

THE ENGINEERING AND MINING JOURNAL.

VOL. XVIII.—No. 24.

NEW YORK, SATURDAY, DECEMBER 12, 1874.

PRICE 10 CENTS PER COPY.

Utah Coal Fields.

We last week gave some notes on the Sanpete coal field, near Salt Lake City; we continue our remarks on the Utah lignites, by taking the following extract from a correspondence on the Weber River coal field, published in the *Mining and Scientific Press*:

Summit County has long been justly celebrated for its coal beds, many of them being of very remarkable breadth and thickness, the veins generally averaging twelve feet thick and all solid coal. About twenty mines have been opened, a number of which are worked at present with very great success, yielding an average of nearly 200 tons of coal per day. Iron is said to have been discovered in large quantities in the eastern part of the county, in close proximity to the coal beds, together with large supplies of limestone, sandstone, gypsum and fire clay. There exist also quarries of building and flagging rock.

Professor McFARLAND, in his able and exhaustive report upon the coal mines of the Rocky Mountains, gives it as his opinion that the coal beds of Colorado, Wyoming and Utah are all Tertiary. The coals of this period can scarcely ever be made into a firm coke, consequently are not in great favor or demand among railroad men. Many small seams of slate are also found in some of the beds, which, not being easily separated from the coal, impair its value to a certain degree; but this would be generally overlooked in analyzing specimens of the coal, which could always be selected free from the slate. Iron pyrites are also abundant in some of the beds, and spontaneous combustion of a waste heap has occasionally occurred, which is no doubt attributable to the decomposition of the pyrites. Mineral resin has also been discovered in the coals, and other foreign substances; but very rarely in sufficient quantities to be injurious. All the coals of the Tertiary period possess one common quality—they tend to crumble soon after being exposed to the weather, but will remain for a long time unchanged if properly protected. This tendency to crumble might occasion great waste if proper precautions were not taken, especially as the coals are not capable of being made into a firm coke, which is quite the reverse of the coals discovered in the southern part of the Territory. Railroad engineers complain that the Tertiary coal does not burn up clean, that it clinkers and sticks to the bars; still, it is used very satisfactorily by blacksmiths, who manage to get up a welding heat with it, and for domestic use it is unrivaled. For this purpose it is best adapted, and as it can be obtained in any desired quantity, and at a minimum cost at the mine, it is evident that the business is destined to become very extensive, especially when there is a reduction in the rates of railroad transportation to Salt Lake City.

The following is an analysis of some specimens of coal from the valley of the Weber:

	Carbon.	Hydrogen.	Nitrogen.	Oxygen.	Total Sulphur.	Water.	Ash.
No. 1.....	64.824	4.363	1.288	15.518	1.602	9.415	2.999
No. 2.....	69.840	3.897	1.932	10.990	.768	9.170	3.403
No. 3.....	64.992	3.792	1.736	15.199	1.066	11.565	1.680

Color of ash, No. 1 white, No. 2 gray, No. 3 yellow-brown.

The principal mines examined were in the vicinity of Coalville, the county seat of Summit County, a flourishing town situated a little above the right bank of the Weber river, about five miles south from the U. P. R. R. at Echo Station. It is located in the center of a region producing in abundance different other minerals besides coal, some of which are the most important beds found in the county. The population is estimated at about one thousand, the majority of whom are engaged in the coal mines.

The Crismon Coal Mine is situated in a narrow valley or gulch, about two and a half miles distant from Coalville. The mine is opened in the bottom of a ravine, entered by an adit level, and again further up by a slope. The dip is to the northwest, and very gentle. The vein being mined at present is from 11½ to 13 feet in thickness, all solid coal. The roof is of sandstone, and the coal is very sound in the mine, and also presents a fine appearance after being extracted; but if exposed long to the weather, it will not remain so firm. It is principally adapted for domestic purposes, and for this use it is in steady demand in the Salt Lake market.

The mine is developed by a number of inclines, tunnels, levels, shafts and coal chambers, exceeding 2,000 feet face. It was first opened in 1864, but not worked

to any extent until 1867, since when it has been in constant operation and supplying the adjacent country and Salt Lake City.

The Crismon and Groesbeck new works, when completed, will increase the yield from its present capacity of fifty tons of coal to one hundred tons per day.

The John Robinson Mine is situated in the same gulch and below Crismon's mine, on the left of the cañon, going west. This mine was opened about two years ago, and is developed by levels and rooms to the extent of about 1,000 feet. The company have three mines, two of which are in active operation. The quality of the coal is the same as in the other mines in the same locality, and is used in the surrounding country and shipped to Salt Lake City. The average width of the vein is 10 feet. There is a capacity for raising 50 tons daily, and 15 men are at present constantly employed. A fine vein of fire clay has also been discovered in this mine.

Wahsatch, No. 2. This property is developed by various levels and rooms, and has a face of 180 feet. The width of vein averages about the same as contiguous mines, and the capacity of the mine is 50 tons of coal per day.

The Summit County Railroad runs directly to these mines, and connects with the U. P. R. R. at Echo, where the coal is re-shipped without change of cars over the Utah Central to Salt Lake City. With the facilities, present and projected, for extracting the coal, if rates of freight were at all reasonable, it could be retailed in Salt Lake City at not more than \$5 00 per single ton, and in large quantities at a considerably lower price. In view of this fact, a number of prominent citizens of Salt Lake City have lately organized a company for the purpose of extending the Summit County R.R. from Echo City to Salt Lake via Parley's Park and Parley's Cañon, which route is very practicable for a narrow-gauge road. By the construction of this road the distance to Salt Lake City would be lessened nearly 40 miles, and a plenty of good coal at moderate prices would be insured to the inhabitants, besides tending to develop a region of country rich in many other minerals.

Sketch of Early Anthracite Furnaces.*

By WILLIAM FIRMSTONE, Glendon Iron Works.

On the 19th December, 1833, a patent was granted to F. W. GEISENHEIMER, for smelting iron ore with anthracite. In his claim he says: "sixthly, though I cannot, and do not, claim an exclusive right of the use of heated air, for any kind of fuel, nevertheless I believe to have a right to claim the use of heated air, applied upon, and in connection with, the said principle and manner discovered by me, to smelt iron ore in blast furnaces with anthracite coal, by applying a blast of air in such quantity, velocity, and density, or under such pressure, as the compactness, or density, and the continuity of the anthracite requires, as above amply and fully described and illustrated."

Dr. GEISENHEIMER made experiments in smelting iron ore with anthracite at the Valley Furnace, near Pottsville, but he failed to carry out to good practical results the principles enunciated in his patent.

In the *Journal of the Franklin Institute* for February, 1838, a communication was published that was made by Mr. GEORGE CRANE, of the Yniseedwyn Iron Works, South Wales, to the British Association, in September, 1837. On the smelting of iron with anthracite coal, Mr. CRANE states therein, that he began the use of anthracite with hot-blast on the 7th February, 1837, in a cupola blast furnace, 41 feet high, and 10½ feet across the boshes; product, 34 to 36 tons a week. Mr. CRANE goes on to say, "it may not be uninteresting to be informed in what manner the idea first occurred to me of applying a heated blast to anthracite coal. One evening, after I had placed a piece of it upon my parlor fire, (which had before been made up with bituminous coal), and had allowed it to arrive at a red heat, upon applying as fierce a blast to this piece of coal as I could raise from a pair of bellows, I noticed a black spot or mark upon that part of it, where the air impinged upon it; on my continuing the like rapid current in the same direction, I shortly blew the fire out of it. I at once perceived that the effect of the strength of the current of air, when cold, instead of encouraging ignition, was actually unfavorable to it. The question promptly occurred to me, What would be the effect of turning a blast into a furnace upon this coal, which would itself burn, which would itself melt lead?" The further consideration

* A paper read before the American Institute of Mining Engineers at the Hazleton Meeting, October 27th, 1874.

which I gave to the matter, and the further experiments I shortly after instituted, (continued at great expense for some months) have at length been crowned with the full success which I have now had the pleasure of reporting to this meeting."

1. The first authentic published account of success in smelting iron ore with anthracite in the United States is that of a little experimental furnace, built in the year 1838, at the Weigh Lock, below Mauch Chunk, by BAUGHMAN, GUTEAU, & Co., Mr. F. C. LOWTHROP, C. E., of Trenton, N. J., being one of the partners. The dimensions were: height, 21½ feet; diameter of boshes, 5½ feet; hearth, 19×21 inches; length from back to dam stone, 5 feet 3 inches. An overshot water-wheel, 14 feet diameter, 3½ feet bucket, drove two single-acting wooden blowing tubs, each 6 feet diameter and 12 inch stroke; 12 strokes a minute making about 700 feet of blast a minute.

Mr. LOWTHROP, in a letter to Professor WALTER R. JOHNSON, of Philadelphia, dated November 9, 1840, and published in the work of the latter, 1841, entitled "Notes on the use of Anthracite," stated that, during his connection with the furnace, it made, from July, 1839, to November, 1839, during three months, at the maximum rate of 2 tons of pig iron a day, of No. 1, 2 and 3 grades; fuel, anthracite, exclusively. Temperature of blast, 400 to 600° F. Ore, brown hematite, with magnetite, from Dickerson mine, New Jersey. The blast was heated by flame from the tunnel head, and open tuyeres were used.

Notwithstanding the good work done at this furnace, the feasibility of using anthracite in blast furnaces was still disputed, and a prominent iron master declared his perfect readiness and ability to eat all the iron that Mr. DAVID THOMAS could make in the furnace he was then erecting at Catawauqua, to use anthracite.

2. The next furnace was built at Pottsville, Pa., by Mr. WM. LYMAN, under the auspices of BURD PATTERSON, and was blown in July 10, 1839, but for want of experience in those in charge, success was not attained. Mr. BENJ. PERRY, who had blown in the coke furnace at Fernandville, then took charge of it, and blew it in, on the 19th of October, 1839, with complete success. This furnace was 35 ft. high, 8 ft. 9 in. diam. at boshes; hearth of stone, 3½ ft. square, and was blown by steam power, an 18 in. steam cylinder driving two blast cylinders each 40 in. diam. and 6 ft. stroke, 18 rev. a minute. The blast was heated in ovens at the base of the furnace, with anthracite, to a temperature of 600°, and supplied through 3 tuyeres at a pressure of 2 to 2½ lb. per square inch. At the blowing in of this furnace, in October, the plan was adopted, afterwards so extensively followed, of using closed tuyeres and a closed forepart, tapping out the cinder periodically. The product was about 40 tons a week of good foundry iron, from brown hematite and carbonates of the coal measures. Some of the iron was used by MESSRS. SAVERY, of Philadelphia, in the manufacture of hollow ware, and approved. The success of this furnace was so complete that during the next year, 1840, no less than 4 furnaces were blown in on the Schuylkill and Susquehanna rivers with anthracite, and profiting by the working at Pottsville, success was attained at all; two of them were blown in by Mr. PERRY. I visited the furnace in the spring of 1840, and found it still in blast and working well. It subsequently came into the hands of Dr. G. G. PALMER, now of Stanhope, N. J., and was named by him the Pioneer.

3. The Danville Furnace, BIDDLE, CHAMBERS & Co., Montour County, Pa., was built in 1839, 30 ft. high, 7½ ft. diameter of bosh, 2 tuyeres; steam power, a 12 in. steam cylinder 4 ft. stroke, driving 2 blast cylinders each 40 in. diameter and 42 in. stroke, 20 rev. a minute; steam pressure, 100 lb. to the square inch; blast pressure, 2½ lb.; temperature, 600°; pig iron produced, 35 tons a week from fossiliferous ore.

4. Next, Roaring Creek Furnace, Montour County, Pa., BURD PATTERSON & Co. Height, 30 ft.; diam. of bosh, 8½ ft.; 3 tuyeres; water power; blast, 2,400 ft. per minute, at a temp. of 650° and 2 lb. pressure. Product, 40 tons a week of good, dark gray pig iron, from fossiliferous ore. Blown in by BENJ. PERRY, May 18, 1840.

5. Phoenixville, Chester County, Penn. REEVES, BUCK & Co.—This furnace was 33 ft. high, 8 ft. diam. at boshes; slope 65°; stone hearth, 3 ft. square and 6½ ft. long; water power; blast, 1,700 ft. a minute under a pressure of 1½ lb. to the square inch; temperature, 700° Fahr. Produce, 28 to 30 tons of pig iron a week. The hot blast stove, which was planned and erected by M. JULIUS GUTEAU, of the Mauch Chunk Furnace, was situated on one side of the tunnel head, and heated by the escaping flame of the furnace.

When using all brown ore, or limonite, a good soft No. 2 foundry iron was produced. A mixture of brown ore with magnetite, from Warwick mine, gave a forge iron, which, when puddled and rolled into nail plates, at the mill, made a good cut nail. It took 1½ tons of anthracite to make 1 ton of gray forge pig iron. I blew in this furnace June 17, 1840, and it continued in blast until put out by the great flood of the 8th of January, 1841, in the Schuylkill River, which flowed into the hearth.

