick, England.
 315,362. Guide-Box. Benjamin Weaver, Pittsburg, Pa.
 315,398. Centrifugal Ore-Filter. Thomas T. Eyre, Carlisle, New Mexico.
 315,402. Composition of Matter for Lining and Facing Molds. William N. Gartside, Richmond, Ind.
 315,402. Pump. Jay W. Powers, Winnetka, Ill., Assignor of two thirds to Morris J. Mott and Robert S. Mott, same place.
 315,458. Nail-Holder and Carrier. Freeborn F. Raymond, 2d, Newton, Mass.
- REISSUES.
- 10,578. Nut-Lock. James H. Sheehan, Bangor, Me., Assignor of one half to Ezra L. Sterns, same place.
 10,579. Roller Grinding-Mill. Friedrich Wegmann, Zurich, Switzerland.
- GRANTED APRIL 14TH.
- 315,465. Apparatus for Making Dry Sand Cores. James H. Blessing, Albany, N. Y.
 315,468. Stone and Ore-Crusher. Daniel Brennan, Jr., Bayonne (Saltersville P.O.), N. J.
 315,469. Stone and Ore-Crusher. Daniel Brennan, Jr., Bayonne (Saltersville P.O.), N. J.
 315,471. Roof-Paint Composition. Daniel Brobst, Portland, Mich.
 315,478. Furnace. Jean F. Cignat, Lyons, France.
 315,485. Pump. Joseph D. Davies, Natchez, Miss.

- 315,480. Oxyhydrocarbon Heat and Fuel Economizing Apparatus. John T. Dysart, Shippensville, Pa.
 315,490. Coupling for Hemp and Wire Ropes. Anton Englemann, Hanover, Prussia, Germany.
 315,511. Steam-Boiler. Thomas Kays, Newton, N. J., Assignor to the Lawson Non-Explosive Boiler Company, New York City.
 315,520. Submarine Rock-Breaker. Thomas F. Lonney, East New York, N. Y.
 315,522. Ventilator. Charles B. Loveless, Worthington, Minn.
 315,530. Manufacture of Drills. Samuel Moore, Providence, R. I.
 315,538. Lubricator for Shafts. Charles Page and Louis Goullioud, Montreal, Quebec, Can., Assignors of one third to Thomas F. G. Toisy, same place.
 315,542. Machine for Trimming the Ends of Sleeve-Nuts. Henry P. Phipps, Cleveland, Ohio, Assignor to the King Iron Bridge and Manufacturing Company, same place.
 315,550. Lubricator. Francis J. Renchard, Detroit, Mich.
 315,551. Lubricator. Francis J. Renchard, Detroit, Mich.
 315,578. Apparatus for Ventilating Mines. Morton L. D. Weston, Des Moines, Iowa.
 315,582. Method of Operating Converters. John F. Wilcox, Pittsburg, Pa., Assignor to James P. Witherow and Henry W. Oliver, Jr., same place.
 315,587. Apparatus for the Manufacture of Iron and Steel. James P. Witherow, Alleghany, Pa.
 315,595. Coke-Oven. Edmund J. Bowen, Maynard, Ohio, Assignor to Thomas Kelley, same place.
 315,627. Lubricator. Niels Jacobsen and Hans Peter Jensen, Aarhus, Denmark.
 315,667. Rotary Force-Pump. John Serdinko, New Braunfels, Texas.
 315,668. Column-Support for Rock-Drills. Henry C. Sergeant, New York City.
 315,670. Rock-Breaker and Pulverizer. William S. Sharpneck, Denver, Colo.
 315,716. Apparatus for Grinding Ore and other Materials. Frederick S. Burr and Willard M. Fuller, New York City.
 315,738. Flue-Cleaner for Steam-Boilers. William H. Cooper, Quincy, Ill.
 315,741. Mold for Casting Steel. James Henderson, Bellefonte, Pa.
 315,824. Ore-Concentrator. Charles W. Patten, San Francisco, Cal.
 315,825. Ore-Grinding Mill. Almarin B. Paul, San Francisco, Cal.
 315,826. Apparatus for Boring Wells. Gustav Fecht, Storm Lake, Iowa.
 315,845. Metallurgic Gas-Furnace. Joseph S. Seibert, Pullman, Ill.
 315,864. Steam Draught and Pressure Regulator. Noble J. Waterman, Detroit, Mich.
 315,868. Well-Boring Machine. Willet C. Wells, Tiffin, Ohio.
 315,872. Method of Casting Car-Wheels. William Wilmington, Toledo, Ohio.
 315,874. Powder-Keg Discharge-Tube. Augustus H. Witman, Minersville, Pa.
 315,886. Apparatus for Reducing the Ores of Precious Metals. John A. Bailey, Detroit, Mich.
 315,887. Core-Breaker and Lifter for Annular Rock-Drills. Albert Ball, Claremont, N. H., Assignor to the Sullivan Machine Company, same place.
 315,888. Core-Breaker and Lifter for Annular Rock-Drills. Albert Ball, Claremont, N. H., Assignor to the Sullivan Machine Company, same place.
 315,889. Core-Breaker and Lifter for Annular Rock-Drills. Albert Ball, Claremont, N. H., Assignor to the Sullivan Machine Company, same place.
 315,892. Dumping-Car. George E. Blaine, Chattanooga, Tenn.
 315,893. Amalgamating-Pan and Settler Apparatus for Treating Ores. Martin P. Boss, Oakland, Cal.
 315,897. Clay-Crusher. A. L. Brewer and Hendrick Heesen, Tecumseh, Mich., Assignors to themselves and H. Brewer & Co., same place.
 315,900. Hoisting and Conveying Machine. Alexander E. Brown, Cleveland, Ohio.

GRANTED APRIL 21ST.

- 316,032. Steam-Boiler. George G. M. Hardingham, 191 Fleet Street, County of Middlesex, England.
 316,049. Pump. William C. McClay, Santa Ana, Cal.
 316,102. Machine for Straightening Metal Bars, etc. Levi D. York, Portsmouth, Ohio.
 316,106. Power Rock-Drill. Charles O. Barlow and George T. Emery, Nevada City, Cal., Assignors, by direct and mesne assignments, of one half to Joseph W. Sprague, same place, and Richard H. Lane, New York City.
 316,107. Machine Rock-Drill. Charles O. Barlow, Nevada City, Cal., Assignor, by direct and mesne assignments, of three fourths to George T. Emery and Joseph W. Sprague, same place, and Richard H. Lane, New York City.
 316,111. Steam-Engine Pressure-Recorder and Crosby Indicator. Gilman W. Brown, West Newbury, Assignor to the Crosby Steam-Gauge and Valve Company, Boston, Mass.
 316,116. Concentrator. Joshua E. Clayton, Salt Lake City, Utah.
 316,144. Steam-Boiler. Samuel P. Hedges, Greenport, N. Y.
 316,168. Valve. Jeremiah O'Meara, New York City.
 316,182. Feed-Water Heater. Alexander Rodgers, Muskegon, Mich.
 316,187. Valve-Gear for Steam-Engines. Reinhard Scheidler, Newark, N. J.
 316,188. Metallic Packing-Ring. Leopold Schnabl, Vienna, Austria.
 316,200. Friction-Clutch. John Thompson, Bucyrus, Ohio, Assignor to the Bucyrus Foundry and Manufacturing Company, same place.
 316,202. Lubricating Cup. Edward A. Wadhams, Milwaukee, Wis., Assignor of one half to E. Eldred Magie, same place.
 316,207. Oscillating Steam-Engine. Charles P. Waldron, New York City.
 316,209. Pile for Merchant Iron. George Westerman, Sr., Lockport, N. Y.
 316,214. Steam-Boiler. Louis Zeller, Massillon, Ohio.
 316,232. Rolling-Mill. Augustus P. Brown, Brooklyn, N. Y.
 316,233. Blast-Furnace. Fayette Brown, Cleveland, Ohio.
 316,236. Circular Slide-Valve. Walter C. Church, Brixton, County of Surrey, Assignor to the Walter C. Church Engineering Company (Limited), London, England.
 316,237. Circular Slide-Valve. Walter C. Church, Brixton, County of Surrey, England.
 316,295. Device for Spiral Metal. James B. Robinson, New York City.
 316,300. Manufacture of Hydrochloric Acid. Ernst Solvay, Brussels, Belgium.
 316,309. Rotary Engine. John C. Teller, Palatka, Fla.
 316,312. Manufacture of Steam-Boiler Man-Holes and Analogous Devices. Joseph Tordoff, Leeds, County of York, England.
 316,331. Crushing and Pulverizing Mill. Jacob Cherney, Denver, Colo., Assignor of one half to Francis Marion Davis, same place.
 316,420. Machine for Punching and Shearing Metal. William H. Tydeman, Earlville, Assignor of one half to Jacob Reif, Aurora, Ill.

GRANTED APRIL 28TH.

- 316,433. Valve-Gear for Steam-Engines. Gustav Abrams and Nils Nilson, Dassel, Minn.
 316,434. Pump. Allevi Annibale, Chicago, Ill.
 316,490. Steam-Engine Governor. John W. Sargent, Cambridge, Mass.
 316,492. Lubricator for Pistons and Cylinders. Alexander and Ellis R. Simpson, Scranton, and Mathias Speicher, Archbald, Pa.
 316,507. Dumping-Car. Matthew Van Wormer, Walden, Mass.
 316,526. Work-Holder for Metal-Working Machines. Lawrence Cosgrove, Baltimore, Md.
 316,537. Apparatus for Mounting and Dismounting Bessemer Converters. Percy C. Gilchrist, London, and Lewis G. Fitzmaurice, Bilston, County of Stafford, England.
 316,539. Apparatus for Swaging Tuyeres. Robert Gracey, Pittsburg, Pa.
 316,544. Mold for Casting Steel. James Henderson, Bellefonte, Pa., Assignor of one half to Charles G. Francklyn, New York City.
 316,641. Boiler Furnace. Thomas Murphy, Detroit, Mich.
 316,642. Furnace. Thomas Murphy, Detroit, Mich.
 316,666. Tripod Support for Rock-Drills. Henry C. Sergeant, New York City.
 316,669. Smelting-Furnace. Edwin G. Smith and Charles Bell, Sacramento, Cal., Assignors of one third to B. B. Brewer, same place.
 316,716. Rock-Drill. De Volson Wood, Bounton, N. J.
 316,718. Hoisting-Machine. Charles E. Albro, Philadelphia, Pa.
 316,723. Furnace for Roasting Copper and other Ores. Charles A. Bartsch, Bridgeport, Conn.
 316,776. Engine for Starting or Turning Large Engines. William Hargreaves and William Inglis, Bolton, County of Lancaster, England.
 316,834. Lubricator. Robert Ruddy, Mount Vernon, N. Y., Assignor to Nathan Manufacturing Company, New York City.
 316,837. Converter. Hermann Schulze-Berge, Rochester, Pa., Assignor to Henry W. Oliver, Jr., and James P. Witherow.
 316,865. Prospecting or Well-Boring Tube. Albert Ball, Claremont, N. H., Assignor to the Sullivan Machine Company, same place.
 316,884. Furnace-Door. Herman H. Dreyer, Genoa, Ohio, Assignor of one half to John H. H. Uthoff, same place.
 316,900. Manufacture of Machine-Belting. Robert H. Mullen and Harry T. Atkins, Cincinnati, Ohio, Assignors to Pearce, Atkins & Co., same place.
 316,921. Attrition-Mill. Thomas L. Starveant, Framingham, Mass., Assignor to the Starveant Mill Company, Portland, Maine.