6. Columbia Furnace, Danville. GEORGE PATTERSON.—Built 1839, and blown in by Mr. PERRY, July 2, 1840. 33 ft. high, 8½ ft. diam. at bosh; hearth, 3½ ft. A steam cylinder, 12 in. diam. and 3½ ft. stroke, steam 100 lb. to the square inch, running 25 rev. per minute, and driving 2 blast cylinders, 32 in. diam., 5 ft. stroke; 15 rev. a minute; pressure of blast, 3 lb.; temperature, 600°. Product, 30 to 32 tons a week, of foundry iron. Ore, fossiliferous.

7. This furnace was erected for the Lehigh Crane Iron Company, consisting of JOSIAH WHITE, ERSKINE HAZARD, THOMAS CARP, and others, by Mr. DAVID THOMAS, who came out from the Ynisceiwyn Furnaces, South Wales, for that purpose. It was built in 1839, and blown in by him on the 4th of July, 1840. The dimensions were: Height, 40 ft.; diameter at boshes, 11 ft.; hearth, 3½ ft.

square; 3 tuyeres; pressure of blast, 2½ lb. per square inch; temperature, 600° Fahr. Product, 50 tons a week, of good foundry iron, made from brown hematite, yielding 40 to 45 per cent. metallic iron.

The power employed was a water wheel, 12 ft. diameter and 25 ft. buckets, driving 2 blast cylinders, each 5 ft. diameter and 6 ft. stroke; 10 rev. a minute. This furnace continued to work very successfully until the great freshet in the Lehigh River, January 8, 1841, put a stop to its operation. The furnace is still in existence, and doing good work. Furnace No. 2 was built in 1842.

With the erection of this furnace commenced the era of higher and larger furnaces and better blast machinery, with consequent improvements in yield and quality of iron produced.

It was the commencement of an enterprize that, under the able management of Mr. THOMAS, resulted in building up one of the largest and most successful works in the Lehigh Valley, now consisting of six blast furnaces, some of them 60 feet high and 17 to 18 feet in the boshes, producing 250 tons of pig iron a week, and using the escaping gas to raise steam and heat the blast.

It will be seen that in the year 1840, there were only six furnaces using anthracite, two of them on the Schuylkill, three of them on the Susquehanna, and one on the Lehigh, making from 30 to 50 tons a week each. At three of the above mentioned furnaces, viz., Mauch Chunk, Phoenixville and Columbia, the hot blast ovens were heated by the flame escaping from the furnace; at the others, the ovens and boilers were on the ground, and heated by independent fires. At that early day, the plan now so general of conveying the escaping gas in air-tight conduits to the boilers and ovens, was not adopted. It was introduced by Mr. C. E. DETMOLD, a German engineer, now of New York.

In the foregoing sketch of the early anthracite furnaces of 1839-40, I have derived some of the facts there stated from the work of P. of WALTER R. JOHNSON, published in 1841, beforementioned, and partly from my own notes and observations. The amount of blast stated was deduced by multiplying the cubic contents of the blast cylinders by the number of revolutions made in a minute. The amount that really reached the furnace was very considerably less, on account of defective fitting of the pistons, and leaks in other ways. Even at the present day, with vastly improved machinery, the loss is very considerable.

These diminutive furnaces of 1840, with their feeble blasts (compared with those of the present day), were the small seed that was destined to develop into a great industry. At the present day, out of 680 furnaces in the United States, 226 are anthracite, producing nearly one half of all the pig iron made. The size of the furnaces has increased from 8 ft. boshes, and 30 to 40 ft. high, to 20 ft. boshes, and 80 ft. high, furnaces with 16 ft. boshes, and 60 ft. high, being most numerous. Some of those 70 to 80 ft. high, are making 300 tons of pig iron a week, using a blast pressure of 6 to 8 lb. on the square inch, and a temperature of 700° to 900°, with a consumption of coal less than 1½ tons to the ton of pig iron of grade No. 3.

Coal Mining in Italy—The Mines of Monte Rufoli.

THE coal basin of Monte Rufoli, or rather Podernuovo, as that part of the estate is called, is situated in the valley of one of the numerous tributaries of the river Cecina, about five miles from the village of Serrazzano; there one of the establishments belonging to Count LARDARCH, for the extraction of boracic acid, is in operation. The coal, which is formed in two seams in the clay, belonging to the lower Miocene period, and locally termed "matajone," which lies immediately above the *albarese* limestone and schists of the Eocene formation, and which in many places have undergone a complete change, from the intrusion of the serpentine rocks, which evidently have been the disturbing elements in this district, and form the nucleus of the whole range of hills bordering upon those valleys. The section of the strata is as follows;

Clay (locally termed "matajone")	Variable.
Limestone breccia	0.50 metre.
Sandstone (grès)	0.30 "
Coal	1.00 "
Band, or parting of "grès"	from 0.30 to 0.50 "
Coal of slightly inferior quality	1.00 "
Clay ("matajone") forming the bed.	

The clay appears to be of marine origin, and contains a great quantity of shells the principal varieties belonging to the genus *conus* and *arca*. The grès, or sandstone, of the roof and parting between the two seams of coal, is evidently a fresh-water deposit. The upper seam, which is the best in quality, appears to extend very regularly over the entire basin, whilst the lower one is found towards the center. The upper workings are reached by a day level, 380 metres in length, driven in the hill-side, and substantially walled for its entire length.

The engine pit is sunk to the fifth level, at a depth of 50 metres below the surface; and to meet the seam at this point it is estimated that it would have to be sunk 100 metres more. A horizontal engine of about 20-horse power, and winding gear complete, are now being fixed, and everything is prepared in readiness for working these mines, which, it is estimated, will yield 100 tons daily; there are two other shafts for the upcast.

As this coal is subject to spontaneous combustion from the oxidation of pyritous matter that it contains, it is found advisable to drive all the levels in the clay about 6 inches above the coal, and then by means of horizontal cross-cuts, driven at intervals to intersect the seam, the coal is wrought on the long-wall system. An inclined plane is being driven from No. 3 to No. 5 level, for the purpose of lowering the coal and conveying it to the bottom of the engine-pit.

A railroad has been made from these mines following the course of the torrent

Sterza to the valley of the Cecina, where it joins the Roman railway at the station of Casino di Terra, a distance of 16 kils. (about 10 English miles). Besides the carriage of coal, there is also a considerable traffic on this line of charcoal. —*Mining Journal*.

The Zinc Mines in Dade County, Mo.

SOUTHWEST Missouri zinc ores, the "silicate and blende of Granby," and the "blende of Joplin and Minersville," are known to all proprietors of zinc furnaces in the West as superior in quality and quantity of deposit to those of other mines, with, perhaps, the sole exception of the Lehigh zinc ores of Pennsylvania. The Carondelet smelters, though so near the zinc mines of Southwest Missouri, receive a large part of their supplies from the Southwest. The Chicago Zinc Company of Cherokee, Kansas, is exclusively supplied with ores from Granby, Joplin, &c. The price of silicate varies from \$10 to \$12; the blende from \$9 to \$15 on the scales at the mine. The silicate of Granby is mined at an average expense of from \$6 to \$7 per ton to the company; the blende in Joplin is generally sold direct by the miners operating on the adventurer plan and paying a royalty of about 10 per cent. to the company. The latter make greater profits on the lead ores, and have, willingly and unwillingly, renounced their mineral rights on zinc ores as a bonus to individual mining enterprise. As lead and zinc ores there generally run together, both parties fare well.

A revolution, greatly affecting the mining and manufacturing interests of zinc, is indicated by the discovery and development of the finest and richest carbonate mines in Dade County, Mo. They are located in the northeastern part of the county, are proven to extend over a territory from North to South three miles, in an almost uninterrupted straight line. This line embraces the Coffin, King, Gaston, Hurt, Rector, and Smith diggings. A few miles east of this range, some rich silicate mines, known as the Central, Weymann, and Verona diggings, all in active operation, prove the existence of good zinc deposits over a territory of at least nine square miles. The Coffin and King mines are now shipping at the rate of 100 tons per week. The average thickness of the zinc vein in cuts and shafts may be set, without exaggeration, at three feet solid. In some shafts there is from 10 to 15 feet ore, all the way down, but slightly interrupted by pockets of ochre and clay. The Smith mines are on a tract of 240 acres. The extent of developed prospects on this tract is more than half a mile. The company operates at present with but a small force of hands, at wages from \$1 to \$1 25 a day. A prospect once struck, the work of the real miner ceases. A few feet of stripping exposes the ore in solid and in broken layers of from three, five to eight feet thick, three feet being also for this mine a moderate estimate of the average vein. The ore is found covered by red and brown ochred clay. The clay is, in some places, somewhat mixed with broken flint.

Dade County zinc ores can be mined at less than \$2 per ton. Indications of coal have been found within a mile from the Smith diggings. This whole zinc range is surrounded on the North and West by large sandstone hills, sloping down into a prairie west, where, about nine miles from Greenfield, and some fifteen miles from the zinc mines, a good blacksmith coal is now being mined and hauled as far as Springfield, selling there at 35 cents the bushel. The coal can be mined at 5 cents. The shipping stations are Dorchester and Billings on the A. and P. R. R., 24 and 28 miles from the zinc mines; they will be removed at the completion of the Kansas City and Memphis Railroad, now being graded from Greenfield to Springfield, and passing the mines within seven miles. The little cost of mining is, as yet, balanced by the great expense of hauling, \$5 to 5 50 per ton. — *Mines, Metals and Arts*.

The Great Copper Region of New Mexico and Eastern Arizona.

THE Los Cruces (New Mexico) *Borderer* gives a very interesting account of the remarkably rich and extensive copper region now being opened in that Territory and Eastern Arizona. It says the late discoveries of immense mines of copper in Western New Mexico and Eastern Arizona, near the Gila, seem likely to eclipse all other mining operations in the Southwest. This is partly from the unexampled amount of ore, unsurpassed in the world for richness of quality, partly from the more simple and inexpensive method of reducing this metal, and partly owing also to the fact that this interest is in the hands of parties abundantly able, and possessing the necessary energy and enterprise, to make their operations a success.

It is now about eighteen months, since the Longfellow Copper Mining Company commenced the development of their mine. This has been done to the distance of two hundred and fifty feet, exposing a solid wall of copper ore, from ten to fifteen feet high, and of enormous width. This wall of ore will average sixty-five or seventy per cent. of pure copper. All along the length of the mine, and below the vein, tunnels have been run in, disclosing the same class of ore, and also the fact that below the appearing outcrop, for a distance of sixty feet down the mountain side, lies the same solid mass of ore. There are now lying at the mine and at the furnace, over sixteen hundred tons of ore ready for reduction. Experienced smelters have now been at work for several months in erecting superior reduction works, with water for a motive power, of which there is a large and constant supply.

Several months since, discoveries were made, about ten miles from the Longfellow of another vein, that promise to be of still greater magnitude. The knowledge that this lay within the boundaries of the White Mountain Indian Reservation, and the fear that, if made known, it would result in the discoverers being driven off, kept them silent in regard to the discovery until the lines of the reservation were

contracted. The company, formed for working purposes, is called "The Coronada Mining Company." A list of the claims made upon this lode will give an idea of its magnitude: Boulder mine, located by H. LESINSKY; Horseshoe mine, located by Wm. GRANT; Coronada mine, located by Wm. S. REES; Copper Crown, located by S. M. ASHENFELTER; Crown Reef, E. S. GOULDING; Matilda, CHARLES LESINSKY. These claims are each fifteen hundred feet, showing a location of nine thousand feet upon a vein running northeasterly and carrying ore from thirty to sixty-five per cent. of copper—and in some places from fifty to one hundred feet cropping. Upon the Horseshoe, where the outcropping is one hundred and thirty feet wide, an adit has been cut showing that all the surface veins run together at a very short depth. The vein is continuous, except in a short distance where the point of the bluff has broken and slid upon the lode, thus covering it for a space, but reappearing in a straight line beyond. The direction of this lode will bring it into the Longfellow, it is thought, and the parties are confident it is the largest copper bearing lode yet found in America. The grade of the ore in all places where prospected remains the same.

A selection has been made for a town site to be named Copperton, which is about twelve miles from the Gila, with excellent facilities for roads, and where wood and water are abundant.

In Burro range of mountains, from fifteen to twenty miles distant from Silver City, very rich and extensive copper mines have been located and are held by parties who are well acquainted with their value, and who will hold them for better facilities of transportation, the Longfellow Mining Company now giving freight to all trains returning to the railroad.

East of Silver City but a few miles, are the celebrated copper mines of Santa Rita and Hanover, as well as many of more recent discovery. The Santa Rita, from which millions of dollars' worth of copper was taken out many years back, is now in the hands of enterprising capitalists, who have machinery upon the road with which to commence extensive operations. A train passed through Las Cruces, this week, loaded with over forty thousand pounds of copper, from the Chino mine, a new discovery near the Santa Rita.

Leaving Grant County and coming to the Rio Grande, we find good copper lodes but a short distance above Fort Selden. In the Organ mountains some fine specimens of copper have been recently brought in.