FURNACE, MILL, AND FACTORY.

S. R. Krom has recently completed a full set of mill plans for lixiviation-works for Simeon Wenban, of Cortez, Nevada. Krom's 26-inch steel rollers (latest improved) will be used to pulverize the ore. The crushing capacity of these rollers is so great that the mill is arranged to run the crushing machinery only in the daytime, that is, from ten to twelve hours, with a storage-bin of 100 tons to hold the extra pulp, and supply the chloridizing furnaces for twenty-four hours. Krom's pneumatic jigs will be introduced to separate the carbonate of lead, which the ore contains to the extent of 15 per cent, from the leaching pulp. The lead carbonates constitute the smelting product, and the remainder of the pulp the leaching product.

A proposition has been made by Everson & Co., of Scottsdale, Pa., that the people of that place shall subscribe to a fund to establish a rolling-mill there, and those who have no money shall obtain an interest in the undertaking by contributing their labor. At a public meeting, a committee was appointed to attend to the taking of subscriptions.

Hussey, Howe & Co.'s iron mill, in Pittsburg, Pa., started up on the 6th inst., and the puddlers will go on double turn. The puddling department of Wilson, Walker & Co.'s mill also started on double turn on the same day. Both mills have been closed for several weeks.

Messrs. Jones & Laughlin, of Pittsburg, are making preparations for the erection of a new steel plant.

The York Iron Company, of Minneapolis, Minn., which has recently been incorporated, will soon erect a charcoal blast on its property at Black River Falls, Wis.

Messrs. Gordon, Strobel & Laureau, engineers, No. 226 Walnut street, Philadelphia, have arranged with Messrs. Cooper, Hewitt & Co. to act as their sole agents for the patents owned by them, covering the alloys of iron and phosphorus, wherein the latter becomes the steelifying agent.

Robert J. Cory, Denver, Colo., agent for the Triumph concentrator, reports that over fifty "Triumphs" have been sold by him within the last sixty days. Thirty-four alone were sold for Colorado, and a number have been sent to New Mexico.

The Italian government has ordered from the Pratt & Whitney Company, of Hartford, Connecticut, a hundred Gardner machine guns. Competitive trials have recently been made in Italy, and the preference was given to the Gardner gun, "not for the rapidity of firing, but for the simplicity, durability, and certainty of action of the mechanism."

William Hasenzahl, of Cincinnati, Ohio, has lately received some excellent testimonials of the satisfactory working of his drills in prospecting. Among them, is one from the Soddy Coal Company, of Little Rock, Ark., and one from Coxie Brothers, of Jeddo, Pa.

The Chicago Steel Wheel-Works, with a capital stock of \$60,000, will erect works at Plano, Ill.

The Fayette furnace, near Escanaba, Mich., used by the Jackson Iron Company, of Negaunee, closed down on the 4th inst. The amount of pig-iron on hand is estimated at between 30,000 and 35,000 tons.

A conflagration at Merwin, Ohio, on the 8th inst., caused the Garry Iron Roofing Company a loss on building and stock of \$45,000. The company has \$12,000 insurance. The Cleveland Iron Ore Paint Company's loss on stock and building is between \$8000 and \$10,000; insurance, \$5000.

The rolling-mills at Joliet, Ill., started up on the 7th, after having been shut down for over three months. During the interim, improvements costing more than \$100,000 have been made. New automatic rolls have been introduced, which will do away with a good many laborers, and are calculated to effect a saving that will pay for the new improvements within a year.

The Latrobe and Kentucky furnaces and lands at Wellston, Ohio, have been sold to a company of Eastern capitalists. The lands are a few miles southwest of Wellstown, and comprise tracts aggregating in all about 10,000 acres, and brought \$375,000. It is the intention of the company at once to begin the development of the rich mineral deposits that underlie the tracts, and to this end the tracks of the different railroads will be extended to the most available points on both tracts.

LABOR AND WAGES.

A call for a meeting of the National Executive Board of the Miners' Association, to be held in Pittsburg, Pa., July 15th, has been issued. The meeting will arrange as far as possible for combined action on the part of the various associations throughout the United States.

The nail-feeders from all the mills in the West, who met at Wheeling, West Va., on the 6th inst., decided to join the Amalgamated Association of Iron and Steel-Workers in a body. President Wilhe, of the society, says that it can not take any action on the request at this time, as it is not under its jurisdiction. The annual convention will be held in Wheeling on August 4th, when the question will be considered.

The nail-feeders of the Ohio Valley, who were in convention at Bellaire, Ohio, on the 7th inst., have made a formal application for readmission to the Amalgamated Association.

The striking employes at the Cleveland (Ohio) rolling-mill, not having gained their point, have made considerable trouble, and the mill-owners have asked for protection by the militia.

The tack-makers of Taunton, Mass., have returned to work, accepting the 30 per cent reduction in wages.

The coal miners of Wheeling, West Va., have formed a union, which will be represented in the National Convention of Coal Miners in Pittsburg on the 15th inst.

The Western Nail Association held a secret meeting at Cincinnati, Ohio, on the 8th inst. The principal action was the adoption of a resolution that gives notice to the United Nailers of America that, if the scale for nailing adopted by the Western Nail Association on May 28th is not accepted on or before next Saturday, the mills connected with the association will be opened and the machines given to nail-feeders who will agree to cut nails at the prices named.

TRANSPORTATION NOTES.

The Tennessee Coal, Iron, and Railroad Company reports for June 8446 tons of coal received directly from the mines; and 9464 tons of coke received directly from the mines; year from January 1st, coal, 76,086 tons; coke, 50,366 tons.

Pinkerton tunnel, on the Pittsburg Division, Baltimore & Ohio Railroad, fifty miles from Cumberland, which was destroyed by fire in 1879 and rebuilt, was reopened July 1st. The tunnel was first built in 1871, and lined with wood. This caught fire, and the flames communicated to a coal seam, ruining the tunnel. Since the fire, trains have run around the tunnel, a distance of two miles. The work of rebuilding was begun about a year ago. The tunnel is 1084 feet long and cost about \$120,000.

It is officially stated that the Pennsylvania Company has decided to extend the Pennsylvania system from Washington to Nashville, Tenn., absorbing *en route* the Kentucky Union, a road now under construction. The extension, which will really be another trunk line from Pittsburg, will have for its general direction the shortest survey between Cincinnati and Southeastern Kentucky, thus giving the new enterprise a line between Nashville and Cincinnati, Nashville and Pittsburg, and Cincinnati and the timber, coal, and iron fields of Southeastern Kentucky. It is expected to be completed by July 1st, 1887.

The Beech Creek, Clearfield & Southwestern Railroad has completed a branch road, 31½ miles in length, from Munson, Pa., to Millport.

The controversy between the Pennsylvania Schuylkill Valley Railroad Company and the Philadelphia & Reading Railroad Company came to an end on the 3d inst. The Reading for some time refused to allow the new company (the Schuylkill Valley road) to cross its siding in the town of Reading, although it had an order of the court to do so. Track-laying has been resumed.

Judges Bond and Morris, of the United States Court at Baltimore, Md., filed their opinion in the case of Stewart *et al.* vs. the Chesapeake & Ohio Canal. The complainants asked for a receiver and the sale of the canal to satisfy the bondholder creditors, the canal having defaulted in the payment of interest. The court dismissed the application. The opinion also dismissed the application of the Canal Company asking whether it had power to use certain bonds for the enlargement of the locks of the canal, as the matter of

the petition is *coram non judice*, and any opinion about it would be extra-judicial.

The Norfolk & Western Railroad reports its gross earnings for the month of May as \$192,827, the expenses as \$134,949, and the net earnings as \$57,878, a decrease of \$17,422, as compared with the same month last year. For the five months to May 31st, the gross earnings were \$1,045,262, the expenses \$656,624, and the net earnings \$388,638, a decrease of \$12,856, as compared with the same period of 1884.

COAL TRADE NOTES.

ILLINOIS.

The Hointz Bluff Coal Company, of Collinsville, has been incorporated for the purpose of mining and dealing in coal, salt, iron, gas, oil, or other valuables; capital stock, \$50,000; incorporators, Joseph H. Wickliff, Howard L. Wickliff, and Benjamin T. Savitz.

INDIAN TERRITORY.

A press dispatch announces that Jay Gould bought on the 6th inst. of Robert C. Stephens, the builder of the Missouri Pacific Railroad, all his mining interests in the Indian Territory, including the McAllister mine, from which the coal supply of Texas is mainly derived. It is thought that he will thus control fuel so as to annoy opposition railroads in Texas, and notably the Gulf, Colorado & Santa Fé road, owned by Galveston merchants, for the control of which he has been aiming.

IOWA.

Eight miners at Crescent Shaft No. 1, at Whatcheer, were descending to work on the 2d inst., when the engineer lost control of his engine, and the cage was precipitated to the bottom. One man was killed and three were seriously injured.

MARYLAND.

A ventilating fan twenty feet in diameter has been placed in the Consolidation Company's Hoffman mine at Cumberland. It is intended to exhaust one hundred thousand cubic feet of air a minute. The fan will be put in operation in a few days. It is said to be the first ventilating fan in any mine in this region.

MISSOURI.

The mining troubles in the Rich Hill mines are settled, the miners going to work at two cents a bushel under the new law.

PENNSYLVANIA.

ANTHRACITE.

An extensive cave-in occurred at ten o'clock on the morning of the 7th inst., at No. 3 of the Baltimore mines of the Delaware & Hudson Company, about one mile from Wilkes-Barre. The cave-in takes in at least ten acres of land over which branch railroads of the Lehigh & Wilkes-Barre Coal Company and the Delaware & Hudson Company are daily running trains. A portion of the tracks has been greatly affected, making it impossible to run any trains at present. The men and mules, together with all the mining implements, have been removed from the mines.

The Locust Gap colliery, at Mount Carmel, operated by the Philadelphia & Reading Coal and Iron Company, has received orders to resume work. The colliery has been idle since January 1st.

The fire in the North Ashland colliery, at Ashland, has been extinguished, and the water is pumping out of the slope. Work will be resumed as soon as the necessary repairs can be completed.

WEST VIRGINIA.

H. J. Tucker has been appointed State Mine Inspector for the term of two years, *vice* Oscar A. Veazey.

GAS AND PETROLEUM NOTES.

Exports of refined, crude, and naphtha from the following ports, January 1st to July 3d:

	1885.	1884.
	Gallons.	Gallons.
From Boston.....	4,123,782	2,600,512
Philadelphia.....	69,408,071	34,684,220
Baltimore.....	5,254,973	5,679,899
New York.....	181,724,066	186,586,467
Total exports.....	200,511,492	229,611,198

The exports of mineral oils from the customs districts of the United States amounted, for May, to 52,121,976 gallons, valued at \$4,504,002; and to 520,888,124 gallons, valued at \$45,583,066, for the eleven months ended May 31st, 1885.

OHIO.

A natural gas well was struck at a depth of 1800 feet, on the 7th inst., at Bethel. The pressure was

fifty pounds per square inch. The force of the gas throws mud and stone 150 feet in the air. The well was reported burning at the above date, with a blaze fifty feet high and thirty feet in diameter at the top.