In the next range of mountains East, copper ore of fine quality again appears. A Mexican friend showed us, a short time since, a fine piece of two ounces, which he reduced from three ounces of float ore.

About twenty miles from Fort Stanton, still to the East, specimens of native copper are often picked up by parties who are prospecting for placers.

When the mining interest of this section is fully developed, and railroads afford easy and cheap means of transportation, Southern New Mexico and Arizona must become the great copper producing section of the United States.

Notes.

The *Huntington Advertiser* notices the organization of a powder company, whose works are to be near that city, with the principal office in the city.

Etching Iron and Steel.—After numerous experiments the author finds that the best solution for etching iron and steel to show its grain, texture, graphite present, etc., is equal parts of hydro-chloric acid and water, to which is added a trace of chloride of antimony.—Prof. Kick in *Polytechnisches Notizblatt*.

Chemical examination of Roofing slates in the vicinity of Graefenthal.—Dr. H. MAEDER.—A further discussion of the analysis of the Graefenthal slates. The practical conclusion is that durable slates, when treated with concentrated HCl, will not lose more than 30 per cent. to 35 per cent. of their weight. When a slate loses 50 per cent. of its weight by the action of strong HCl, it is not suited to withstand atmospheric influences, and is consequently to be rejected for building purposes.—*Archiv der Pharmacie*.

Action of Soft Water upon Metallic Lead.—Research by the Electrolytic Method.—MAYERSON BERGEBER.—The results arrived at are: 1. That sulphuric acid is not so delicate a reagent for lead as the deposition of the metal upon a platinum wire, converting it into chloride by a moment's exposure to chlorine, and then touching a paper moistened with iodide of potassium. 2. That soft river water, more or less calcareous, dissolves metallic lead; and 3. That lead in very small quantity seems completely inoffensive to the public health.

Economy of Variable Cut-Offs.—In a recent discussion before "l'Association des Ingénieurs Sortis de l'Ecole de Liege," some very interesting and important statements were made with regard to the economy of using a variable cut-off on winding engines. A number of carefully made experiments, made at different collieries, seem to prove conclusively that the variable cut-off effects an economy of from 33 to 45 per cent. in the amount of fuel used over the engine working without cut-off, and the fixed cut-off gives about 20 per cent. economy over no cut-off. Of course, the economy to be obtained by the use of a variable cut-off will depend on the depth of the pit, and on whether the caps are balanced, or the winding done on conical drums, or other device for attaining the same end.

Large Ingot of Platiniridium.—An ingot of 250 kilogrammes of platiniridium was cast at the *Conservatoire des Arts et Metiers*, May 13, 1874. General MORIN read a paper giving an account of the casting of this enormous ingot, 1'14 m. long, 178 wide, and 08 thick, which is destined to form the new metrical standards. The platinum, 225 kilo., was obtained from MATTHEY, of London, and its purity assured by DEVILLE, while the iridium was obtained from the Director of the St. Petersburg mines and from the Russian Government. Experimental castings of 5-10 kilos. were successfully made, and finally three ingots of about 83 kilos. each were melted. Analysis showing 10'37 of iridium instead of 10 per cent., 5 kilos of pure platinum was added in the final melting. The final fusion required less than 70 minutes, 7 compound blow pipes being used, and 31 cub. m. of oxygen and 24 cub. m. of street gas. For fusing, therefore, 100 kilos. of a mixture of iridio-platinum, containing 10 per cent. iridium, are required 12'27 cub. m. of oxygen and 9'53 cub. m. of street gas. The ingot was found to be practically perfect and uniform.

THE ENGINEERING AND MINING JOURNAL.

NEW YORK, SATURDAY, DECEMBER 12, 1874.

ROSSITER W. RAYMOND, Ph. D.,
RICHARD P. ROTHWELL, C. E., M. E., } Editors.

The Engineering and Mining Journal is devoted to Mining, Metallurgy and Engineering. Communications on these subjects will always be welcome.

It is the Official Organ of the American Institute of Mining Engineers, and it alone publishes the valuable papers read before that influential society.

Correspondence and general communications and books for review should be addressed to the Editors. Business communications should be addressed to the Secretary.

Remittances should always be made by Post-Office Orders or Bank Drafts, made payable to WM. VENTZ, Secretary.

Subscription \$4 per annum; \$2.25 for six months, in advance.

Advertising Rates. Inside pages 25 cents per line each insertion. Outside pages 40 cents per line. Special reduced rates will be given on application for advertisements extending over a long time or occupying a large space.

THE SCIENTIFIC PUBLISHING COMPANY.

WILLIAM VENTZ, Secretary,
27 Park Place, New York.

P. O. Box 4404.

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Meeting of Pig Iron Manufacturers.

We refer to our New York Iron Market report for a review of the proceedings of the Ironmasters' Convention at Philadelphia, yesterday. We will have more to say on the subject next week.

The Pittsburgh Mining Outrages.

Frank Cowan's Paper, of Pittsburgh, gives a full account of the disgraceful outrages practiced on the Italian miners at Armstrongs, near Pittsburgh, and which resulted in the death of three and wounding of eight of them. It is stated the slaughter would have been much greater, had it not been for the heroic conduct of the wife of GUSCETTI, the Superintendent of the Italians, and her sister, English women. These ladies courageously exposed themselves to the fire of the mob, and succeeded in stopping it.

While those who employed the Italians are greatly to blame for not providing proper and legitimate protection for their men, and for seeking, by arming these foreigners, to carry the day by force and not by right, there can be but one opinion of the disgrace to the administration of the law in that part of Pennsylvania, that allowed a mob of miners, unwilling to work themselves for fair wages, to drive off, by force, peaceable men who were ready to take the wages they refused. If the country is to be governed by mobs of Mollie Maguires, who may dictate who shall work and what they may work at, it is high time the fact should be known. And if the Pennsylvania, and particularly the Pittsburgh papers, with the one exception of our blunt, outspoken, contemporary, FRANK COWAN, are afraid to denounce the shameful administration of justice in that part of the country, the press elsewhere may enlighten the people, and publish the shame of the great State, where the laws afford no protection to pursuit of legitimate business, when it suits a set of roughs to interfere.

The Coal Programme for 1875.

It has long been known that the managers of the Coal Combination feel that the high prices they have charged for coal during the current year have been a mistake, and as early as June last they would willingly have changed the programme, had that been possible. But with contracts out for sea-on delivery, it was impossible to change the understanding on which the season contractors had taken the coal, hence the price was maintained according to the original programme to the close of the season.

There is no doubt the high price has driven a good many consumers to the use of bituminous coal, and the full extent of this defection is probably not yet appreciated.

It was currently reported that Mr. Horz, representing the Pennsylvania Coal Co., stated last year his willingness to join the Combination if they would make three changes in the programme:

- 1st. Make no season contracts.
- 2d. Give no commissions, but furnish contractors with coal at the published nett price, as the Pennsylvania Coal Co. does; and let dealers secure their own profit by selling at any figure they please above the card price.
- 3d. To let the price gradually recede from the highest price of the year, so that we would have cheap coal during the winter, and no abrupt drop from the highest to the lowest prices of the year.

The result of the season's business has confirmed the wisdom of these views, and we have reason to believe that at the meeting of the Combination on the 9th, in this city, at least two of these changes were spoken of with approval.

It may be considered as settled, that no season contracts will be made next year. A proposition to reduce the price of coal next year by 50 cents, was also considered favorably. And there will, doubtless, be definite action on the other points in the adjourned meeting, which is to be held on Thursday next, the 17th December.

It is no secret that stove coal, supposed to be Scranton coal, is to-day offered in this market at \$5 65 per ton, while the programme price is \$6 40; it therefore appears ridiculous to keep up the farce of quoting figures which no one thinks of paying.

We hear no word of any greater reduction to furnaces than that named for other industries, but we believe the interests of the coal companies will best be served by lending a helping hand to our much depressed iron trade, in making a reduction in the price of furnace coal to \$2 50 at Mauch Chunk.

There will undoubtedly be a considerable decline in wages at the mines, and if a corresponding reduction were made in freights from the mines to the principal markets, 75 cents per ton could very well be taken off the lowest price of this year for the opening price of 1875. The country needs cheap coal, and must have it, if we would hasten the return of prosperity to our manufacturing interests. Our anthracite companies have steadily increased their prices and profits during a time when every other industry in the country was doing the opposite; and if they would maintain the favor or sufferance of the public, a matter of much greater import than some of these potentates may think, the price of this prime necessity must go down in the same proportion as that of every other article of merchandise.

The Friends and Enemies of the Iron Trade.

OUR choleric contemporary, the *Bulletin of the Iron and Steel Association*, is unduly excited by our remarks on the proceedings of the pig iron men who assembled a few weeks ago in Philadelphia, and in its excitement so far forgets its usual dignity as to resort to the vulgar, and among technical papers, we are glad to say, almost obsolete, course of using hard names instead of arguments, to answer those who do not agree with its particular views. When some of the iron men, in the meeting which we referred to, justly condemned the "coal combination" for keeping up the price of anthracite at an exorbitant figure, and almost at the same time proposed a "pig iron combination" to keep up the price of iron at an artificial standard, we considered the proceeding as *inconsistent*; but when the proposed pig iron combination, through the very nature of the case, is practically impossible, the inconsistency becomes "judicious." With a protective duty of \$6 30 per ton on pig iron, and iron selling as cheap here as in England, we consider as *ridiculous* the statements we have been accustomed to hear, that the great depression in our iron business at present can be remedied by the imposition of higher import duties. And, indeed, the *Bulletin* is almost the last of the iron papers that still claims this, and it must itself have but a poor opinion of its cause when, instead of argument, it treats those who do not advocate its views to such terms as "cloven foot," "impertinent and contemptible," and states that they are, or ought to be, "the covert organs of the American Free Trade League," and are "enemies of the American iron trade," and their views are "insulting free trade sentiments," etc. This list lacks but the time-honored reference to "British gold," to make it complete. We had almost overlooked the fearful threat of the *Bulletin* when it says of all who do not support its particular views "the newspaper which is not for us in a life-and-death-struggle is *against* us," and in the apparent full conviction of its own infallible wisdom, it condescends to tell the ENGINEERING AND MINING JOURNAL that, with "the subject of protection and kindred topics, it has legitimately nothing to do." It is modest and kind of the *Bulletin* to point out to us just what we may, and what we may not, do and say; and we are exceedingly grateful.

It seems the *Bulletin* is so accustomed to dictating to the iron papers, that, in one shape or another, participate in the spoils which the Iron and Steel Association is supposed to distribute, that it cannot conceive of an independent paper; so it concludes that all who do not advocate its hobbies, however absurd they may be, can be nothing else than "the covert organs" of some other clique.

"In times like these," what the iron trade needs is honest criticism that will lead to a closer investigation of economy in the manufacture of iron, and not flattery and self gratulation or adulation. The true friends of the American iron trade, like those of every individual, are not its persistent flatterers, but its honest and friendly critics. We have the most unbounded confidence in the future of our American iron trade, and cordially recognize the fact that in recent years, and particularly during the present year, we have made immense progress in iron metallurgy. Many of our works are fully up to the best foreign standard, and we believe will soon be much superior to that; but at the same time we have not a few of the ardent disciples of the *Bulletin* who have always looked to government aid to cover up the deficiencies resulting from ignorance and incapacity, who now, that the competition has come from within and not from without, and that no possible tariff could help them, know no other remedy for their ills than that the *Bulletin* has taught, and can only repeat the old cry of "more tariff, more tariff." This class is fortunately rapidly disappearing, and our iron masters are wisely looking nearer home for the cause of their trouble and its cure. They are finding both. We know it is a hard and bitter struggle for existence with many of our works, and some will succumb, but it seems to us the worst

enemies of our iron trade are some of those within it, and to blindly following the teachings of the *Bulletin* may be traced not a little of our present trouble.

The course of this journal in advocating the introduction of more knowledge and skill in the management of our iron works has received the cordial approval of many of our largest iron masters, and has, as we know, led to investigations which have already resulted in considerable economy at some works. We are well convinced that we are serving the best interests of the trade in the course we are following, even though it may not be altogether popular. And while we are willing to admit the honesty of those who differ from us in opinion, we cannot but look upon the policy that can find no other means of "re-lighting our extinguished fires" than "an increase of duties," as not only ridiculous but mischievous and injurious to the trade.

Gunpowder Manufacture in the United States.

CONCLUDED FROM PAGE 337.

In 1822, Mr. DU PONT introduced the use of iron wheel mills in this country.

In 1805, MATHEW LAFLIN began to make powder at Southwick, Mass., with a stamper mill having a capacity of 200 lb. a day. The powder was sold to the government at \$1.00 per lb. after being inspected by the officers at 25 cents per lb. MATHEW and LUTHER, SONS of MATHEW LAFLIN, built the Saugerties and Kiskatom mills in 1835.

In 1809, there were fifty-three mills in Virginia, making 4,100 kegs a year, and a large factory was established near Richmond by BROWN, PAGE & Co.

In 1810, JAMES TWEDDLE had a small mill on the Brandywine. The manufacture now nearly equalled the consumption. We imported but 200,000 lb. and exported 100,000 lb.