PENNSYLVANIA.

A leading firm of oil region capitalists will immediately begin the building of large independent oil refining-works. A company has been incorporated as the International Refining Company. In connection with it will be built the Clarendon, Tiona & Titusville Pipe Line, extending fifteen miles.

To the Shenango Natural Gas Company has been granted the privilege of introducing natural gas into the town of New Castle. The bill requires the company to begin laying pipes within sixty days, and it is said that by the 16th of October next the company will be prepared to furnish gas in the city for consumption. The well, struck some weeks ago, continues to flow at a heavy pressure, and three others are drilling.

The Penn Fuel Company is in negotiation for a supply of 8, 10, and 15-inch low-pressure pipe, that will enable it to complete its system in all parts of Pittsburgh. The contract has not yet been awarded.

The Sharon Light and Heat Company has been organized for the purpose of drilling in Sharon for natural gas. The location of the test well has not yet been determined. Work will begin soon.

The Natural Gas Commission at Pittsburgh has concluded its report and filed it in court. The commission was created because of the application of the city solicitor first for a preliminary injunction, then for a permanent injunction, and finally for a mandatory injunction against the Penn Fuel Gas Company. The commission, it is said, decides generally in favor of the city. The recommendations are to the effect that the city should have the supervision of the laying of pipes and the making of rules for general safety. The recommendations are not unfavorable to the defendant company, and it is probable that the report as a whole will be satisfactory to both parties. The gas company is to pay the costs.

The Champion Natural Gas Company has struck a strong flow of gas at the depth of 900 feet on the Duff farm at Murrysville, Westmoreland County.

Arrangements have been made to supply all the oil-works at Franklin with gas. The pipes will be laid a distance of eight miles. The Acme Oil Company, of Titusville, has also made a contract to have natural gas piped from Oil City to its works, seventeen miles. The contract calls for the completion of the line within thirty days.

GENERAL MINING NEWS.

ARIZONA.

COCHISE COUNTY—TOMBSTONE DISTRICT.

GRAND CENTRAL.—Cleveland advises state that the hearing upon the exceptions to the referee's report by Mr. Arms's attorney, in the case of Peter Kimberly, of Sharon, Pa., against Charles D. Arms, of Youngstown, O., came up at Cleveland on the 29th ult. A complete history of the suit was given in the ENGINEERING AND MINING JOURNAL of May 2d.

CALIFORNIA.

INYO COUNTY.

MAXIM.—On the 26th ult., Messrs. Harris & Rhine took possession of the Maxim mill. It is claimed that the sale of the property to William Stansfield last December was not based upon sufficient authority, the notice under which the judgment of sale was obtained not having been served upon parties who were representatives of the real owners. For the purchase money invested by Mr. Stansfield, he will doubtless fall back upon the seller.

GAVILAN.—The work of development is pushed vigorously. The ore will be shipped to San Francisco for treatment.

MONO COUNTY—BODIE DISTRICT.

Reports for the week ended July 29th:

BULWER.—The formation in the west cross-cut from the north drift, 200-foot level, continues favorable but hard, with stringers of quartz and clay. There are about 9 feet more to run to the west line. The south drift on the Homestake ledge has been advanced 38 feet; total, 395 feet. The streak of ore on the foot-wall shows some improvement. Otherwise, there is no change in the mine.

STANDARD.—There were shipped to the mill 420 tons of ore. The mine looks well, and the mill is running steadily.

PATTERSON DISTRICT.

SUMMERS CONSOLIDATED.—The official weekly letter for June 29d states that tunnel No. 2 is advancing. The vein holds in width and quality. Considerable water is making its appearance, but not enough to delay the work. Samples for assay have ranged from \$42.42 to \$163.41, taken across the face of the vein. The vein is about 5 feet wide, low-grade ore. The uprise from the intermediate incline level, level south, is up 12 feet. The vein continued broken, and is discontinued. We are stoping some ore between the second incline level and the bottom of the incline. The mill is working some low-grade ore and tailings, putting through about 20 tons a day.

PLUMAS COUNTY—GREENVILLE DISTRICT.

INDIAN VALLEY.—The water is out of the mine, and a contract has been let for the new hoisting and pumping machinery, which will be placed 400 feet under ground. An 8-inch pump will be put in to pump water from the 200-foot level. The water from the bottom of the shaft will be pumped into a tank at the 200-foot level; also the water from the Union, which is tapped by a tunnel, 212 feet below its deepest workings, will be drained into the same tank and pumped from there into the drain tunnel above. This arrangement will enable them to handle the water easily, thus facilitating the sinking of the shaft.

SIERRA COUNTY.

ALPHA & GOLDEN GATE.—These mines, about 1000 feet north of the Idaho mine, have been bonded by a San Francisco company, and work was to begin July 1st. The two mines have been consolidated, and are reckoned as among the best claims in the district.

COLORADO.

GROUND HOG CONSOLIDATED.—The company has been incorporated with a capital stock of \$1,250,000. The operations will be carried on in Eagle, Garfield, and Lake counties, with the principal office in Red Cliff. The directors are: William M. McMechen, John Guth, Charles E. Taylor, C. C. Parsons, George V. Bartlett, R. H. Ten Broeck, Robert M. Martin, Lince C. Linderman, and C. H. Taylor.

CHAFFEE COUNTY.

MADONNA.—It is stated that about 150 tons of lead ore are shipped daily to the Colorado smelter at Pueblo.

CLEAR CREEK COUNTY.

Col. Frank Osbiston has the new McNair furnace, erected by him on Spanish Bar, running to its full capacity, and has drawn off matte. He has in course of erection two calcining-furnaces alongside the matte-furnace. A large pit has been dug, and a foundation is to be put in for the engine and boiler that will be used in running a crusher and other machinery in connection with it.

COLORADO CENTRAL.—During June, 105 tons of ore were mined that brought \$19,681.55.

FOXHALL.—The tunnel cut the Seaton vein at a depth of between 600 and 700 feet.

FREELAND.—Two 50-horse-power boilers have been received at the concentrating-works, to take the place of those ruined by an explosion a short time ago. The cause of the explosion was due to an incrustation on the bottom of the boiler, which permitted the iron to burn.

KOHINOOR & DONALDSON.—The Champion mine, on Bellevue Mountain, owned by this company, is turning out large quantities of excellent ore. The cost of crushing the ore in the new stamp-mill is about 60 cents a ton.

SNOWDRIFT.—The mine shows up some good ore, and leases upon the property are in demand. Major Fulton is pushing work and the mine is opening in a systematic manner. A splendid strike was recently made by Johnson & Babcock in the heading of the main level.

UNION SMELTING COMPANY.—The works at Idaho Springs that will use the Campbell process, were to have been in running order by the beginning of this week.

CUSTER COUNTY.

The Jay Gould, Virginia, and Matchless mines have been bonded to Messrs. Humphrey & Co. by Messrs. Ballard, Daily, and others. This group has been in the courts for a year or so on the question of priority of title; but not long since, the contestants came together and agreed to surrender their mutual interests for an amount satisfactory to the entire outfit. Work has begun in the original opening, and about forty tons a day are treated by the Adelia Concentrating-Works, which are also under lease by Humphrey.

BULL-DOMINGO.—Plans are nearly completed to remodel the concentrator and adapt it to the improved conditions of machinery that have been brought to work since the mill was erected in 1880.

SILVER CLIFF.—During the past two weeks, two judgments have been entered in this city against the company—one of \$36,639, by C. C. Marshall, and one of \$1052, by S. Holm.

TERRIBLE.—This mine and mill, which were purchased by the Omaha & Grant Smelter Company a short time ago, will start up under its management. A hoisting plant is to be erected, in order to work the vein to a greater depth, and the works are to be equipped with the best obtainable machinery.

LAKE COUNTY.

The Leadville Herald reports the following:

AGASSIZ.—During the past month, nearly 400 tons of ore were shipped, averaging about forty ounces of silver to the ton.

DENVER CITY.—Exploration-work is actively continued. A winze sunk in one of the northern drifts disclosed small bunches of chloride, assaying very high, but so far, no body of mineral has been disclosed. The winze was put down about twenty feet through iron, and encountered flint, the accepted floor of the mineral deposits. At present, a drift is driving from the winze to the northward, on the flint floor, in search of the continuance of the north ore-chute opened in the May Queen and Forest City mines.

IRON HILL CONSOLIDATED.—A short time ago, the American Mining and Smelting Company secured a lease on the property of this company. Work was immediately begun in several places, the most promising of which was the Imes shaft. This shaft is quite deep and small, and after a few weeks' work it was found impracticable, and operations were suspended. Negotiations are pending for the use of one of the deep shafts back of the Silver Cord property, for the purpose of working the northern end of the Imes claim. The Imes claim covers a piece of virgin ground on the top of Iron Hill 300 by 1200 feet, which unquestionably carries strong ore-chutes, and will, with a limited amount of development, become productive. The company is pushing work from the White Cap shaft, while the extreme southern portion of Iron Hill Consolidated territory is worked by sub-lessees.

IRON SILVER.—The American Mining and Smelting Company has secured the output of this company's property for the next six months, beginning with July 1st. The competition was very active, and bids were all low and very close. In bidding on the output of this company's mines, the smelters calculated on about one hundred tons of ore a day, an amount sufficient to supply the lead flux for about three furnaces, an important item in economical smelting in Leadville. The American Company received the ore of the Iron Silver during the past six months, but, by an agreement made with other smelters, was obliged to divide the ore. When the agreement for a division of the ore was made, it was the opinion of the American and other smelters that the Iron Company would send them at least 300 tons a day. This expectation was not realized, and this year the mines will not produce enough lead ore for one smelter.

LEE BASIN.—As soon as the mine can be drained, prospecting-work will be advanced with all possible speed.

LITTLE PITTSBURG.—The entire property is worked under the leasing system, relieving the company from any possibility of loss. During the month of June, only 163 tons of ore were shipped, averaging about \$20 a ton above smelting charges. The company still possesses a great deal of virgin ground, both in the northern and southern portions of its territory, which by proper development should be made productive. It is probable that, if the company does not find lessees for this ground, it will develop it at its own risk.

MORNING STAR.—The management is waiting for the Henriett mine to start up its pumps before resuming work on the lower contact opened in the McHarg shaft.

SILVER CORD.—During June, there were shipped about 1725 tons of fair smelting ore.

WHITE'S GULCH.—Col. G. R. Crane and Judge N. Rollins have taken a two years' lease on this property, back of Oro City. The property embraces about thirty acres, opened by a number of shafts and tunnels. One of the shafts has a depth of 140 feet, and, it is stated, discloses a vein of gold ore. The tunnel on the property has a length of 540 feet.

PARK COUNTY.

LONDON.—Active operations are to be resumed. It is the intention to move the milling plant of the company up to the mine, and make other changes calculated to facilitate the economical extraction and reduction of ore.

PITKIN COUNTY.

The controversy on the so-called apex question, involving the leading Aspen properties, was begun in the District Court in Leadville on the 1st inst. The contest was opened by the owners of the Durant lode, claiming to possess the outcrop of the Aspen and Emma vein, with an application for a receiver and injunction. The prayer is for the appointment of a receiver to take charge of the ore receipts of the Emma and Aspen mines, and for an order permitting the Durant owners to continue their incline through the Washington No. 2, Emma, and Aspen mines, so that they may be enabled to prove the continuity of the vein, which it is alleged has its apex within the limits of the Durant claim.

FULTON.—At the Chatfield mine, on Smuggler Mountain, a claim that runs parallel to and adjoining the J. C. Johnson, both owned by the above company, a strike of a considerable body of pay ore has been made. Work has gone forward on that property lately, in order to make connection with the main tunnel on the J. C. Johnson, to obtain a supply of fresh air.

JENNY LIND.—At the bottom of a 40-foot shaft and the end of a 100-foot tunnel, a three-foot vein was struck that assayed an average of 400 ounces.

SAN JUAN COUNTY.

It is rumored that Comstock's sampling-works will shortly be in active operation again.

STANDARD.—This gold and silver mining company will resume work on the Cox group. These properties are situated on Bonita Mountain. One year ago, a shaft was sunk on the Cox at a depth of 30 feet. Water then came in, preventing further development. In the mean time, the property was sold to the above-named company and stocked. A 200-foot tunnel was begun, which cut the veins of the several properties.

SAN MIGUEL COUNTY.

PULASKI.—If the present development-work proves up satisfactory, the owners will put in a stamp-mill for the treatment of the quartz. Pockets of free gold have already been found in the work done.

SUFFOLK.—The mine was recently examined for California parties, and preliminary negotiations for the sale of the mine have been entered into between the owner and the company referred to. If the purchase is completed, the company will erect a large stamp-mill near the town of Ophir.

DAKOTA.

LAWRENCE COUNTY.

FAR WEST.—The hoisting-works are nearly completed, and when finished, work will be resumed on this property.

FATHER DE SMET.—The superintendent says: Here-with find express company's receipt for bar No. 210, containing 841.10 ounces of gold, the result of the run of the mill for the first half of this month. Owing to the extreme bad weather during this past run, the result has fallen off some from the corresponding run last month; but no change has taken place in the general character of the ore, which is looking well at several important points; in fact, the outlook is as promising as at any time within the last six months. Fourth level uprise is starting off well in favorable looking ground. The rest of the mine runs as usual. During the week ended June 29th, 2700 tons of ore were mined and milled.

POCAHONTAS.—A rich body of free gold ore has been encountered. The owners are proceeding to erect a small stamp-mill for the purpose of reducing the ore.

WILKINSON.—The shaft is down 130 feet, and the mine is in course of a thorough and systematic development; the vein, which is three and a half feet in width, runs northeast and southwest. Eighty-five feet from the surface, the vein dipped north of the shaft and runs vertically with the shaft. The ore is a high grade carbonate.

IDAHO.

ATLANTA.—The mill was to start up last week. The mine looks well, with a large quantity of ore, in sight. The deepest workings are a winze, which is down 60 feet below the 500 level.

BULLION-OPHIR.—The formation in the heading of

this tunnel is improving slowly but steadily, and more ore is showing up in the face than heretofore.

BULLWHACKER.—The company recently organized at Philadelphia will soon begin work.

CAMAS No. 2.—Twenty additional stamps are to be put in the mill.

COPPER GROUP.—The smelter at these mines at Cliff will start up soon. The smelter was put in operation late last fall, when it turned out a few tons of copper bullion and matte, from ore taken from the Big Copper group. Work was begun at the mines in 1883, since which time over twenty openings have been made.

LAST CHANCE.—The company is sinking a shaft to connect with its lower tunnel, and will remodel its new mill. This work will be completed in August.

Miners' wages at Atlanta were reduced to \$3.50 a day on the first of July. Previous to that, they were \$4.

LION VS. VIENNA.—The preliminary papers were filed on the 30th ult., in the District Court at Hailey, in the injunction suit praying that the defendants be restrained from exploiting the ground in dispute, and be required to pay \$70,000 damages already sustained, all accruing damages, and costs. The case will probably come up at the October term. The suit will probably turn on the question of the location of the apex of the ledge, or vein, or ore-body in dispute.

MONTEZUMA.—It is reported that a rich body of ore has been struck.

PARKER.—Bunches of ore have been found in this group, in the deep prospecting-drift. This is the first new ore found for nearly a year.

SAW-TOOTH.—The company has put a small force at work on the Columbia & Beaver, and as soon as the weather will permit, work will begin on other claims owned or leased by the company.

ILLINOIS.

ALABAMA MINING COMPANY.—Licenses to incorporate have been issued to this company, of Chicago, which proposes to buy, sell, lease, work, develop, mine, and operate gold and silver mines and mining property located in any of the States or territories; capital stock, \$10,000; incorporators, Michael Mannheimer, Adolph Loeb, and Jacob Newman.

MICHIGAN.

COPPER MINES.

The June outputs of "mineral" (about 75 per cent copper) of the reporting mines of the Lake Superior copper mining district are given below, together with comparisons with the outputs of the same mines in June, 1884, and June, 1883:

Mines.	June, 1885.	June, 1884.	June, 1883.
	Tons.	Tons.	Tons.
Calumet & Hecla.....	2,576	2,097	1,763
Quincy.....	270	281	275
Atlantic.....	212	186	158
Franklin.....	190	175	177
Huron.....	115	108	...

For the first six months of the calendar year, the aggregate outputs of four of these mines have been as follows:

	From Jan. 1, 1885.	From Jan. 1, 1884.
	Tons.	Tons.
Calumet & Hecla.....	14,295	12,300
Quincy.....	1,292	1,301
Franklin.....	1,112	1,052
Huron.....	*675	466

* February, 1885, output estimated.

All is activity at the Osceola and Tamarack mill-sites on Torch Lake, which are most admirably adapted for the purpose intended. The foundations for the superstructure and stamp-heads of the former's dressing-works are about completed. The erection of the building and the placing of the machinery plant will proceed at once. The road-bed of the railroad from the Osceola mine to the new mill-site is well under way, and is ready on the west end for ties and iron.

IRON MINES.

The following statement, published by the Marquette Mining Journal, shows the amount of iron ore and pig-iron shipped from the lake ports of that district for the season, up to and including Wednesday, July 1st:

	Gross tons.
Marquette.....	184,646
Pig-iron.....	1,205
L'Anse.....	11,292
St. Ignace.....	26,007
Pig-iron.....	730
Escanaba, Marquette District.....	162,736
Menominee District.....	24,735

The shipments by lake from all ports of the district up to date amount in the aggregate to 617,481 gross tons.

The West Republic mine retired from the list of active producers last week. The Paint River and Mastodon mines on the Menominee range have also closed down. There is some notion on the part of the management of closing down the Lake Superior mine. It is the largest iron mine in the world, and in 1882 shipped 300,000 tons of ore.

The extensive iron fields of the Lake Superior region, lying in Marquette and Menominee counties, and having their points of shipment by water at Marquette and Escanaba, are about to encounter competition in the way of production that promises to be of the most serious character, the extent and results of which it is quite impossible to predict. The new fields of production are known as the Agogetic and Vermilion iron ranges. The Vermilion mines have just begun shipping, and those of the Agogetic will do so in a short time. These two fields are comparatively new, each having been publicly known only about three years. The Agogetic and Penokee iron ranges extend from near the eastern end of Ontonagon County to Ashland, in Wisconsin, and seem to be nearly continuous. Only a few mines have yet been opened up and placed in readiness for business, but the number of those discovered is numerous. The completion of the Milwaukee, Lake Shore & Western Railroad will give the Agogetic an outlet to Lake Superior at Ashland, where immense ore-docks have been built. The value of this region was underestimated until very recently. The ore is of good quality, and appears to be in large quantities. The Vermilion field is occupied exclusively by the Minnesota Iron Company, which has six mines. The mines are reached by a trip of twenty-seven miles from Duluth to Two Harbors by boat, and a journey of sixty-seven miles by the Iron Range Railroad, which has only recently been completed. The six mines are now shipping 2000 tons a day, and may increase the output. A contract has been made to furnish Eastern furnace men with 350,000 tons of ore this season. This will be about 15 per cent of the product of the Marquette and Menominee iron ranges; and to place this ore, the Minnesota Iron Company has made concessions to buyers that have further weakened the ore market at Cleveland.

EMMET.—The company's deep shaft at Iron Mountain is now in the Chapin vein, at a depth of about 680 feet, but unfortunately has encountered what appears to be a horse of jasper, through which it will have to be continued to the ore. A diamond drill, boring through this horse, is said to have cut the clean ore at a farther depth of 70 feet, and continued in it 30 feet without reaching the foot-wall.

WEST REPUBLIC.—The company has been reorganized, with principal office at Cleveland, Ohio; Mark A. Hanna, President, and A. C. Saunders, Secretary.

SLATE QUARRIES.

MICHIGAN SLATE COMPANY.—The quarries are now turning out about 30 squares of roofing slate daily. The workings are gradually extending with the view of increasing the product.

MONTANA.

JEFFERSON COUNTY.

BONANZA CHIEF.—Work was resumed some time ago. The property had lain idle for the past three or four years, the machinery for working the ore at that time having not been of a kind suited to economy there being a good deal of iron pyrites in much of the ore. This ore is now taken to the Helena Mining and Reduction Company's works, where it is smelted along with the galena ores. They are also getting a good deal of free-milling ore, and this will be treated in the works upon the property, to which some important additions are to be made.

ELKHORN.—The lowest workings are at a depth of 550 feet. During the latter part of the winter and early in the spring, the water gave considerable trouble. The pumping capacity of the machinery has been increased and that trouble is done away with. The ore-body is similar in all respects to what it was in the upper levels, running in width all the way from four to eighteen feet of milling ore, and carrying enough silver so that they save from 60 to 80 ounces to the ton. The company's main effort at present is the thorough development of the property. The mill has recently been overhauled and its capacity has been increased by the addition of ten stamps. It is running day and night, and producing from \$25,000 to \$30,000 worth of silver every month.

HELENA MINING AND REDUCTION COMPANY.—The

Alta lode has been struck in the sixth adit level, where for the last hundred feet the vein shows a width of eighteen feet.

LEWIS & CLARKE COUNTY.

Judge McCue, Solicitor of the Treasury, to whom was referred the evidence taken in the investigation of the charges preferred against Russell B. Harrison, Assayer in charge of the United States Mint at Helena, has made his report to the Secretary of the Treasury, in which he exonerates Mr. Harrison. The solicitor's report is satisfactory to Mr. Manning, and Mr. Harrison will be so informed. Mr. Harrison is a competent chemist and highly esteemed gentleman, and we record with pleasure this report.

GREGORY.—The new shaft is down to a depth of 200 feet. In about thirty days, the shaft will be completed to the depth contracted for, and will strike the 600-foot level from the old shaft.

MCGREGOR.—A 50-ton concentrator has been put on the premises of the Mollie McGregor mine, within a mile and a half of the Comet, by the McGregor Mining Company, composed principally of Eastern capitalists.

MONTANA COMPANY, LIMITED.—Preparations are making to sink on the lead 500 feet below the Maskeyne tunnel. The work will be commenced in about six weeks. The company's old ten-stamp mill, which has been lying idle since last fall, has started up, and will be operated continuously.

SILVER BOW COUNTY.

PARROT.—At the annual meeting, held at Butte on the 1st inst., the capital stock of the company was increased from \$1,200,000 to \$1,800,000. The following officers were elected: President, Franklin Farrell; Vice-President, S. T. Hauser; Secretary, W. F. Pinkham; Treasurer, George B. Turrell; General Superintendent, H. B. Hibbard.