DU PONT employed a capital of \$73,000 and 36 men to produce 225,000 lb. per year, though, had the market called for it, he could have made 600,000 lb. Two other companies near Baltimore, with a capital of \$100,000, made 450,000 lb. During the war of 1812, the home production of saltpeter was about 500,000 lb. per annum, of which 400,000 lb. came from Kentucky. 100 lb. of the earth from whose limestone caves often produced 50 lb. of nitre.

In 1815, the Orange works, near Newburgh, N. Y., now owned by the LAFLIN & RAND Powder Company, were built by DAN ROGERS, and had a capacity of 300,000 or 400,000 lb. per year; they occupied twenty-seven buildings. In 1818, MOSES HALE was making powder at Lowell, Mass., and in 1822, TELESTON, WHIPPLE & HALE were running a stamping mill of 40 pestles, making 3000 to 4000 kegs per year. Their brand was "Boston Gunpowder."

The annual consumption of powder in 1805 was about 60,000 kegs, only one-half of which was used in blasting, and of this quantity 21,000 kegs were imported. DU PONT made 6000 kegs of sporting powder, but no blasting powder, as a regular article of manufacture, before 1819. Indeed, it was not until 1830 that the building of canals, and the demand for anthracite coal, and afterwards the construction of railroads, turned the attention of manufacturers to the preparation of a powder especially adapted to mining purposes.

The consumption of powder in this country has increased from 60,000 kegs, in 1805, to 1,200,000 kegs in 1869. The quantity in 1874 would not greatly exceed this, there having been a great reduction during the past year; 85 per cent. of this, or over 1,000,000 kegs, are used for mechanical purposes. In 1805, we imported one-third of all we consumed, and but one-half our consumption was applied to productive or mechanical work. At the present time, it is estimated that we make one-third of all the powder produced in the world, and more than England, France, Germany and Russia together; and for many years we have been large exporters. During the Southern rebellion, although the whole supply in the South was lost, our manufacturers were able, not only to meet the immense demand for the Pacific Railroad and highly stimulated domestic consumption, but also to supply the Army between January, 1861, and July, 1866, with 1,032,128 kegs (issued 1,057,600 kegs), and the Navy with 291,400 kegs, and still keep the price on a gold basis as low as it was in England at the same time.

The great competition resulting from the demand for powder, during and since the war, has so diminished the margin for profit that only the manufacturers with large capital have been able to survive. The principal of these are the LAFLIN & RAND Powder Company, which controls nine different mills, in four States, with a capacity of 500,000 kegs of all kinds. The mills of E. L. DU PONT & Co., at Wilmington, Del., and on the Wapwallopen, in Pa., have a capacity of about the same amount. The HAZARD Powder Company, of Connecticut, has a capacity of about 300,000. These three companies, run to their full capacity, could more than supply the entire domestic and foreign demand of the trade. Besides these there are some large mills in California, producing some 200,000 kegs a year, and several smaller mills throughout the country. Among these may be mentioned that of General OLIVER, near Wilkes-Barre, that uses a new method of manufacture, and has a capacity of some 50,000 kegs. About five years ago, 1,000,000 kegs were annually used in mining and engineering work in the United States; and if we take the keg of powder as doing an amount of work equal to twenty-five days' labor of a man, this would represent the steady labor for a year of about 80,000 men. In mining anthracite coal, we use about one keg to 30 tons mined, this including the dead work at the colliery, some of which is in rock. The consumption of powder in that industry is, therefore, for an output of 20,000,000 tons a year, about 600,000 kegs annually, and it represents the continuous labor of nearly 50,000 men. This estimate is under, rather than over, the truth; for, before the use of powder, a miner cut from 1½ to 2 tons per day, in large, flat seams, while he now cuts on an average from 6 to 10

tons, according to the thickness of the bed and the nature of the coal. If we count the average wages of miners at \$2 50 per day, this would represent 50,000 × 300 × \$2 50 = \$37,500,000 per annum. Were it not for the use of powder, railroads and canals on any extended scale would be impossible, and the cost of coal so great that its use would be quite limited.

It is estimated that an average of 2½ lb. of powder enters into the production of every ton of anthracite pig iron, and reduces its cost \$4 70.

The Central Pacific Railroad required for its construction 300,000 kegs, and there were used on this side of the Rocky Mountains 160,000 kegs, equal in all to the labor of 25,000-men for one year.

The effective work obtained from powder can scarcely be compared with that of manual labor, for the quickness with which the force is applied and the small space within which it is concentrated, make it, under certain circumstances, many times more effectual than the labor of any number of men, and the effects produced depend also on the quickness or slowness of the powder.

Copper and Iron Production of the Lake Superior Region.

FOR THE YEAR ENDING WITH THE CLOSE OF NAVIGATION, 1874.

From the Houghton Mining Gazette.

OUR tables of shipments of mineral from the districts of Portage Lake, Keweenaw and Ontonagon, given below, representing the amount of copper produced by our mines from the close of navigation last year up to the close of this, are more than approximately correct, and are as reliable as it is possible to furnish them in the time we have had to collect the figures. The exhibit for Portage Lake and Keweenaw County is a good one, and shows, especially in the case of the former district, that the progressive stages of the copper industry of this famous region is marked by an enlargement of production that is pleasing to our people, and must stamp the locality, in the minds of all, as the coming great copper center of the civilized world. Last year the total yield of the Portage Lake district was something over 15,000 tons, while the production this year is not far from 17,475 tons, which shows an increase of 2200 tons and over. Keweenaw Point district also exceeds its last year's offering by 1331 tons, while Ontonagon's production, if not very large, is greater than it was in 1873.

PORTAGE LAKE DISTRICT.

	Tons.	Lb.
Calumet & Hecla.....	12,914	1454
Quincy (about).....	1,750	
Atlantic (about).....	900	
Osceola.....	541	1412
Pewabic-Franklin-tribute contract under Uren & Co., about 7½ months.....	517	1536
Pewabic-Franklin—under company account from July 1, 1874 to close of navigation—stamp mill idle some time.....	278	419
Houghton (late Huron).....	291	1239
Sumner.....	51	41
Ile Royale.....	149	255
Schoolcraft.....	44	1965
Concord.....	35	1679
Product in 1873.....	17,475	1429
Increase in 1874.....	2,280	571

KEWEENAW POINT DISTRICT.

	Tons.	Lb.	Tons.	Lb.
Central.....	1,194	1163	Amygdaloid.....	12
Phoenix.....	894	905	St. Clair.....	5
Cliff.....	750	397	Clark.....	4
Allouez.....	433	1998		
Copper Falls.....	696	1055	Product in 1873...	4,113
Petherick.....	75	761		441
Delaware.....	46	1508	Increase in 1873...	2,781
				1,903
				538

ONTONAGON DISTRICT.

	Tons.	Lb.	Tons.	Lb.
Ridge.....	263	1132	Knowlton.....	4
Minnesota.....	121	1256	Bohemian.....	3
National.....	114	118	Adventure.....	4
Rockland.....	38	292	Lake Superior.....	3
Flint Steel.....	33	1900		
Nonesuch.....	30	916	Product in 1873...	637
Mass.....	9	541		1303
Aztec.....	9	1484	Increase in 1874...	537
				117
				186

RECAPITULATION.

Portage Lake District.....	17,475	
Keweenaw Point District.....	4,113	441
Ontonagon District.....	637	1303
Grand total for 1874.....	22,225	1744
Total product for 1873.....	18,514	449
Increase over 1873.....	3,711	1295

We are indebted to the Marquette Mining Journal for the following:—

IRON ORE AND PIG IRON SHIPMENTS.

The following table exhibits, in gross tons, the shipments of iron ore and pig iron from the port of Marquette, up to, and including, Thursday, Nov. 19, 1874:

ORE.		Gross tons.	
Cleveland.....	93,116	Shenango.....	5,429
Lake Superior.....	81,354	Rolling Mill.....	4,151
Champion.....	46,420	Edwards.....	2,848
Washington.....	24,236	Winthrop.....	3,710
Republic.....	112,047	McComber.....	2,641
Keystone.....	3,059	Lake Angeline.....	1,114
Kloman.....	34,411	Total.....	423,834
New York.....	8,718		

PIG IRON.		Gross tons.	
Michigan Iron Co.....	8,451	Ishpeming peat furnace.....	450
Morgan furnace.....	7,060	Iron Cliffs Co.....	175
Bancroft furnace.....	3,373	Rolling mill.....	1,761
Champion furnace.....	408	Total.....	26,476
Grace furnace.....	4,037		
Carp furnace.....	761		
Total ore and pig iron.....	450,310		

ESCANABA.—The following table exhibits in gross tons the shipments from Escanaba for this season, up to, and including, Nov. 19, 1874 :

ORES.		Gross tons.	
Jackson.....	82,187	Carr.....	949
New York.....	55,360	Saginaw.....	41,622
Cleveland.....	6,236	Rolling Mill.....	5,827
Lake Angeline.....	27,086	H. & Hopcock.....	406
Barnum.....	36,462	Salisbury.....	4,433
Foster.....	1,143	Home.....	2,137
Cascade.....	7,257	Goodrich.....	2,725
Winthrop.....	1,336	Teal Lake.....	2,609
Excelsior.....	588	Total.....	279,724
P. & L. S.....	1,361		

PIG IRON.		Gross tons.	
Pioneer furnace.....	4,030		
Deer Lake furnace.....	4,000		
Escanaba furnace.....	4,685		
Total.....	12,745		

Total ore and pig iron.....292,469

L'ANSE.—The following shows the amount, in gross tons, of ore shipped from the Port of L'Anse for this season, up to Nov. 12, 1874 :

ORE.		Gross tons.	
Spurr Mountain.....	42,068		
Michigammi.....	44,001		
Total.....	86,069		

GRAND ISLAND.—The following are the shipments, in gross tons, of pig iron from the Grand Island furnaces this season, up to Nov. 19 :

Bay furnace.....	7,068
Munising furnace.....	5,278
Total.....	12,346

THE DISTRICT.—The following table will show the total shipments, in gross tons, from the Lake Superior iron district, for the season of 1874, up to Nov. 11, and shipments to a corresponding date last year :

ORE.	1873.	1874.
From Marquette.....	526,264	423,834
From Escanaba.....	479,712	279,724
From L'Anse.....	60,899	86,069
Total.....	1,066,875	789,627

PIG IRON.		1873.	1874.
From Marquette.....	25,997	26,476	
From Escanaba.....	9,248	12,745	
From Grand Island.....	.....	12,346
Total.....	35,245	51,567	

Showing a decrease of 261,526 gross tons of ore and pig metal, as compared with shipments for a corresponding period last year.

Malleable Glass.

M. DE LA BASTIE, who is a rich gentleman residing at his chateau in France, with the assistance of a learned and experienced chemist, has succeeded, after a long series of scientific experiments during nearly six years, in discovering the process of making malleable glass, which, instead of being brittle, is as ductile as copper or iron. Samples of it have been presented to scientific institutions, and the news of this great discovery is spreading rapidly in France, England, Prussia and America. M. DE LA BASTIE, in order to secure for himself the benefit due to long, persevering and successful efforts, is forming a company, and has taken a patent right for his discovery. A large building for the manufacture of said glass has been commenced at a cost of \$625,000. The building is 163 yards by 100 yards in depth. It has been assured that utensils such as frying pans, etc., can be used on a hot range and will resist the fire just as well as iron or any other metal. Also glass chimneys for lamps and gas burners are made and will not break. In fact there is no limit to the variety of articles which can be made of malleable glass.

CORRESPONDENCE.

The Kilkenny, Ireland, Anthracite Coal-Field.

TO THE EDITOR: SIR—Castlecumber, about 10 miles north of the town of Kilkenny, may be considered the center of this basin of anthracite coal, which furnishes the County of Kilkenny with one of its distinguishing features, as recorded in the popular rhyme :

“ Fire without smoke, air without fog,
Water without mud, and land without bog.”

The mines have been worked on a small scale for the last 150 years, by the family of WANDESFORD, to whom a great part of the surrounding country belongs, and who have sunk a number of pits from 60 to 80 yards deep. None of the adjoining properties had been regularly worked until the time of the coal famine in England, a few years since, when the attention of some English capitalists was drawn to this locality. They leased some land, and put down a pit, which has just struck the main bed.

All the works on the WANDESFORD property are let to a contractor, at a royalty of one-eighth the selling price at the pit's mouth, an agent of the landlord receiving all the money and returning seven-eighths of it to the operators fortnightly. Although a railroad passes within a few miles, no branch has been opened to the coal district, owing, I believe, to an objection on the proprietor's part, he probably not desiring to exhaust the supply, but preferring a steady, even if limited, income to himself and to the miners; besides, I believe a scarcity of labor is experienced, though the colliers earn from five shillings to seven shillings a day, or say from \$1 50 to \$2. Of course, it requires a peculiar training to work in mines of this description.

The only means of transporting coal is by common horse wagons, which are not available for more than a surrounding radius of say 20 miles.