NEVADA.

ELKO COUNTY—TUSCARORA DISTRICT.

GRAND PRIZE.—The stopes are producing the usual amount of ore. The mill is running all right. As most of the ore that is extracted is manganese and sulphuret, it will be necessary to roast it.

ESMERALDA COUNTY.

An English syndicate has recently purchased a group of mines in Aurora, and will soon put extensive works on the ground.

At Candelaria, the Columbus and other mines are to be started up in a short time. They are known to contain bodies of high-grade ore.

EUREKA COUNTY.

EUREKA CONSOLIDATED.—Superintendent F. Robbins reports as follows: During the week ended June 27th, there were hoisted 288 car-loads of ore from tributaries. The ore in Williams's pitch has opened out, ten feet wide in going north, and is still dipping down into unexplored ground. Three places have shown an improvement since my last report—Harris's pitch on the surface; Hendra's pitch on the eighth; and Jenkins's pitch on the ninth level. At the furnace during the week, there were produced 660 bars bullion, about 36 tons, of an average value of about \$357 a ton.

STOREY COUNTY—COMSTOCK LODGE.

ANDES.—Active operations at the mine will begin soon. No work has been done below the surface since the fire in the old Central tunnel occurred last November. The hoisting machinery is in order, and can be started up at a moment's notice. Considerable ore has been stoped out of the large vein extending from near the surface to below the 500 level. Most of the ore is low grade.

CONSOLIDATED CALIFORNIA & VIRGINIA.—The average assay value of the ore milled during the week ended June 27th, as by samples from the batteries, was \$18.88 a ton. The amount of bullion in the office from the Morgan mill is \$15,825.55. Ore extracted under the Jones contract, 487 tons, and shipped to the Eureka mill under that contract 390 tons and 1975 pounds. The average assay value of the ore milled during the week, as by samples taken from the battery, was \$20.13 a ton.

HALE & NORCROSS.—There is no change of importance to note.

NEW MEXICO.

GRANT COUNTY.

PLATA HERMOSO.—The extraordinary statement has found its way through all the Western papers that S. P. Samuel, of Mesquite, had sold to Samuel S. Brother, of Silver City, his Plata Hermoso silver mine for \$5,000,000.

NEW YORK.

TILLY FOSTER IRON MINING COMPANY.—A judgment of \$76,173 by William Berg, against this company, has been satisfied.

SCHOHARIE COUNTY.

The strontia mine, west of Schoharie, has been leased to McKesson & Robbins, of New York City. Operations will soon begin. Strontia is a malleable metal, of a pale yellow color, and is chiefly used in the manufacture of fire-works.

PENNSYLVANIA.

IMPERIAL SLATE COMPANY.—A charter has been issued to this company, of Monroe County; capital stock, \$150,000.

PENNSYLVANIA.—A charter has been issued to this manufacturing, mining, and supply company of Pittsburgh; capital stock, \$250,000.

UTAH.

BEAVER COUNTY.

Some alterations are now making at Campbell's concentrating mill at Milford. Another set of Cornish rolls is to be added, to increase the crushing capacity. The concentrating tables and improved jigs work satisfactorily; the leaching apparatus is on a simple but very extensive plan, and will be in running order soon.

HORN-SILVER.—According to the Frisco Times, work has been resumed in the Horn-Silver shaft, and the 1100-foot station was cut on the 26th ult. A new drift has also been begun on the 1000 tending toward the ledge. The drift on 900 is nearing completion, and the openings that are making for the letting of air into the old workings where the main ore-bodies lie buried are pushed vigorously.

JUAB COUNTY.

BOSTON TINTIC.—This company expected to begin the shipment of ore from its mines in West Tintic about the 5th inst.

SALT LAKE COUNTY.

The receipts of bullion at Salt Lake City for the six months of the present year, excluding all receipts of ore, aggregate \$1,893,633.

SUMMIT COUNTY.

CRESCENT.—Shipments, which have been interfered with for some time by the presence of surface water, have been resumed.

ONTARIO.—The company has purchased the Marsac mill at Park City. The Marsac Company's property has been lying idle since the fall and winter of 1879-80. It is stated that the capacity of the mill is to be increased.

WAHSATCH MINING COMPANY VS. WILLIAM JENNINGS.—The suit came up at Salt Lake City on the 2d inst.

WISCONSIN.

PABST MINING COMPANY.—Articles of incorporation have been filed by this company, of Milwaukee; capital stock, \$25,000. The object is to transact a mining business in Wisconsin and the northern peninsula of Michigan. The incorporators are F. Pabst, Charles Best, Jr., Henry Robert, and George Berlinger.

WAUPACA COUNTY.

The discovery of a large ledge of beautiful granite in Waupaca township is reported. It is red granite, intermixed with green. It is susceptible of a perfect polish and is of very fine grain. The supply seems to be unlimited. The ledge rises perpendicularly to a height of 75 feet, and then slopes to the northward nearly 80 rods. The frontage is about 30 rods. The river runs along about 100 feet from the ledge, and up the stream a short distance is a fine water power with a 15-foot head. The granite is said by experts to be susceptible of easy working. A stock company will be organized and the quarry worked. A spur track from the Wisconsin Central Railroad could be built at moderate expense.

MARKETS.

NEW YORK, Friday Evening, July 10.

Table with columns for DATE, London, N. Y., DATE, London, N. Y. and sub-columns for Pence, Cents, Pence, Cts. showing silver prices for July 4-10.

The Indian exchange has been lower, and would have a greater effect upon the value of silver had there not come a better demand for the metal from the

continent. The cause of this improved European demand has not been stated, nor is there anything known to show it to be more than a temporary and not important fluctuation of trade.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2 per cent. During the week, the bank lost £279,161 bullion; and the proportion of its reserve to its liabilities was reduced from 48% to 44 1/2%, against 43 per cent at this date last year. July 9th, the bank lost £15,000 bullion on balance. The weekly statement of the Bank of France shows losses of 1,200,000 francs gold and of 1,865,000 francs silver. Bar silver was 1/16 d. easier at 49 1/2 d. an ounce.

United States Assay-Office at New York.—Statement of business for the month ended June 30th, 1885:

Table showing Deposits of Gold and Silver, including Foreign coin, Bullion, and Refined gold/silver with values in dollars and cents.

UNITED STATES IMPORTS AND EXPORTS OF GOLD AND SILVER.

Table with columns for DATES, Exports (Gold, Silver), Imports (Gold, Silver) for 1884 and 1885.

Excess of imports over exports, 11 months... \$4,235,561. Excess of exports over imports, 5 months of 1885 6,043,482.

Copper.—This metal has been weak and declining during the week, and prices may be quoted as follows: Lake, 11c. bid to 11 1/2c. asked, while Calumet & Hecla brand is in better demand at 11 1/2c. The company is not allowed, under its contract, to export to others than its contractors, and offers are now in this market at \$55 a ton net delivered in Europe for any lots of Calumet & Hecla that can be picked up. Parrot Electrolytic is quoted at 11c.; Orford, 10% @ 10% c.; and Baltimore B brand (from Old Dominion ores), 10% c.; B. C. W (from Montana, etc., ores), 10% @ 10 1/2 c.

The Old Dominion mines are not working, but a few hundred tons of their copper have still to come forward. The Arizona Copper Company, which makes from 300 to 400 tons a month of pig-copper (96 per cent), is the only large Western producer selling in this market. Furnace material is very scarce.

Calumet & Hecla is still increasing its monthly output, as will be seen by reference to our Mining News, where the production of the Lake companies is given in tons of mineral, Calumet & Hecla mineral being about 80 per cent copper, while the average of the Lake mineral is about 75 per cent.

The new Tamarack strike alluded to last week and elsewhere in this issue, is the "center of attraction" yet; but its influence on the market or in filling the pockets of its stockholders will not be apparent for probably nearly two years. If a second shaft, a mile deep, has to be sunk before any large output is attained, this time may even be exceeded; but within a year, the mine may begin shipments from the present (new) shaft on a moderate scale.

The stocks of copper both at the mines and in the market are very light, and the statistical position continues to be favorable for manipulation. Possibly the

success of the corners in lead and in tin may suggest a similar operation in copper; but at the present writing, there is no indication of this, though there is a pretty general expectation of considerably higher prices before the close of the year.

The cholera in Spain, which has just jumped up the price of lead, may very possibly reach the Rio Tinto and other copper-producing centers, and by stopping the shipments, would advance copper in London.

Chili Bars have fluctuated as follows: £44 7s. 6d. on the 3d and 4th of July; £44 5s. on the 6th and 7th; £44 2s. 6d. on the 8th; and £44 yesterday and to-day. Best Selected, £49.

Tin.—The tin market is strong and has again advanced in London and here. The fluctuations have been as follows: Spot Tin, July 3d, £91 10s.; 4th, £92 10s.; 6th, £93 17s. 6d.; 7th, £94; 8th, £93 15s.; 9th, £94 2s. 6d.; and to-day, £95, while three months has advanced in the same time from £89 to £92.

In this market, the price has varied for spot as follows: 21c. on the 3d; 21-10@21½c. on the 6th; on the 7th the price was 21¼c.; 8th July, 21½@21¾c.; on the 9th, 21-90c., and to-day, 22¼@22½c.; and July, 22@22½c.; August, 21c.; September, 20-65@20-90.

Sales at the Metal Exchange: 3d July, 5 tons July, 20-45c.; 6th July, 10 tons July, 20-70c.; 6th July, 10 tons July, 20-80c.; 7th July, 5 tons July, 21c.; 9th July, 10 tons August, 20-50c.; 9th July, 25 tons September, 20-25c.; 10th July, 20 tons August, 21c.; 10th July, 10 tons September, 20-75c.

Lead.—The lead market is very strong and advancing. The combination is advancing the market steadily, and to-day the cholera in Spain came to its assistance by advancing the price of soft Spanish lead in London to £13 10s. from £11 10s. yesterday and £10 17s. 6d. a week ago. At this rate, foreign lead could not be laid down here below 5 cents. Naturally, this has strengthened the market here.

Consumers, having neglected the warning given and repeated in these pages for the past month, are now awakening to the fact that lead has advanced and that the combination appears to control all the large sources of supply. Inquiries made of the Richmond for 1200 tons, brought a confirmation of our announcement of a week ago, that the Richmond lead is under attachments of the courts, and the case will not come up for trial before autumn, and even then it may not be liberated. They are becoming alarmed, and sales have been made during the week of 600 or 700 tons, at 4-05c. for the most part, and a few small lots at, we are told, 4-07½c. There is every probability that the price will advance to 4¼c. probably before the date of our next issue, and some believe that even a higher figure is in store for us. The statistical position of the metal is undoubtedly strong. The stoppage of the Horn-Silver mine has cut off some 7000 tons from the year's supply, while the litigation that has tied up the Richmond stock has also limited the company's present output to very narrow limits.

The Eureka, which has been closed, has just started up its new furnaces; but, on the other hand, the output of Colorado will show a very heavy falling off. Even the New Bonanza of Aspen appears to be in a fair way to have its output reduced or perhaps tied up by litigation. The months of August and September are the active months in this market, and it appears, at present, as if consumers will have to pay for their improvidence.

Will the success of the tin and lead combinations unlock the vaults full of idle capital and set speculation and the wheels of industry moving again? If so, we shall not have the heart to complain of this particular combination "for this time only."

Lead pipe has been advanced to 4-40c., and will, of course, follow the fortunes of lead.

Messrs. Everett & Post, of Chicago, telegraph to us as follows to-day:

Speculative holders, anticipating better prices, have withdrawn from the market at present, and refuse to make sales for future delivery at present prices. The market has ruled dull, with scarcely any fresh business since our last report; 260 tons sold at 3-85c., 3-87½c., and 3-90c.; asking price now 3-90c., 3-95c. for Refined and Corroding. One hundred tons Corroding were sold at 3-95c. to-day.

Spelter.—This metal has advanced to 4-20@4-40c., according to quality. This slight advance may be due

to sympathy with the lead market, or possibly to a slight advance in freights.

Foreign, 4¼; and Silesian in London is quoted to-day at £13 10s.

Antimony.—Hallett's in London is quoted to-day at £37, a decline of £1 from the price on the 8th inst.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, July 10.

American Pig.—The reduction of \$1 a ton in No. 2 Thomas iron announced by us a week ago has not brought about any general lowering of quotations, only figures that were accepted but not quoted ten days ago are now quoted.

We may quote standard brands of Lehigh irons, tide-water delivery, as follows: No. 1 X, \$18@ \$17.50; No. 2 X, \$16@ \$16.50; Gray Forge, \$15@ \$14.50, with lower prices for other brands.

Business is extremely dull in the iron market throughout the country, and the struggle for existence for the survival of the fittest drags along wearily. Possibly the best thing for the trade would be such an abrupt and heavy reduction in price as would promptly close a large number of the furnaces. Once closed, they would not blow in again on such prices as are now ruling.

The pipe manufacturers appear to have the most active business of any department of the iron trade, and we note contracts for 8000 tons of cast gas-pipe at \$24 for 36-inch pipe, \$25 for 16-inch, \$26 for 10-inch, and \$26.50 a ton for 8-inch diameter pipe, all delivered in Pittsburgh.

Some Ohio and Alabama irons are peddled in the Boston and other Eastern markets at car-load lots of from ten to twenty tons, and at very low prices. This certainly indicates the straits to which some of the furnace men in those districts are driven to make sales, and it does not forecast any improvement in the market while they continue to produce.

Scotch Pig.—This market is in the usual condition, nothing but a retail business at former quotations, shaded when any thing more than a few tons is called for.

Rolled Iron.—We continue to quote American Beams, 3c.; Foreign Beams, 2½@2¾c.; Angles, 1-9@2c.; and Tees, 2@2¼c.

Bar Iron is dull and prices weak at 1-40@1-50c. for Common, and 1-60@1-90c. for Refined, for round lots. Store prices are about ¼c. higher.

Swedish iron is worth \$70.

Plates.—Tank iron, 2c.; Refined, 2¼c.; Flange, 3¼@3½c.

Steel Plates.—Ship, 3c.; Tank, 2¾c.; Boiler, 3c.

Old Rails are unchanged at \$16.50@ \$17.50, with no transactions of importance here, but sales of a few small lots in Philadelphia.

Steel Rails.—The market remains unchanged at the nominal quotation of \$27 at the mills. We hear of a sale of 10,000 tons by the Edgar Thomson mill to the Chicago, Burlington & Quincy Railroad; the price is said to be a little over \$27. Most of the mills are fairly well supplied with orders.

Philadelphia. July 10.

[From our Special Correspondent.]

Pig-Iron.—Several lots, aggregating from seven to eight thousand tons, were offered on the market yesterday and to-day at \$17 for No. 1 Foundry and \$14.75@ \$15 for Gray iron. The stuff is far from being the best. Within a few days, much inferior stuff has come out, and offers are made 50 cents below any recent figures. Inquiry develops the fact that a few makers want money. For first-class irons, there seems to be fair demand in a small way. Two companies have secured contracts for deliveries extending over the fall months; but, as a rule, buyers are not easily inveigled into ordering ahead. Standards sold at \$17.75 and \$15.25 to-day for No. 1 and Forge. Southern irons are in negotiation.

Foreign Material.—Several small lots of Scotch irons have just been ordered by founders. Four cargoes of ore were received. No Bessemer is coming, and no sales. Some little Spiegel is selling. Prices unchanged.

Muck-Bars.—Between 400 and 500 tons were sold this week at \$26.50.

Manufactured Iron.—Mills around Conshohocken are running double turn. Mills about Reading are increasing their output. The Clapp-Griffiths process is to be worked at Potstown. Work is active in and around Phoenixville. Some good orders have just

been taken by merchant mills in the interior. More activity is reported at stores. Common is 1-40@ 1-50c.; Medium, 1-60c.; Refined, 1-65@1-75c.

Nails.—The prospects for better prices than some makers have been professing to look for are very unfavorable. The suspension in the West since June 1st has had very little effect here. Nominal quotations \$2.20.

Plate and Tank.—Three mill-owners are now in negotiation for between three and four hundred tons of material for fall delivery, mostly for near-by work. Plate, 1-90@2c.; Shell, 2½c.; Flange, 3½c.

Structural Iron.—Some important work is looked for soon from the Baltimore & Ohio Railroad Company. The engineers have not yet fully determined how to build the road, but will have specifications out in a few days. The mills have secured a good deal of business, and after some little repairing is completed, will start in full. Angles are 2c.; Tees, 2½c.; Beams and Channels, 3c. The Bethlehem Company is making some important improvements.

Sheet-Iron.—Material for building uses is in active demand, but sharp cutting in prices has marked recent transactions for galvanized.

Wrought Pipe.—Good orders for fall delivery are booked, and a full run is probable. Work for Western delivery is coming in.

Steel Rails.—The week's business in small lots, so far as known, is between 5000 and 6000 tons, but there are three inquiries for some 10,000 or 12,000 tons in all that rail-makers are after. Prices are nominally \$27@ \$27.50.

Old Rails.—In the absence of transactions, quotations are given at \$17@ \$17.50.

Scrap.—Yard men have been obliged to take less to work off some of their accumulation.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, July 10.

Statistics.

Production Bituminous Coal for week ended July 4th, and year from January 1st: Tons of 2000 pounds, unless otherwise designated.

	1885.		1884.	
	Week.	Year.	Week.	Year.
EASTERN AND NORTHERN SHIPMENTS.				
Philadelphia & Erie RR.....	16,675	.....	.....	.....
*Cumberland Region, Md.....	46,406	1,314,800	53,506	1,341,183
*Barclay Region, Pa.	3,377	123,915	4,602	166,979
Huntington & Broad Top RR.....	1,754	85,014	.....	94,345
East Broad Top, Clearfield Region, Pa.	.....	.....	.....	.....
Snow Shoe.....	1,520	81,066	2,278	94,346
Karthus (Keating).....	1,686	67,636	1,396	14,351
Tyrone & Clearfield.....	44,087	1,528,243	49,177	1,560,059
Allegheny Region, Pa	.....	.....	.....	.....
Gallitzin & Mountaintain.....	7,580	254,067	6,336	194,022
Total.....	106,410	3,471,436	117,195	3,465,285
* Tons of 2240 lbs.				

WESTERN SHIPMENTS.†

Pittsburg Region, Pa.	1,932	128,876	4,464	146,814
West Penn RR.....	1,183	52,052	1,057	76,781
Southwest Penn. RR.....	3,948	99,858	4,541	144,779
Westmoreland Region, Pa.	22,358	540,955	22,055	625,562
Monongahela Region, Pa.	7,306	116,966	4,541	79,438
Pennsylvania RR.....	7,306	116,966	4,541	79,438
Total.....	36,726	938,707	36,658	1,073,374

Grand total..... 143,136 4,410,143 153,853 4,538,659
† Considerable gas-coal shipped East, of which no division is made in report.

Production Anthracite Coal for week ended July 4th, and year from January 1st:

TONS OF 2240 LBS.	1885.		1884.	
	Week.	Year.	Week.	Year.
P. & Read RR. Co.	130,959	4,859,874	1,737	4,829,270
L. V. RR. Co.	83,777	2,451,478	.....	2,655,107
D., L. & W. RR. Co.	60,120	1,852,984	46,036	2,237,716
D. & E. Canal Co.	56,573	1,642,621	.....	1,644,648
Penna. RR.	.....	.....	.....	.....
N. & West Br. RR.	20,093	574,525	13,160	407,196
S. H. & W. H. RR.	4,782	107,747	6,241	106,881
P. & N. Y. RR.	8,597	183,581	.....	233,678
Penna. Coal Co.	23,387	579,956	6,315	556,821
Penna. Canal Co.	10,494	131,747	12,771	156,440
Shamokin Div., N. C. RR.	12,951	455,544	16,430	480,978
Lykens Valley.....	*8,500	246,689	8,003	264,952
N. Y., L. E. & W. RR.	†	*213,762	†	†140,412
Total.....	420,233	13,400,488	110,693	13,738,099
Increase.....	.....	.....	.....	.....
Decrease.....	.....	398,611	.....	.....

The above table does not include the amount of coal con-

DIVIDEND-PAYING MINES.

NON-DIVIDEND-PAYING MINES.

Table with columns for Name and Location of Company, Capital Stock, Shares, Assessments, Dividends, and Date and amount per share of last. It lists various mining companies and their financial details.

G. Gold. S. Silver. L. Lead. C. Copper. * Non-assessable. + This company, as the Western, up to December 10th, 1881, paid \$1,400,000. † Non-assessable for three years. ‡ The Deadwood has previously paid \$275,000 in eleven dividends, and the Terra \$75,000. § Total number of shares, 5,000,000; 5,000 shares have never been issued, and are still held by the company.

NEW YORK MINING STOCKS. DIVIDEND-PAYING MINES. NON-DIVIDEND-PAYING MINES.

Table with columns for Name and Location of Company, Highest and Lowest Prices per Share at which Sales were Made (July 4-10), and Sales. Includes companies like Alice, Mon., Amie Con., Argenta, Basstick Co., etc.

Dividend shares sold, 17,337. Non-dividend shares sold, 22,450.

Estimated and sold at the mines, which is about six per cent of the whole production. Production for corresponding period: 1880... 12,932,194... 1882... 13,183,738...

Production of Coke on line of Pennsylvania RR. for week ended July 4th, and year from January 1st: Tons of 2,000 pounds.

Table with columns: Week, Year, 1885, 1884. Rows: Alleghany Region, West Penn. I.R., Southwest Penn. RR, Penn. & W. Region, Moronghela, Pittsburg Region, Snow Shoe.

Total... 53,963 1,274,279 * 1,343,950. Decrease * Reports for week ended July 5th, 1884, were not published, and hence we cannot give the exact figures of decrease.

Anthracite.

The coal trade, though no better than for some weeks past, is not worse, which is something to say for it. No improvement is expected before August, when a more active market is looked for.

We quote average selling prices of hard and free-burning coals as follows, f. o. b. New York shipping ports:

Table with columns: Selling prices, Circular rates. Rows: Broken and Egg, Stove, Chestnut, Pea.

Buckwheat has sold as low as \$1.60.

Opinions of some of the principal dealers:

No. 1: "There is no disposition to buy and not much to force sales. Usual underselling. The market is very quiet. Look for a large business this fall, but do not think the market will take 31,000,000 tons."