But two beds seem to have been worked. One, of 3 feet in thickness, which does not seem, from what I could learn from the miners, to be continuous through the field, and which, they said, was worked out; and the other, called the Jarrow seam, now being worked, varying from 3½ to 4 feet in thickness. The undermost part of this, for a height of from 6 to 8 inches, is composed of slaty coal and culm, soft enough to be worked with a pick by a man lying on his side, who is thus enabled to undermine the main body of the bed to a depth of 3 or 4 feet from the face, and this very much facilitates the mining, as may naturally be supposed. After this under-mining process, a shot is put in the upper coal, which shatters it sufficiently to enable it to be loaded on the cars. The slate and culm, which in America would be piled away in the gob, is here all hoisted, and sold at a low price for burning lime, and often for domestic purposes, when it is mixed with clay or cow-dung, and formed into balls, which burn very well. Fire damp but rarely occurs in these mines, and the only artificial ventilation is kept up by means of furnaces. The seam is worked very much on the American system of gangways, with branching chambers and pillars, which they call board and wall, the gangways being about 100 yards apart. The breasts are 7 yards wide, and the pillars 5 yards thick; when they have worked to the boundaries, they withdraw the pillars and let the roof cave in. They have the great advantage of a good roof over the coal, so that no further timbering than props is required. I believe a bed of fire-clay exists under the coal. I was not sufficiently long on the spot to be able to form an idea of the extent of the coal-field, and I believe the people of the place have but a vague idea of it, as the coal has been worked on but one property. Strange to say, no bore-holes seem to have been put down below the Jarrow bed, to prove the existence or non-existence of other seams.

The annual output is said not to exceed from 80,000 to 100,000 tons; the best class is sold at the pit's mouth for £1 per ton, and the culm at 7s. The best class exactly resembles American anthracite, being quite as hard and lustrous.

The engines used are non-condensing and work both the pumps and hoisting gear. The pumps are arranged in two lifts with double plungers to suit the double-acting engine. A system of bevelled friction wheels without teeth are used to communicate and reverse the motion of the hoisting drum—this is said to be an improvement, as they say the cogs are apt to break when used. The bevelled edges are grooved and can be thrown into gear by means of a lever which powerfully compresses the edges. The pits are very small, being not more than about 8 feet by 6 feet, the hoisting cages and cars being correspondingly diminutive. The construction is very much the same as in America, except on a small scale—the platform on which the car is raised, working against guide rails, but no safety apparatus is used to avoid accidents from the breaking of the rope—which indeed seems to be needless, as they have never had an accident of that nature, the wire ropes used being sufficiently strong to sustain five times the weight they bear, as but about half a ton is hoisted at a time. No brakes being used, the mine cars are not hoisted above the level of the ground. These cars are moved underground by men along tramways, as mules would be unavailable, owing to the small height of the workings—but it must be a serious expense, as some of the workings are a mile from the shafts. The coal seems to be but little disturbed, though slips of a few feet and steep pitches are sometimes met with. The latter generally towards the outcrop.

Another anthracite coal field occurs in the adjoining County of Tipperary. The coal is of an inferior sort, however, and is worked by the Mining Co. of Ireland. It is probably an extension of the Kilkenny field.

Ireland is but poorly gifted by nature with coal, the carboniferous system being represented mostly by the mountain limestone, which was formed in a deep sea, while the English contemporary beds were probably formed in the swamps and estuaries of great rivers which then drained the European or some other continent.

D. COGHELAN.

The Strike of the Pittsburgh Puddlers.

The iron manufacturers of Pittsburgh have closed their mills, the men refusing to accept the reduction in wages proposed. The difference between them may be stated as follows :

According to the card, when iron sells at three cents, a puddler gets six dollars per ton, and makes five heats per day, equal to one and one-eighth ton, making his six dollars and seventy-five cents per day. Out of this he pays a helper two dollars and a quarter, leaving him net four dollars and a half. As proposed by the manufacturers he would get three dollars and seventy-five cents and his helper one dollar and eighty-five cents.

At Scranton and Danville, Pa., the wages now paid to puddlers are \$3.50 per day.

Verdict of Manslaughter against a Colliery Manager.

An inquest was held at Sheffield, England, on the body of two miners who were killed by an explosion in the Wincobank Drift Colliery, near Sheffield. Mr. WARDELL, the Government Inspector, was present. The miners went to work on the 26th ult, most of them having lighted candles. Whilst one of the deceased men was preparing to begin work, he put his candle on a post, and an explosion occurred almost immediately. The evidence showed that naked lights were ha-

bitually used in the pit, and that smoking was a common occurrence. It was proved that Mr. LESTER, the manager of the colliery, told the miners on the morning of the explosion that there was gas in the pit, but he did not prevent them from going into the pit with naked lights, and that safety lamps were sometimes used but were never examined, and were taken into the pit unlocked. The jury returned a verdict of "Manslaughter" against LESTER, and he was committed for trial. The coroner said he had never known a colliery that was worse managed than this.

French Prices for Railroad Materials are indicated by a French journal which gives a list of the principal contracts made by the French railroad companies during the months of August and September last, in which we find the following prices : Iron rails, \$47 per ton of 2000 lb.; cast-steel crossings, 8½ cents per pound; a plate-iron bridge of 26½ feet span, 4.4 cents per pound; hook spikes, 2.82 cents per pound; locomotives weighing 36 tons each (of 2000 lb.), at 16 cents per pound nearly; tenders for the same, 10 cents per pound. The latter two contracts were for forty engines and as many tenders, and the price of the engine alone would amount to \$11,525 gold, or just about \$12,800 in American currency at the present price of gold; at which price, or a less one, any of our American works would take such a contract, we are sure. Other contracts were cranes for loading and unloading cars at 6½ cents per pound; iron tyres at 4½ cents per pound; locomotives weighing 33 tons at \$11,000 gold each; tenders for these locomotives at \$2390 each; first-class passenger cars with four wheels, \$1950 each.

COAL TRADE REVIEW.

Import Duty on Coal.

Anthracite free. Bituminous, per ton of 28 bushels, 80 lb. to the bushel, 75c., gold.

All slack, or culm, such as will pass through a half-inch screen, per ton of 28 bushels, 80 lb. per bushel, 40c., gold.

Not otherwise provided for, per ton, 40c. gold.

This is the only report published that gives full and accurate returns of the production of our Anthracite mines.

New York, Dec. 11, 1874.

The Production of Anthracite Coal for the week ending Dec. 5, 1874, was as follows :

Wyoming Region.	Tons of 2240 lb.	WEEK.	YEAR*
		Tons.	Tons.
Delaware and Hudson Canal Co.	49,235	2,222,766	
Delaware, Lackawanna and Western R.R.	56,366	2,340,841	
Pennsylvania Coal Co.	26,481	1,249,574	
Lehigh Valley R.R.	9,645	886,361	
Pennsylvania and New York R.R.	....	57,596	
Central Railroad of New Jersey	39,930	1,416,178	
Pennsylvania Canal	1,187	321,774	
Sold at the mines by L. & W. C. Co.	793	21,977	
	183,637	8,516,667	
Lehigh Region.			
Lehigh Valley R.R.	39,215	3,001,368	
Central Railroad of New Jersey	27,092	1,119,043	
Danville, Hazleton & W. B. R. E.	830	38,588	
	67,137	4,158,999	
Schuylkill Region.			
Philadelphia and Reading R.R.	89,111	5,089,581	
Shamokin and Lykens Valley	10,000	875,311	
	99,201	5,964,892	
Sullivan Region.			
Sullivan and Erie R.R.	328	32,385	
Total of all the regions	350,302	18,672,943	

* Year beginning Jan. 1.

The following table does not give the entire production of our bituminous mines, but it is by far the fullest report published.

The Production of Bituminous Coal for the week ending Dec. 5, was as follows :

Tons of 2000 lb., except where otherwise designated.

	Week.	Year.
	Tons.	Tons.
Cumberland Region, Md.		
Tons of 2240 lb.	39,068	2,245,919
Barelay Region, Pa.		
Barelay R. R. tons of 2240 lb.	4,593	287,169
Broad Top Region, Pa.		
Huntingdon & Broad Top R. R.	4,011	212,611
Clearfield Region, Pa.		
Snow Shoe	1,456	56,732
Tyrone and Clearfield	13,862	586,993
Allegheny Region, Pa.		
Pennsylvania R. R.	3,777	192,815
Pittsburgh Region, Pa.		
West Penn. R. R.	3,949	183,288
Southwest Penn. R. R.	123	7,321
Penn. and Westmoreland gas coal, Pa. R. R.	24,438	831,817
Pennsylvania R. R.	6,293	419,226
Kanawha Region, W. Va. to Nov. 28.		
Chesapeake and Ohio R. R.	1,658	127,577
Shipments from Block House Region, N. S., to Nov. 7.	....	....
Consigned to the Provinces, tons 2240 lb.	570	14,315
" " " " United States " " " "	404	15,486
" " " " Cuba " " " "	520	1,091
Shipments from Pictou Region, N. S., to Nov. 28.	....	....
Consigned to the United States tons 2240 lb.	245	49,186
" " " " West Indies " " " "	2,989	16,388
" " " " Canada " " " "	....	98,017
" " " " Other provinces " " " "	....	70,047
" " " " South America " " " "	1,930	7,175

The Production of Coke for the week ending Nov. 28.

	Tons.	Year.
	Tons.	Tons.
Tyrone and Clearfield	....	745
Allegheny Region	....	118
West Penn. R. R.	....	842
Southwest Penn. R. R.	8,737	41,677
Gas Coal, Penn. R. R.	920	391,613
Pennsylvania R. R.	....	37,510
Pittsburgh Coal, Penn. R. R.	1,404	61,585

The production of Anthracite for the week ending Dec. 5th was as follows : Wyoming Region, 183,637 tons, being 17,918 tons more than the preceding week. In the Lehigh

region, 67,137 tons, or 26,703 tons less than the week before, and in the Schuylkill region, 99,201 tons, being 39,104 tons less than the preceding week.

The total production of Anthracite from all the regions was for the week 350,302 tons, as against 398,268 tons the preceding week, (or a decrease of 47,966 tons). From January 1st to Nov. 28th, there were produced 18,672,943 tons, as against 18,634,338 tons for the same period last year. The figures of last year's production are taken from the Pottsville Miners' Journal.

The receipts at Port Richmond were 34,500 tons; shipments, 40,000 tons; and balance on hand 142,000 tons.

Returns from Greenwich, Philadelphia :

	Bituminous.	Gas Coals.
Receipts	3,592	1,728
Shipments	4,087	1,525
On hand	1,206	856

The receipts of coal by the Michigan Southern R.R. at Buffalo for the week were 5,687 tons. The shipments by Lake, 500 tons.

The exports of coal from Baltimore this year amount to 65,819 tons, as compared with 64,051 tons in 1873. The exports for the week amounted to 2,453 tons.

The production of Cumberland coal from January 1 to Dec. 5, inclusive, was 2,245,918 tons of 2240 lb., against 2,475,088 tons to the corresponding date in 1873. The production for the week was 39,068 tons, as compared with 38,912 tons for the corresponding week in 1873. This is a total increase for the week of 156 tons as compared with 1873, and for the year, thus far, a decrease of 229,170 gross tons.

Production of Bituminous Coal, 1874.

	Tons of 2000 lb.	10 mos.	Nov.	11 mos.
Blossburgh Region	717,418	52,336	769,754	
Barelay Region	410,300	42,241	452,541	
Broad-Top Region	190,466	18,134	208,600	
Cumberland Region	2,268,010	203,662	2,471,672	
Clearfield Region	596,911	46,814	643,725	
Allegheny Region	180,445	12,370	192,815	
Pittsburgh Region.				
West Penn. R. R.	171,230	12,058	183,288	
Southwest Penn. R. R.	6,933	388	7,321	
Gas Coal, Penn. R. R.	770,794	61,023	831,817	
Pittsburgh Coal, Penn. R. R.	400,139	19,087	419,226	
Saw Mill Run R. R.	68,957	....	....
Cleveland and Pittsburgh R. R.	250,856	....	....
Pittsburgh, Cincinnati and St. Louis R. R.	490,414	....	....
Erie and Pittsburgh R. R.	243,197	....	....
Pittsburgh, Fort Wayne and Chicago R. R.	170,772	....	....
Castle Shannon R. R.	92,799	12,882	105,661	
A. Y. & P. R. R.	293	....	....
Pittsburgh and Connellsville R. R.	296,105	....	....
Monongahela Nav. Co.	1,848,656	....	....
Keelling & Co.	140,014	....	....
Wetzel & Gormley	9,585	....	....
J. W. Carlin & Co.	3,817	....	....
St. Louis Region.				
Tenn. Coal & R. R. Co.	62,778	....	....
St. L. A. & T. H. R. R. Belleville Branch	112,799	....	....
B. & S. I. R. R.	63,940	....	....
Illinois and St. Louis	1,836	....	....
Indiana North and South R. R.	5,851	....	....
Evansville & Crawfordsville R. R.	13,155	....	....
Ohio & Mississippi R. R.	105,314	....	....
Kanawha Region.				
Chesapeake and Ohio R. R.	116,912	10,665	127,577	
Warrior Region, Ala.				
South and North Alabama R. R.	23,365	....	....
Cahaba Region, Ala.				
South and North Alabama R. R.	3,085	....	....
S. R. & D. R. R.	10,855	....	....
Chicago B. & Q. R. R.	224,289	....	....
B. & M. R.; B. R.	54,754	....	....
Union Pacific R. R. Co.'s mines	131,327	....	....
" " " " other mines	81,174	....	....
Summit County R. R.	17,412	....	....
	10,366,957			

The demand for anthracite coal is light, with the exception of stove sizes. As has been the case for some time past, prices are very irregular, and circulars are a mere matter of form. It is intimated that some of the combination coal is being disposed of, in a round-about way, at prices intended to meet any quotations in the market. It is probable that the programme of 1875 will bring about a more unanimous action than existed during the past season; especially as what is considered necessary to bring about such a state of things, would likely benefit all. A preliminary meeting of the members of the Combination was held at the house of Mr. SLOAN, on Wednesday morning, at which nothing of importance was decided. On the 17th inst. there will be a final meeting, at which it will be decided what action will be taken upon the labor question. The programme of 1875 will hardly receive final attention until next year. Freight is without material change. We note an offer of a 400 ton vessel at \$1 15 for Boston.