No. 2: "At Philadelphia yesterday, could not purchase coal from the Reading except at about circular rates."

No. 3: "Trade is very dull. Chestnut accumulating. No change in prices and nothing new in the trade."

No. 4: "Trade very dull, and do not expect business in July, but do look for some in August, and a large trade in the autumn. Stove, \$3.85 and fair business. Chestnut, \$3.40, demand light; this size accumulating. Broken and Egg scarce at \$3.35. Pea, \$2.15@2.40. Buckwheat, \$1.65@2."

No. 5: "No business doing, and do not expect any until August 10th to 15th. Stove, \$3.70@3.85; moderate demand. Chestnut, \$3.25@3.40, and slow of sale. Broken and Egg, free burning, \$3.10@3.25;

but some free-burning broken has sold down to \$3. Hard is scarce. Buckwheat, \$1.80@2."

No. 6: "Market very dull. Stove, \$3.70@3.85; fair demand. Chestnut dull at \$3.20@3.35. Broken and Egg, short supply, \$3.25. Pea, \$1.95@2.25."

No. 7: "Market very quiet; no worse than last week. Stove, \$3.75, and shaded; demand fair, but we are accumulating. Chestnut, \$3.35; demand light and stock accumulating. Broken and Egg, \$3.30@3.40. Pea, \$1.90@2. Buckwheat, \$1.65@1.70."

No. 8: "Hear of \$3.60 stove, f. o. b., but have nothing less than \$3.80; very light demand and accumulating. Chestnut, \$3.15; abundant, no demand, and accumulating, which means look for lower prices. Broken and Egg, scarce at \$3.25. Other coals are selling at \$3.15. Pea very weak, at \$2 for the best hard."

No. 9: "Fair demand since the 4th. Stocks small; chestnut only one in quantity. On all sizes except chestnut, ask net circular; \$3.25 is the nominal price for chestnut, but it sells for less."

These are samples of the opinions of the principal dealers who are willing to state the condition of the market. There are always a certain number who, to the representative of a paper, will report the trade with the view of affecting the stock market, according as they are "bulls" or "bears." This transparent little device is of course well understood, and the reporter whose sole object is to learn the actual condition of the market for the guidance of the trade and consumers, soon knows whose statements are trustworthy and who reports for Wall Street purposes.

One of those mentioned had sold 5000 tons of excellent buckwheat at figures "too low to mention," and it is believed that this size has been sold f. o. b. at "measurably" less than \$1.60 a ton, while chestnut has sold at \$3.25 alongside, and we hear of \$3.15 alongside, though we have not verified it.

The Delaware, Lackawanna & Western average price for coal in June, on which was based the freight charged shippers over that road, was \$3.21 1/4 a ton, which is 18 1/4 cents a ton less than the average in May.

The condition of the Western markets is fully reported under the appropriate headings.

Bituminous.

The New York market is quiet, with a small incidental business. The Warren mills and one or two paper-mills have purchased in the East, and it is rumored that Cumberland coal is selling at low prices on the cars in the East.

The Pacific mail contract for one or for six months

is said to have been placed at a figure not far from \$2.75. The coal will come over the Beech Creek (Vanderbilt) line. Small orders are taken at from \$2.75 to \$3, and occasionally a few cents more to those who have a strong preference for a particular coal.

Freights are low to all ports, and vessels abundant.

Buffalo. July 10.

[From our Special Correspondent.]

"The market is in good shape," said a prominent dealer and receiver of anthracite coal to-day; and further, "I expect that when August arrives there will be a good demand for all the hard coal that can be brought forward."

The local trade is now working in perfect harmony. The heavy fines imposed upon and paid by those who failed to keep their promises as members of the Coal Exchange have had the desired effect, and the schedule of prices is now strictly adhered to.

There are no changes to note in the bituminous coal trade; the conditions are unsatisfactory, and business light.

The coke trade is without any new features in supply, demand, or prices.

Generally, trade is very dull and depressed.

The Grand Trunk Railroad of Canada has advertised for proposals for coal, to be delivered between August 1st, 1885, and April 1st, 1886. Tenders will be received up to Tuesday next, the 14th instant. The quantities are as follows: 2000 tons egg, 2000 tons stove, and 1000 tons nut (more or less), delivered on cars at Suspension Bridge or International Bridge; 500 tons egg and 500 tons stove (more or less), delivered on cars, duty paid, at Brockville or Belleville, Canada. Also about 1200 tons best Blossburg or Morris Run smiths' coal, to be delivered between now and July 1st, 1886, to places and in quantity as may be ordered.

There are about 200 canal-boats at this port awaiting loads; many are tied up and the mules at pasture. Some of the boatmen have left their boats and gone into the carting business until better times come.

Lake freights on coal for the past week opened steady and fairly active. On Tuesday, shippers showed an inclination to cut rates, as slightly better down grain freights had prevailed for a day or two. Freights closed dull and depressed, with the prospect of a five cent decline to all points on Lakes Michigan, Huron, and Superior, especially the former. Included in the week's charters are many lumber barges and ore carriers, driven into the trade by hard times.

The shipments of coal by lake from Buffalo, July 1st to 8th, both days inclusive, were 54,740 tons; namely, 27,590 to Chicago, 11,750 to Milwaukee, 1550 to Toledo, 1909 to Superior City, 4350 to Green Bay, 1090 to Sandusky, 1380 to Detroit, 500 to Duluth, 1590 to Marquette, 150 to Dresden, 700 to Escanaba, 650 to Sheboygan, 1050 to Hancock, and 550 to Racine. The freight engagements were at the following rates: 65c to Chicago, Racine, and Sheboygan; 60c to Milwaukee, Escanaba, and Green Bay; 50c to Marquette; 40c to Hancock, Superior City, and Duluth; 25c to Toledo; 20c to Sandusky and Detroit; and 30c to Dresden.

The shipments by canal for the week were again light. They include one load to Schenectady, at 80c net, and 3 loads to Albany, at 85c net, captain to pay loading and unloading in all cases. The nominal rate to New York, \$1.10 net ton, captain to pay loading and unloading.

The coal rate of freight from Buffalo, Suspension Bridge, and Black Rock to Chicago has been reduced to \$1.75 per gross ton. The rate heretofore was \$2.

The receipts of coal at Duluth for the week ended July 4th were 25,927 tons.

Chicago. July 8.

[From our Special Correspondent.]

The coal trade here grows no better—fast. The bids for county coal were opened this week and the contract for Pittsburg coal was awarded to L. L. Moody & Co. at \$3.50, delivered inside city limits; \$3.60, delivered to the Normal School Building; and \$3.70 to the county agent for delivery to the poor. The contract for the anthracite was not awarded. Some very low bids were made—the lowest being by J. J. Corcoran (a Lehigh Valley Coal Company's dealer) as follows: Grate, \$5.59; Egg, \$5.69; Stove, \$5.95, delivered. The Western Anthracite Coal Association Committee of Twenty at its meeting June 30th, in Buffalo, labored long and hard over the question of retail prices in Chicago, and finally "resolved" (of course unanimously) that the retail prices in Chicago should, must, and "by the Eternal" would be \$6.25@6.50, and then, after wiring its Chicago agents the result of the meeting and giving strict instructions that these prices must be maintained, it evidently disbanded for the Fourth of July celebrations, little dreaming that there were any agents in Chicago who would dare disobey such iron-clad orders. The surest remedy for the Western market would be to do away with agencies, and let the coal be bought and sold by the jobbers and retailers throughout the West. The only remedy under the present system is to ship less coal here. When there is a greatly overstocked market, there is a tremendous pressure to sell, and under such pressure, prices are cut until not only the margin is gone, but it nets an actual loss. The times are harder this year than last, and in the face of a dead market the companies have put over eleven thousand more tons of anthracite coal into Chicago during June, 1885, than were shipped here in June, 1884. Your "Occasional Correspondent from Buffalo" says he saw one telegram that ended with the injunction, "Don't lose any sales." Evidently there was more than one such telegram sent, and the Eastern agent proposes to have the coal here in time to cover all sales. The shippers and retailers have wrestled during the past week over the retail prices, and at a joint meeting yesterday they finally fixed upon \$6 for Grate and Egg, and \$6.25 for Stove and Nut, for July. Now, what will the Committee of Twenty do about that? Their positive orders were for \$6.25 and \$6.50.

Boston. July 8.

[From our Special Correspondent.]

There continues to be a fairly active trade in anthracite. There is a firm feeling among Boston agents, at least on company coal, which is firmly held at net circular prices. Broken and egg are especially firm, both at New York and Philadelphia; but while the larger sizes are strong, chestnut is weak. The condition of stove coal is difficult to state. The Philadelphia & Reading professes to be all sold up, and is firm at prices that are from 20 to 25 cents above the New York quotations for some individual coal. The latter may be had as low as \$3.60, and it is freely offered at \$3.65. Nevertheless, \$3.85 is asked by the companies as a rule; but the situation is one of less firmness than that which characterizes the transactions in the larger sizes.

A good notion of the movement of coal to this port in the first six months of the year is given in the fol-

lowing exhibit. The figures are compiled by the Philadelphia & Reading Boston office, and are the most reliable that can be had:

From	Month of June.		Six months.	
	1885.	1884.	1885.	1884.
Philadelphia.....	104,990	104,595	348,582	388,587
New York.....	74,953	63,384	247,407	225,383
Baltimore.....	49,882	60,626	219,657	227,815
Newport News.....	21,472	10,589	87,707	45,904
Total.....	251,507	239,194	903,353	887,689

It will thus be seen that the increased receipts for June have been 12,373 tons, while the increase for the six months is 15,665 tons. The increase would be much larger if retailers were carrying as heavy stocks as last year at this time. There is, however, no animation to the market. It would seem as though low freights now ruling should have proved more of an inducement to buy. Further talk of advancing prices will naturally be postponed until we see what will be the effect of full production in July, and to what extent the Western demand will affect the market.

There is very little life to bituminous coal. We still quote \$2.25@2.35, f. o. b. at Baltimore and Philadelphia. No one, however, expects cargo prices to be governed by pool prices. The trade that the pool was intended to affect has been passed. Delivered prices for pool coal are \$3.35@3.50; outside coal, \$3.25@3.40.

There is a small movement in gas-coal at \$4.10@4.15, delivered. Provincial culm is worth \$2.30, delivered. There has been a decline in freights, which brings the rates down to about the bottom figures of the year. Philadelphia rates are down to \$1. We quote:

New York, 80@90c.; Philadelphia, \$1@1.15; Baltimore, \$1.15@1.20; Newport News, \$1.10@1.15; Richmond, \$1.20@1.25; Cape Breton, \$1.50@1.75.

There is a fair retail movement, but the trade is conducted very quietly. We quote:

White ash, furnace and egg.....	\$4.75@5.00
" stove and nut.....	5.25@ 5.50
Shamokin, egg.....	6.00
" stove.....	6.25
Lorberry, egg and stove.....	6.50@ 7.00
Franklin, egg and stove.....	7.25@ 7.75
Lehigh, furnace, egg, and stove.....	5.25@ 5.50
" nut.....	5.50@ 5.75

We quote wharf prices as follows: Stove, \$4.75; Broken and Egg, \$4@4.50.

New Orleans. June 30.

[Reported by C. A. MILTENBERGER & Co.]