There is nothing doing in Cumberland or gas coals. A telegram from Pictou reports the harbor free of shipping, and the business of the season as possibly over. A cargo of Newcastle coal is due here, offered at \$6 50 per ton, with the probability of meeting a somewhat similar fate to the 1000 ton lot of Silkstone coal, which arrived here some time ago.

The spring contracts for gas coal to be delivered to this city are nearly filled. The gas coal companies will be in the market, seeking purchasers, very early next year. Nearly all the consumers will carry over fair stocks, and hold a position which will enable them to procure very satisfactory terms upon their next year's purchases. The gas coal companies will probably show a strong inclination to sell, while the consumers will show no inclination to buy.

From Newcastle, New South Wales, under date of October 23, 1874, we get the following : "The collieries are steadily working; prices remain at 14/ for best double screened; 13/ unscreened; and 7/ for small, f. o. b. The exports from this port for the year 1869 were 790,900 tons; 1870, 743,795 tons; 1871, 768,176 tons; 1872, 870,710 tons; 1873, 965,319 tons; and to 17th of October, 1874, 835,972." Large quantities of this coal are shipped to San Francisco.

Under date of Havana, November 28, we receive the following information : Cargo per Tamora, sold at \$6 37, gold, 4 mos., and Lizzie Cameron, at \$6 75 cash—alongside. Both cargoes were Pictou coal, and sold at Matanzas.

Wholesale Prices of Anthracite Coal for Dec. f. o. b. at the Tide Water Shipping Ports per ton of 2240 lb.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
Wyoming Coals.						
Lackawanna and Scranton at Elizabethport & Hoboken	5 55	5 65	5 75	5 90	6 40	5 35
*Pittston at Weehawken	4 75	4 75	4 85	4 95	5 35	4 50
*Wilkesbarre at Port Johnston	5 55	5 65	5 75	5 90	6 40	5 35
Plymouth, R. A.	....	....	....	....	....	....
Susque. Coal Co. at Amboy W. A.	5 55	5 65	5 75	5 90	6 50	5 35
Kingston at Hoboken	5 55	5 65	5 75	5 90	6 40	5 35
High Coals.						
Old Company at Port Johnston	6 50	....	6 45	6 45	6 60	5 65
Old Company's Boom Run	6 00	....	6 00	6 00	6 35	5 35
Sugar Loaf at	6 00	....	6 45	6 45	6 50	5 65
Lehigh Coal Exchange	6 35	....	6 30	6 30	6 45	5 50
Honey Brook at Elizabethport	6 35	....	6 30	6 30	6 45	5 50
Spring Mt. C. Co. at Hoboken	6 35	....	6 30	6 30	6 45	5 50
Beaver Meadow at South Amboy	6 35	....	6 30	6 30	6 45	5 50
Schuylkill Coals at Port Richmond.						
Schuylkill white ash	5 05	5 15	5 25	5 40	5 90	4 45
Schuylkill red ash	....	....	....	....	....	....
Shamokin white and red ash	....	....	....	....	....	....
N. Franklin	....	....	....	....	....	....
Lorberry	....	....	....	....	....	....
Lykens Valley	....	....	....	....	....	....

* Small or Pea coal is quoted by these Companies at \$1 35 per ton less than Chestnut. † f. o. b. in New York Harbor. Pittston coal is delivered to carts in New York or Brooklyn at an additional charge of 40 cents per ton to the above quotations.

Connellsville coal..... 2 10	Anth'cite on cars Lehigh \$7 75
" " coke..... 2 75	" " Wilkes..... 6 75
Pittsburgh coal..... 1 85	Barre..... 6 75

Twenty-five to fifty cents per ton additional for delivery.

San Francisco.

From the Commercial Herald of Nov. 26.

Imports continue large and free, but the consumption is great and prices are well maintained for all descriptions other than Cumberland, and of this kind we have an over supply. The arrivals for the week include 440 tons from Newcastle, N. S. W. per brig Hazard; 1,140 tons same per Nourmahal; 750 tons per Cyphreus from Lytleton; 700 tons from Liverpool per Sunrise; 1,615 tons Sydney per Kate Davenport; 425 tons Coos Bay per Eastport, \$11. etc. We quote Australian spot cargoes at \$11@11 25; Wellington screened, \$11@11 50; Nanaimo, same; Bellingham Bay, \$8 50.

St. Louis, Mo. Dec. 7, 1874.

Specially Reported by the COLLINSVILLE COAL AND MINING COMPANY.

ANTHRACITE. Per ton of 2000 lb.

Lehigh Lump.....	City delivery.	\$13 50
Lackawanna and Wilkesbarre.....		12 50
Semi Anthracite.....		9 50

BITUMINOUS. Per ton of 2000 lb.

Washington Indiana—smithing.....	E. St. Louis.	City delivery	\$4 87
O'Fallon, Ills.....			3 00
Collinsville and Belleville, Ills.....			2 75
Indiana Cannel.....			7 00
Missouri Cannel.....			5 00

Retail, 25c. per ton additional.

Toledo, Ohio. Dec. 7, 1874.

Specially reported by Messrs. GOSLINE & BARBOUR.

Our market at this time has a larger stock of Anthracite coal on docks than common. This is partially owing to low vessel freights which have ruled all the fall from Oswego and Buffalo, and a dullness in the market. There is now probably enough Anthracite coal in this city to supply the market until the opening of navigation next spring. Bituminous coal can be bought in the Hocking Valley district for from \$1 00 to \$1 10 per ton; freight to Toledo, \$2 50; costing \$3 50 to \$3 60 on cars at Toledo. Straitsville coal at same rates. If the operators in the Hocking Valley district are successful in pooling their coal at \$1 25, at mine, it will make a slight advance here. Anthracite is sold for city delivery as follows:

Per ton of 2000 lb.

Wilkes-Barre and Scranton, Large and Small Eggs, \$8 35	BITUMINOUS.	Bloss'g and Cumberl'd, \$8 00
Stove..... 8 50		Massillon Lump..... 6 00
Chestnut..... 8 35		Briar Hill..... 7 00
Lehigh Lump..... 10 00		Straitsville..... 3 75
		Hocking Valley..... 4 00

Soft coal screened retails from \$4 00 to \$6 00, according to quality.

Montreal. Dec. 7, 1874.

Reported by our Special Correspondent.

Scotch Steam..... \$4 50@4 75	Capre Breton Steam..... \$4 00
Pictou "..... 4 25	Newcastle Smiths..... 5 50
Anthracite at retail, 2,000 lb., delivered, less 5 per cent.	
Egg..... \$8 00	Nut..... \$8 00
Stove..... 8 50	Chestnut..... 7 75

Hull, N. S. Dec. 7, 1874.

Reported by our Special Correspondent.

There is no alteration in the price of coal since our last advices; quotations remain as follows:

Prices per ton of 2240 lb. in gold.

Sydney (old mines)..... \$4 50	Little Glace Bay..... 3 50
Gowrie..... 3 50	Blockhouse..... 4 00
Victoria..... 3 50	Albion (at Railroad)..... 4 25

Toronto, Ont. Dec. 7, 1874.

Reported by our Special Correspondent.

ANTHRACITE.	
per ton.	per ton.
Broken..... \$7 65	Chestnut..... \$7 65
Egg..... 7 65	Lehigh..... 9 00
Stove..... 8 15	
BITUMINOUS.	
Blossburgh..... 7 50	Screenings..... 5 00
Briar Hill..... 7 00	Soft Nut..... 5 50

Freights.

No change has taken place in freights, as compared with our last. Rates are so irregular, that we cannot give any quotations which would be reliable. Rates from Baltimore and Georgetown exhibit a nominal decline, with scarcely any demand for vessels.

Messrs. BIRD, PERKINS & JOB, under date of December 6th, report as follows:

"The improvement in freight, noted in our last circular, has been fully maintained. Transactions are somewhat limited, owing to the still higher rates demanded for ready tonnage, and which shippers hesitate to meet. The slight decline in gold has had the effect to further check shipment at the advanced rate. It is, however, generally conceded that the supply of tonnage in the Atlantic ports, and to arrive within thirty days, is not large enough to cause any reaction in rates.

"From the Provinces to the States.—There is no change to note in this business. The heavy stocks of this description of coal in the hands of consumers make them indifferent about adding thereto, even at the current low rate of freight, viz.: \$2. We can place a few vessels at that rate, to load at either Sydney,

Glace Bay, or Caledonia, while from Cow Bay we require one vessel, size not material, at \$2 50 freight. The prospect that navigation in the Cape Breton ports will remain unrestricted by ice the rest of the month, and the increasing demand for tonnage for outward business from our ports, offer inducements for large vessels from Europe to touch at Cape Breton on their way here.

"From the Provinces to the West Indies.—The result of the shipments thence on ships' account and on speculation have been far from satisfactory, and what little demand now exists arises from actual orders, limited to low rates, nominally as follows:

Pictou, N. S., to North side Cuba.....	\$3 00
Sydney, C. B., ".....	"
Glace Bay, ".....	\$2 00@2 50
Caledonia, ".....	"

"We can use one or two vessels from Cape Breton to a direct port north side Cuba, coal out, free, and sugar back to North of Hatteras, at \$5 currency per hhd.

"To the East Indies.—We require one vessel, size not material, to load coal at Sydney, C. B., for Singapore, at \$6 per ton."

REVIEW OF THE BRITISH COAL AND IRON TRADES.

Compiled from our exchanges bearing date to November 25, 1874.

These trades may be stated as without change; business upon the whole being rather dull. A notable fact is the very light stock of pig iron in England, Wales and Scotland. The demand for rails, bars and other manufactured iron is generally reported as being exceedingly light, and it would naturally be supposed that pig iron would accumulate; but it is the reverse and additional furnaces are blowing in from time to time to meet the demand. Prices have rather an upward tendency. The stocks upon the whole are lighter than they have been for a long time, and when it is considered that the stocks of the world are very small, and that the consumption during the past year and a half has been very much below the average, while economy has been great, we can hardly be wrong in predicting considerable activity in this article during the next year; for many orders for rails, etc., which have been upon the market for some time, awaiting lower prices, will see that they are not coming, and they will be placed at the prevailing rates; this will create a reaction and probably draw out the balance of the orders.

London.—Best house coals are quoted at 23/ 9d.@27/, or about the same as a week ago.

North of England.—No. 1 pig iron is quoted at 70/; No. 3, 64/ 6d.@65/; No. 4 (forge), 57/ 6d.@58/, for present delivery. Rails of ordinary sections are quoted at £7 10/@£7 15, though a few houses do not care to start again, when they are stopped, for less than £8.

Barrow-in-Furness.—Bessemer iron is quoted at £4 12/ 6d. @4 15/. A good demand for steel rails is anticipated from Canada and the United States; but the latter will have to be left out of their calculations, unless an unexpected demand, which could not be met at home, should spring up. The present prices at which Bessemer steel rails can be manufactured, and the existing protective duty effectually prevent exports into the United States.

West Lancashire.—Best house coals are quoted at 15/@16/ 8d.; furnace coal 12/ 6d., burgie 8/ 4d.@9/, and slack 6/ 6d. per ton, all at the pit mouth.

North Staffordshire.—The Bursala Gas Company have reduced the price of their coke from 20/ to 12/. Crown bars are selling at £9 12/ 6d.

South Staffordshire.—The production of pig iron in this district is about 5000 tons per week behind the consumption. Cinder pigs are quoted at £3 5/, and all-mine hot air pigs at £5@5 10/. Best coals are quoted at 18/; seconds, 13/; lumps, 12/; and engine slack at 6/ per ton.

South Wales.—Although a reduction of wages has taken place, yet it is not thought that lower quotations can be given for rails, as they have in many cases, of late, been sold in very close margins. The exports are exceedingly light, and but little trade is expected before spring.