Since our last to you, there has been a good stage of water at Pittsburg, which enables the shippers of coal to send forward nearly all the stock that was loaded, and the tows are now daily arriving at this port with enough Pittsburg coal to supply this market for the rest of the present year. Notwithstanding this addition to the stock on hand, prices have not suffered, recent sales realizing 30c. for best quality of Pittsburg coal in boats. We quote:

Pittsburg coal:	
By boat-load.....	25@30c. per bbl.
To steamboats.....	45c. "
" manufacturers.....	42½c. "
" families.....	50c. "
In hogsheads.....	\$5 per hhd.
Anthracite coal:	
At wholesale.....	\$7@ \$8 per ton
" retail.....	\$9@10 "
Alabama coal:	
At retail.....	36@50c. per bbl.

FINANCIAL.

Mining Stocks.

NEW YORK, Friday Evening, July 10.

The general dullness of business and the hot wave show their effects on the mining market. Business has been unusually quiet and devoid of all interesting features. Prices remain about the same as last week, and the total transactions amount to only 39,787 shares.

The Bodie group remains quiet. Bulwer showed declining prices, selling at from 60@50c.; sales, 3400 shares. Consolidated Pacific was firm at from 50@54c., with sales of 1800 shares. Bodie sold at \$1.50, 650 shares changing hands. No sales are reported in the other California stocks. Plymouth Consolidated has disappeared from the list for the past two weeks.

Lacrosse has been moderately active at 10c., with sales of 3800 shares. Little Chief sold at from 30@25c.; sales, 2700 shares. Breece records sales of 1800 shares, between 16 and 12c. Bassick remains at 60c. No new developments in the company's affairs are reported; and if the difficulties at the mine are not

settled in the near future, the stock will probably reach still lower figures. Iron Silver shows a sale of 100 shares at \$1.20. Leadville, the same amount at 40c. Dunkin, 300 shares at 22c.

The Comstocks show the usual business, but the transactions in the leading stocks have been considerably smaller. No sales were made in Hale & Norcross, and those of Sutro Tunnel only amounted to 7300 shares, ranging from 16@15c. Consolidated California & Virginia showed a downward movement, and sold as low as \$1.30 during the week. Union Consolidated has been firm at from 85c.@ \$1.05. Alta ruled at from 35@45c. Best & Belcher, at \$2.15. Mexican, at 95c. Sierra Nevada, at \$1.15. The other Nevada stocks were 3800 shares of Oriental & Miller at 17c., Grand Prize at 50c., and Eureka Consolidated at \$6.50, with sales of 200 shares.

Silver King, which has shown a marked advance during the past few weeks, has announced a dividend of 25 cents a share; no sales are reported this week. Homestake has been strong, some 303 shares selling at from \$12@14.25. Father de Smet has been active at from \$3.75@4. Caledonia sold at \$1.25. Alice, at \$1.90. Central Arizona, at from 15@17c. Horn-Silver has declined from \$2.15@2.05; sales, 2700 shares.

A complete summary of the market will be found elsewhere.

The following securities were sold at auction in this city on the 8th inst.:

\$10,000 Central Railroad of New Jersey 1st mortgage consolidated 7 per cent, 98½; \$2000 Central Railroad of New Jersey 7 per cent adjustment registered coupon bonds, 106½; 1000 shares Evening Star Mining Company, of Elk Mountain, Gunnison County, Colo., 2½c. a share.

Coal Stocks.

The stock market for the past week has been under the constant influence of rumors of a settlement of the differences between Mr. Vanderbilt and the Pennsylvania Railroad, and incidentally a clearing up of all the troubles in the railroad world. These rumors have been over and over officially and semi-officially denied; but certain parties who are working for a turn in stocks on the long side have persistently brought it forward in new forms, and there is a strong belief in many quarters that something of importance is to occur, although the facts do not seem to bear this out. The coal stocks have been in sympathy with the rest of the market, on what grounds it is hard to say. If Mr. Vanderbilt makes a deal with the Pennsylvania Railroad for his interests in the State of Pennsylvania, it would naturally include his interest in Reading. The Reading Railroad under Pennsylvania's policy, would not be a very promising thing to the New York companies which have lived so long on combination pap.

The sales of Lackawanna have amounted to 163,485 shares at \$92¼ on Monday, at \$95½ yesterday, and closing at \$94½ to-day. Delaware & Hudson, with transactions of 4334 shares, ranged between \$75½ and \$78, closing at the latter figure. Jersey Central has been quiet at \$37½@39½, closing at \$38½, with sales for the week of 26,075 shares. Reading has been unusually active and strong. The sales amount to 11,230 shares at \$13½@16, closing at \$15.

The feature of the Philadelphia market has been the advance in Pennsylvania Railroad on the "settlement" rumors. It sold at \$49½ to-day, having previously been down to \$47¼.

Meetings.

Conglomerate Mining Company, No. 205 Walnut Place, Philadelphia, Pa., August 8th, at eleven o'clock A.M., for the purpose of considering and authorizing a sale of the entire property of this company, both real and personal.

Hydro-Pneumatic Ore Mill Company, No. 7 Nassau street, New York City, July 14th.

New York & Colorado Mining Company, office of W. C. Sheldon, No. 2 Wall street, New York City, for the purpose of submitting to the stockholders, for their sanction and approval, an agreement made by the trustees for the consolidation of said company with the United Gregory Gold Mining Company, the Consolidated Bobtail Gold Mining Company, and the Extension Mining Company.

Dividends.

Colorado Central Mining Company, of Colorado, has declared a dividend (No. 3) of five cents a share, payable August 15th.

Derbec Blue Gravel Mining Company has declared a dividend (No. 8) of ten cents a share, payable at San Francisco June 29th.

Little Schuylkill Navigation Railroad and Coal Company announces a dividend of three and a half per cent, payable July 11th.

Philadelphia & Reading Railroad Company, lessees of the East Pennsylvania Railroad, will, under the terms of the lease, pay at their office, No. 227 South Fourth street, Philadelphia, on and after July 21st, a dividend of one dollar and fifty cents a share.

Silver King Mining Company, of Arizona, has declared a dividend of 25 cents a share.

DIVIDENDS PAID BY MINING COMPANIES DURING THE MONTH OF JUNE AND FROM JANUARY 1ST, 1885.

Table with columns: NAME OF COMPANY, Location of mines, Paid during month of June, Since January 1st, 1885. Lists companies like Adams, Alice, Atlantic, Bellevue, etc.

S., Silver; L., Lead; G., Gold; C., Copper; M., Mica.

ASSESSMENTS.

Table with columns: COMPANY, No., When levied, Delinquent in office, Day of sale, Amount. Lists companies like Aultman, Best & Belcher, Brunswick, etc.

* Had been delinquent. Earlier date postponed until time mentioned.

Pipe Line Certificates.

Messrs. Watson & Gibson, petroleum brokers, No. 49 Broadway, report as follows for the week:

This has been a very exciting week in petroleum. It opened Monday at 98c., an advance of 1 1/2c. above Saturday's closing, and sold up to \$1.03 the same day.

COAL STOCKS.

Table with columns: NAME OF COMPANY, Par value of shares, Quotations of New York stocks (July 4-10), Sales from July 4th to July 10th inclusive. Lists companies like Barclay Coal, Cameron Coal, etc.

* Of the sales of this stock, 3727 shares were in Philadelphia and 11,230 in New York. Total sales, 236,434. † The quotations for these stocks are not percentage, but actual price.

generally long and bullish. The market is very sensitive. It closed 97 1/2c. bid to-night.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

Table with columns: Opening, Highest, Lowest, Closing, Sales. Lists prices for various commodities like July 4, 7, 8, 9, 10.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

Table with columns: NAME OF COMPANY, July 3, July 4, July 6, July 7, July 8, July 9. Lists companies like Albion, Alpha, Alta, etc.

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, July 9.

Since our last report, the market for mining stocks has sympathized with the dullness prevailing in the general stock market, and transactions have been exceedingly light, while prices show but little change.

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to July 8th:

Table with columns: To, From Philadelphia, From Baltimore, From New York shipping ports. Lists destinations like Alexandria, Annapolis, Albany, etc.

* And discharging. † And discharging and towing. ‡ 8c. Per bridge extra. § Alongside. ¶ And towing up and down. ** Below bridge. GEORGE W. JONES & CO. BALTIMORE.

about 4 per cent ingot copper. This mine may prove a formidable competitor to the Calumet & Hecla in the future. The Tamarack has been listed at the Stock Exchange, and will be regularly called hereafter. To-day, \$55 was bid for it, and none offered under \$70. Quincy is firm and steady at \$36 $\frac{1}{4}$, at which price all the sales (213 shares) were made. It is expected that a dividend of \$2 $\frac{1}{2}$ a share will be paid in August. Osceola declined \$ $\frac{1}{4}$ on a sale of 25 shares, at \$9 $\frac{1}{2}$. Allouez sold at 60c. (500 shares), same as last week. Remainder of the list neglected. Total sales since last report, 771 shares.

In silver mining stocks, there is absolutely nothing doing at either of the Boards. The Mining Exchange holds but one session a day, and there is very little business. It is hoped that later in the season there may be a revival of the interest in mining shares, but at the present time there is no disposition to operate in this class of stocks. There are a few mines in the market that occasionally are in demand; prices are very low, and they are a fair risk to buy for a rise in the future. Bowman Silver, sales at 10c. Catalpa at 17c. Duncan, 16@18c. Consolidated Pacific, dull at 40@50c. Miscellaneous stocks, dull and inactive.

3 P.M.—At the afternoon Board, there were sales of Tamarack at \$60. Calumet & Hecla, \$173, bid. Quincy, \$36, bid. Atlantic, \$6 $\frac{1}{2}$, bid. Franklin, \$5 $\frac{1}{2}$, bid. Osceola, \$9, bid.

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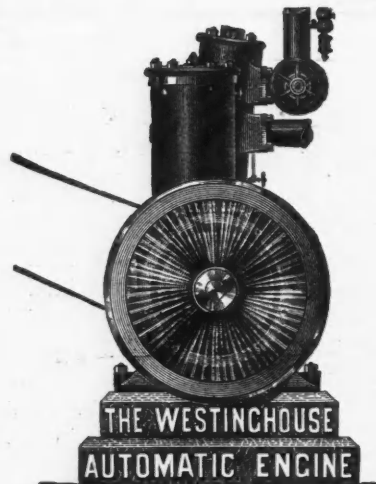
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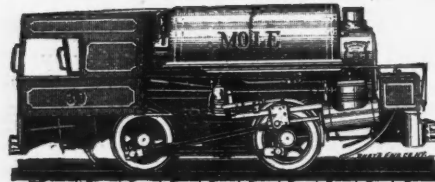


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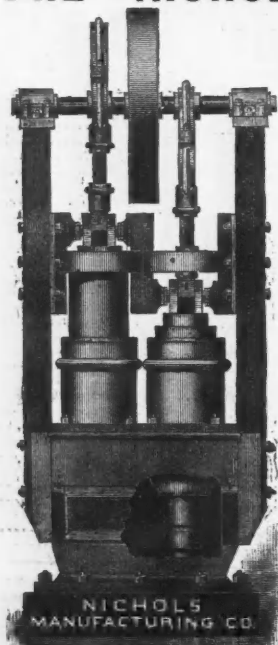
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