Scotland.—Warrants, on Nov. 25th, were 84/ 6d.@84/ 9d. From 400 to 500 tons per day are going into CONNELL & Co.'s store. There is a very good demand for house coals, while for other sorts it is quite light. The quotations are as follows: Wishaw Main coal, 8/ 3d.@9/ 3d.; house coals, 9/ 3d.@12/ 3d.; smithy coal, 17/ per ton, free on board at the Glasgow harbor cranes.

IRON MARKET REVIEW.

New York.

Dec. 11, 1874.

American Pig.—The demand is without change, although the market may be said to have openly broken from last week's quotations. The Thomas Iron Co have reduced their prices to \$25 for No. 1 X, and \$24 for No. 2, while we learn of a quotation for an equal brand, at a price equivalent to \$24 50 in this city. Mr. CLARKE has expressed his determination to meet *ona fide* quotations made upon brands similar to his own, and will not permit his long established trade to be taken from him. During the past week, two of his old customers, who anticipate that they will require about 7,500 tons for the next year, upon being informed by Mr. CLARKE of his policy,

expressed their intention to continue their purchases from him for that quantity. One hundred tons No. 1 X is being shipped to this account at \$25. We note an additional sale of 300 tons of No. 1 X at the same figure. This latter sale is reported to have broken the market. Some companies quote as last week, but they are not likely to do much business, and there is no doubt but that \$25 will be the common quotation by the time we again review the market. We also note the sale of 1,000 tons of Lehigh Company's gray forge iron, to a pipe works, at less than \$20 per ton at the furnace. We reported a similar transaction last week. About 100 tons of Lehigh iron has been sent to Nova Scotia to be divided into sample lots. If they should give satisfaction there will be a new market for our irons, although a limited one. At all events, this is a good example, and it is to be hoped that we may be able to secure further markets outside of our own country and thus be able to work off our surplus production.

At the meeting of the Pig Iron Manufacturers in Philadelphia, on Thursday, 10th inst., there was considerable discussion and some difference of opinion as to the best means of benefiting the iron trade. The resolution finally adopted was as follows:

We, the undersigned furnace-owners, in person and by their representatives, hereby agree, each with the other, that we will severally decrease the production at our respective works to a quantity not exceeding one-half the capacity of our several furnaces, and to faithfully continue and maintain such decrease of production for and during the whole of the year 1875; provided, that this agreement shall not be binding until signed by the representatives of at least two-thirds of the furnaces (exclusive of charcoal) in the United States; and provided further, that the signers of this agreement may withdraw and be released from the same on giving two months' written notice to the Secretary of the American Iron and Steel Association of their desire and intention to do so.

Mr. H. McCORMICK, of Harrisburg, offered the following substitute for the above:

Resolved, That it is the sense of this meeting that any combination or agreement to limit the production of any article in general use by the public is unwise. The better course is to circulate as widely as possible the most correct statements of market prices that can be obtained, the amount of production, the probable demand, and the stocks on hand, leaving producers to use their own judgment whether it is their interest to suspend or continue production. With about one-half of all the furnaces of the country now out of blast, and the demand so limited for the product of those yet in blast that gray forge pig iron is quoted in this market to-day at very low figures, in our opinion the pig iron manufacturers need no advice or agreement as to suspending for a while further production.

On being put to the vote this was rejected.

A resolution opposing a return to specie payments, one in favor of "such a tariff as will keep the balance of trade in our favor," and one in favor of Judge KELLY's \$3 65 bill, were adopted after considerable opposition by some of the gentlemen present.

A resolution opposing the Reciprocity Treaty with Canada, was also adopted.

Scotch Pig.—The arrivals during the past week have been about 400 tons, of which about 100 tons are unsold. The stock is very light, and that upon the way will not be more than enough to meet the current inquiries, which are only in a small way for immediate requirements. Eglinton is quoted at \$36@37; Glengarnock, \$36@38; and Coltness \$40@41. The following are the Glasgow quotations received by cable: Gartsherrie, 96/; Coltness, 98/; Glengarnock, 94/; Carnbroe, 91/; Eglinton, 86/; and Langloan 98/. The amount in store at Glasgow on the 27th of November had increased to 23,135 tons, and the furnaces in blast were 120, as compared with 122 at the corresponding time last year. A strike has taken place among the shipbuilders of Glasgow, which, with the closing of the Baltic ports, has a depressing effect upon prices.

Nails.—There have been no transactions. American rails are quoted at \$48@53 at the mills, and Bessemer steel at \$75 @80.

Old Rails.—There have been no transactions, and quotations remain nominally as last reported, viz., \$29@30 per ton.

Scrap Iron.—This article is without change, there have been no transactions, and \$30 is given as the nominal quotation.

Boston.

From the Commercial Bulletin of Dec. 5, 1874.

Pig is in an anomalous condition, and more than ever perplexing, while holders are discussing the possibilities of less stock in the market as each week passes, and are apparently certain that prices have touched bottom. We gather creditable reports that our quotations \$31@33 for No. 1, and \$28 50@31 for No. 2 are nearly nominal, and that from \$2 to \$3 a ton less is the real basis for transactions. It may not be that the fanciest brands are selling at these figures, but that good No. 1 at \$28 and good No. 2 at \$26 on the wharf are the paying prices of some of our most reputable foundries, is not gainsaid. There are a few of the foundry men, and here and there a dealer, who are buying iron and piling it up for the coming Spring and Summer's us-s. They are known to use only the best brands; whether they buy at less than the above figures, is discussed. We note a cargo of 700 tons Scotch pig to arrive, which will go into bond.

Bar is nominally unchanged, and though in reality barely as strong as a week ago, sales are made at from 2 1/2 to 3c. per pound as to quality and grade, with occasionally, as last suggested, a shade made on these prices; possibly 2 1/2c. will cover the outside range on the best stock.

Cleveland. Dec. 9, 1874. Specially reported by Messrs. C. E. BINGHAM & Co., dealers in pig iron and iron ore

Table of iron and charcoal prices in Cleveland, Dec 9, 1874. Includes items like No. 1, Bituminous, No. 2, Gray Forge, No. 1, Lake Superior Charcoal, etc.

Cincinnati. Dec. 8, 1874. Specially reported by Messrs. TRABER & AUBERT, commission merchants for the sale of pig iron, blooms, ore, etc.

We have nothing new to report in our pig iron market. We continue to quote:

Table of iron and charcoal prices in Cincinnati, Dec 8, 1874. Includes items like Hanging Rock, No. 1, Foundry, Tennessee No. 1, Foundry, Missouri No. 1, Foundry, etc.

Indianapolis, Ind. Dec. 7, 1874. Specially reported by NELSON KINGMAN, broker and dealer in pig iron, etc.

Table of iron and charcoal prices in Indianapolis, Dec 7, 1874. Includes items like New Rails at mill, Old Rails, Hanging Rock Charcoal, etc.

Louisville. Dec. 8, 1874. Specially reported by GEORGE H. HULL, Esq.

The market is without notable change. Purchases are confined almost entirely to lots needed for immediate use.

The usual time, 4 months, is allowed on the quotations below.

Table of iron and charcoal prices in Louisville, Dec 8, 1874. Includes items like No. 1 foundry, from Hanging Rock ores, No. 1, forge, etc.

Milwaukee, Wis. Dec. 7, 1874. Specially reported by Messrs. R. P. ELMORE & Co.

Table of iron and charcoal prices in Milwaukee, Dec 7, 1874. Includes items like Scotch ranges, No. 1, Lake Superior Charcoal, etc.

Pittsburgh, Pa. Dec. 8, 1874. Specially reported by A. H. CHILDS, Esq., commission merchant for the sale of pig iron, blooms, ore, &c.

The thirty days notice required by previous arrangement between manufacturers and puddlers expired on 7th inst., without any agreement having been reached on the subject of wages.

Table of iron and charcoal prices in Pittsburgh, Pa. Dec 8, 1874. Includes items like No. 1 Foundry, anthracite or bituminous, No. 2, Gray Forge, etc.

From the American Manufacturer of Dec. 9, 1874. FIG IRON.

Now that a "lock-out" of the puddlers has been fairly inaugurated, it will cut off almost entirely what little demand there was, and as long as it continues, the consumption of pig, which has been light all season, will be very small, indeed; consequently the outlook, so far as the furnace men are concerned, is darker than it has been at any time since the panic.

MANUFACTURED IRON.

The general effect of the lock-out, if it continues any length of time, will be to stiffen the market for all kinds of finished irons, as it must of necessity curtail the production; and, further, if there should be the slightest evidence of an advance in prices a largely increased demand would soon follow, as stocks, both in hands of jobbers and consumers, are known to be light, and once they should become impressed with the idea that prices were likely to go up they would at once commence sending in their orders.

FIG METAL SALES FOR THE WEEK ENDED DECEMBER 9, 1874.

Table of metal sales for the week ended Dec 9, 1874. Includes items like BITUMINOUS COAL SMELTED FROM L. S. ORE, CHARCOAL, CONNELLSVILLE COKE, MUCK BAR.

NOTE.—In our reports very little of the iron made in the city is included, as in most instances the parties owning the furnaces use the iron in their mills. This will add from 3,000 to 3,500 tons per week in our report.

San Francisco.

From the Commercial Herald of November 26. The ship Suerise from Liverpool brought 500 tons old Iron Railroad Bars. The John L. Stevens from Oregon brought 130 tons Pig Iron; this lot was sold prior to arrival at \$46.

gard to Oregon Pig Iron we remark that the Oswego Company are now producing 10 tons per day of Charcoal Pig, of superior quality, and during the months of August, September, and October they exported, chiefly to this city, 700 tons. This is thought to be one of the most valuable interests now being developed in our sister State.

METALS.

NEW YORK, Dec. 11, 1874.

Gold Coin.—During the week past, gold has ranged from 110 1/2 to 112 1/2, and closed yesterday at 111 1/2.

Bullion.—Fine silver bar is quoted at \$1 26 1/2 @ \$1 27 1/2, gold, per ounce, and fine gold bar at par (\$20 67, gold, per ounce.)

Copper.—The transactions of the week under review foot up about 600,000 lb. spot and future, at 23 1/2 c. for the former and 24 c. @ 24 1/2 c. for latter, for delivery from January to April. Chill Bars are quoted at £85 1/2 in London.

Foreign copper has improved considerably in value during the month, and though we do not close quite at the highest point touched, we may consider that an advance of £6 per ton on the month has been firmly established. As we intimated in our last issue, smelters were rather short of stocks of raw material, which may be considered proved by the fact of their having bought very heavily during the past month, clearing the bulk of the ores and regulus on the spot and afloat at advancing prices up to 18/4 1/2 d. per unit for regulus.

Tin.—Pig tin is being firmly held, and sales are not being pressed. The transactions have been light. We quote Straits at 22 1/2 c.; Refined, 22 c. @ 22 1/2 c.; L. & F., 22 1/2 c. @ 22 1/2 c.; and Banca, 26 1/2 c. all gold.

In tin we have had an improvement during the month of about £4 per ton since the date of our last issue. Part of this has, however, been lost, but as we close, appears likely to be regained. The Banca sale of to-day went at equal to £101 10/ laid down here, and this has produced an active market. It is computed that the production of Cornwall this year will be about 15 to 20 per cent. above the average of the past few years, and we have still no diminution in the quantity produced in the East, which certainly should prevent any rise in prices worth mentioning until these facts and figures are altered.

Tin Plates.—Business in this branch of trade has been almost at a stand-still on this side during the past month, brought about by circumstances quite beyond the customary influences of supply and demand. The cost of manufacture has undergone little or no alteration, yet prices for some brands of charcoal tin are as much as 1/6 d. per box lower, this concession being made by manufacturers who have pretty well exhausted existing orders, and are anxious to secure fresh ones to keep their works going.

In New York there have been sellers at prices lower than those current here—in fact, very much below what the actual cost of importation or manufacture would justify; and this, of course, has led to the dearth of orders reaching this market from that quarter. Stocks, however, are very small, both at the works and at the shipping stations on this side; and with a similar state of things in the United States, it seems almost inevitable that a demand will spring up sooner or later which will strengthen prices, already reduced to a very small margin on cost of production.

are enabled to report great activity in this market during the past week. We have been able to authoritatively confirm reports of sales of 30,000 boxes on spot, with large additional orders booked for arrival. There are large enquiries for February and March deliveries. Makers in England refuse to quote for delivery in those months. The quotations there for prompt delivery are 36/38 for I. C. plates. The stock here is small. Spot lots of I. C. plates are not quoted under 39 1/2 @ 39 1/2, gold, while to arrive they are quoted at 39 1/2. Charcoal ternes are quoted at 38 1/2 @ 38 1/2; coke tins, 37 1/2, with but very light stock. There are no coke ternes in the market.

Lead.—The Government and Selby Leads are still firm at 35, gold, with no sales. There have been sales of outside lots of domestic lead aggregating about 125 tons, at about \$6 20. There are about 2,300 tons of Selby lead in this market, and about 300 tons of other domestic brands, not counting the Government stock. Foreign is held at \$6 75 @ \$6 50, and domestic at \$6 20, with a weak market. In the London market the demand is good. Prices are strong, with an upward tendency.

Spelter and Zinc.—Spelter is quiet at 6 1/2 c., currency, for domestic, and 6 1/2 c. @ 6 1/2 c., gold, for foreign. Sheet zinc is quoted at 90 @ 90 1/2 c., gold, with free sales at 90 c. Under date of London, Nov. 26, we receive the following:

“Ordinary Silesian £23 15/ @ £24, compared with £26 5/ @ £26 10/ same time last year. The demand for this article has been good over the past month; stocks are low, and makers well sold for prompt and forward delivery. Consumers are in the market for the first quarter of 1875, but we only hear of a small lot of ordinary Silesian done at £24 5/. There is apparently very little offering from the Continent; the trade in Rolled Zinc is brisk, and spot parcels are very scarce; £25 seems to be the ruling price for English, and £25 outports have been realized for W. H. The market is firm and prices are steady.”

Antimony.—There is but little in the market, and it is being held at 12 1/2 c. gold.

Manganese.—There is no pyrolusite in the market. N. B. manganite is quoted at 30 c. gold, per lb.; Georgia, 2 1/2 c.; and Virginia psilomelane 20.

Quicksilver.—This article is without change, the quotations being \$1 65 per lb. in this city; \$1 55 in San Francisco, and £26 per flask (75 lb.) in London.

Miscellaneous Stocks.

New York, Dec. 11, 1874.

The dealings in the Philadelphia Stock market during the week exhibit a slight advance, with a firmer feeling, the market on the 9th inst. closing steady at our quotations. Sales of Lehigh Navigation amounting to 3,500 shares transpired during the day, at from \$48 to 48 1/2; Schuylkill Navigation Preferred also sold at \$13 1/2; Reading Coal and Iron Company Debenture bonds at \$81; Shamokin Valley and Pottsville Railroad 7's at \$91; Huntingdon and Broad Top Railroad first mortgage 7's at \$104; Susquehanna Canal 6's at \$74; L. Navigation Gold Loan at \$100 1/2, and Lehigh Navigation 6's of 1834 at \$99. On the 8th inst. we note transfers of the H. and B. T. R. R. Consolidated 7's at \$45; also L. V. R. R. at \$43 1/2; Pennsylvania Canal Company at \$10; and small sales of the Delaware Division Canal Co. at our quotations. The market here has not been so active, and our quotations will hardly come up to those reported last week. The only transactions from the following list during yesterday's operations of the Board were small transfers of the D. L. and W. Spring Mountain Coal Company and Quicksilver Preferred, all at our quotations. On the 9th inst., 425 shares of St. Louis and Iron Mountain, 400 shares of Quicksilver Common, and 500 shares of Consolidated Coal Company changed hands at the prices below:

New Jersey Central R. R. Co.....	106 1/2
American Coal Co.....	51
Maryland Coal Co.....	20
Pennsylvania Coal Co.....	245
Quicksilver Mining Co. Preferred.....	45
" " Common.....	32 1/2
Reading R. R. Co.....	55
Delaware and Hudson Canal Co.....	—
Lehigh Coal and Navigation Co.....	48
Lehigh Valley R. R. Co.....	62
Catawissa Preferred.....	39 1/2
Delaware, Lackawanna & West. R. R. Co.....	108 1/2
Consolidated Coal Co.....	47
Little Schuylkill R. R.....	48 1/2
Huntington & Broad Top R. R. pref'd.....	12
St. Louis & Iron Mountain.....	26 1/2
Susquehanna Canal.....	6
Delaware Division Canal.....	52
Spring Mt. Coal Co.....	68
Cumberland Coal and Iron Co.....	48
N. Y. & Nova Scotia Iron Co.....	116

Boston Stock Market.

Boston, Dec. 10, 1874.

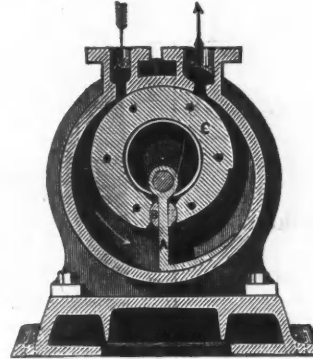
With the exception of a slight advance of Allouez and Quincy, the following list has declined, Calumet and Hecla being 25 per share lower than reported in our last; this item changed hands yesterday, in small amounts, at \$139 1/2 per share. We also note, on the same date, sales of Central at \$25 per share, and Copper Falls at \$10 1/2 per share; 100 shares of Petherick also changed hands at \$1 1/2 per share.

Allouez.....	11 1/2	Powabic.....	—
Calumet and Hecla Co.....	138	Phoenix.....	—
Copper Falls.....	10	Quincy.....	43 1/2
Central.....	25	Ridge.....	7
Franklin.....	—	Rockland.....	—

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San Francisco Stock Market.

BY TELEGRAPH.

New York, December 10, 1874.

A still further notable advance characterizes the quotations of the San Francisco Stock list during the operations of the past week. Crown Point, Belcher, Imperial and Kentucky, exhibit a decline, the two former items being respectively \$17 1/2 and \$10 per share lower than last reported, these being the only exceptions to an extraordinary upward movement of the whole list. The transactions during the week have been very extensive and the excitement at times is described as being intense. A prominent firm is reported as having made, by the advance, during five days, \$30,000,000, and one operator is reported to have cleared \$10,000,000 for the same period. The highest point was reached on the 7th inst., California changing hands on that date at from \$250 to \$260 per share, and Consolidated Virginia was selling at \$230 per share, while Yellow Jacket was freely dealt in at \$155 per share, and Ophir \$145 per share. A reaction followed on the 8th inst., California declining \$35; and Yellow Jacket and Ophir each showing a fall of \$13 per share. Our report of the 9th inst. exhibits a still further decline over the two previous days, but a decided advance on our quotations, dated a week ago; for example, the following list places California at \$78, Consolidated Virginia \$42 1/2, Ophir \$19, and Yellow Jacket \$10, each per share, over our advices dated the 2d inst.

The report is as follows:

Gould & Curry.....	29	California.....	213
Savage.....	93	Overman.....	75
Chollar Potosi.....	70	Raymond & Ely.....	20
Ophir.....	118	Eureka G. V.....	8
Hale and Norcross.....	56	Bent & Belcher.....	32
Crown Point.....	57	Kentucky.....	21
Yellow Jacket.....	135	Meadow Valley.....	7
Belcher.....	47	Alpha.....	24
Imperial.....	15	Sierra Nevada.....	15
Consolidated Virginia.....	225	Union Consolidated.....	35

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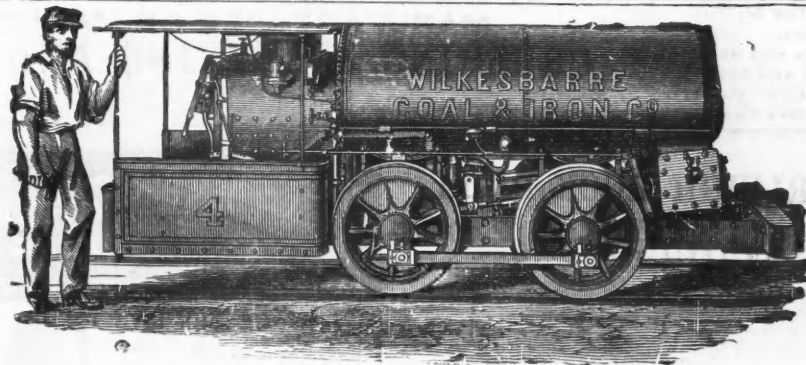
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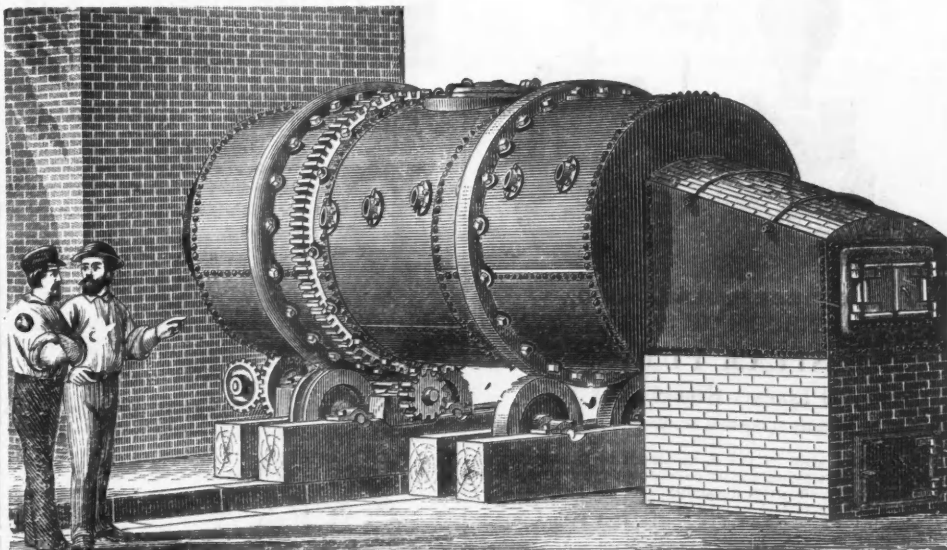
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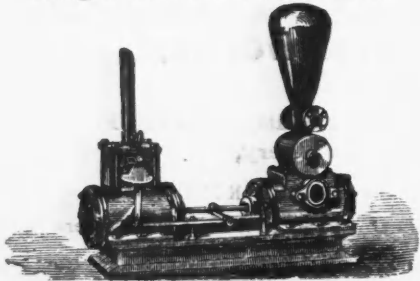
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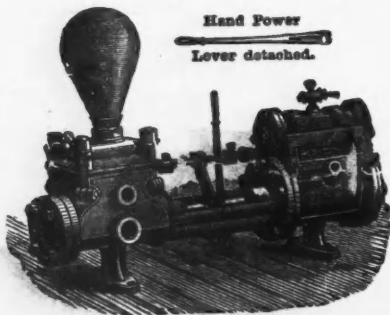
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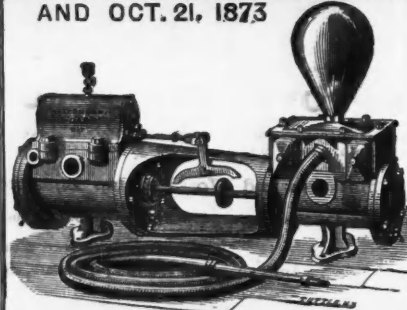
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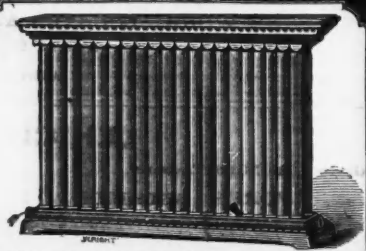


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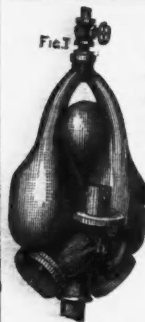
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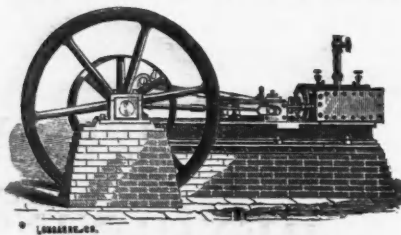
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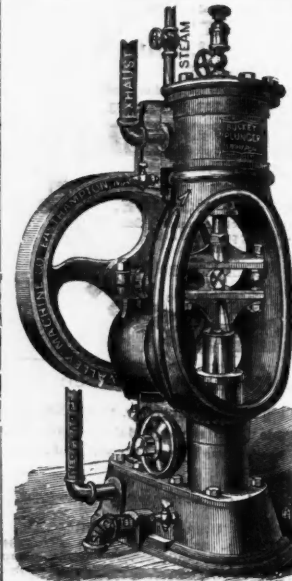
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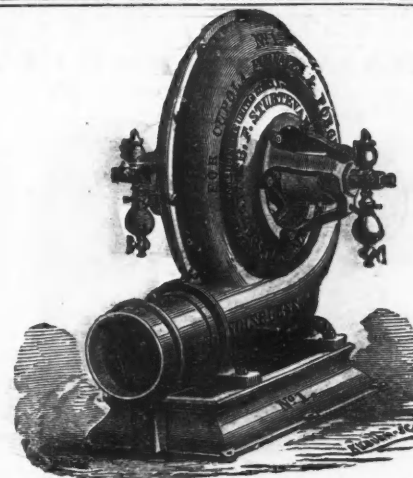
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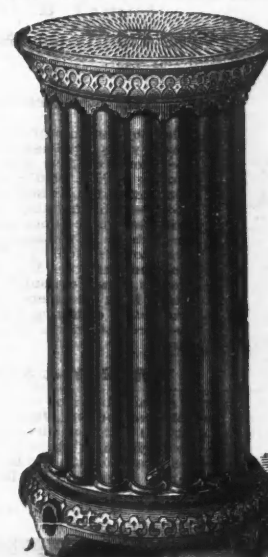


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