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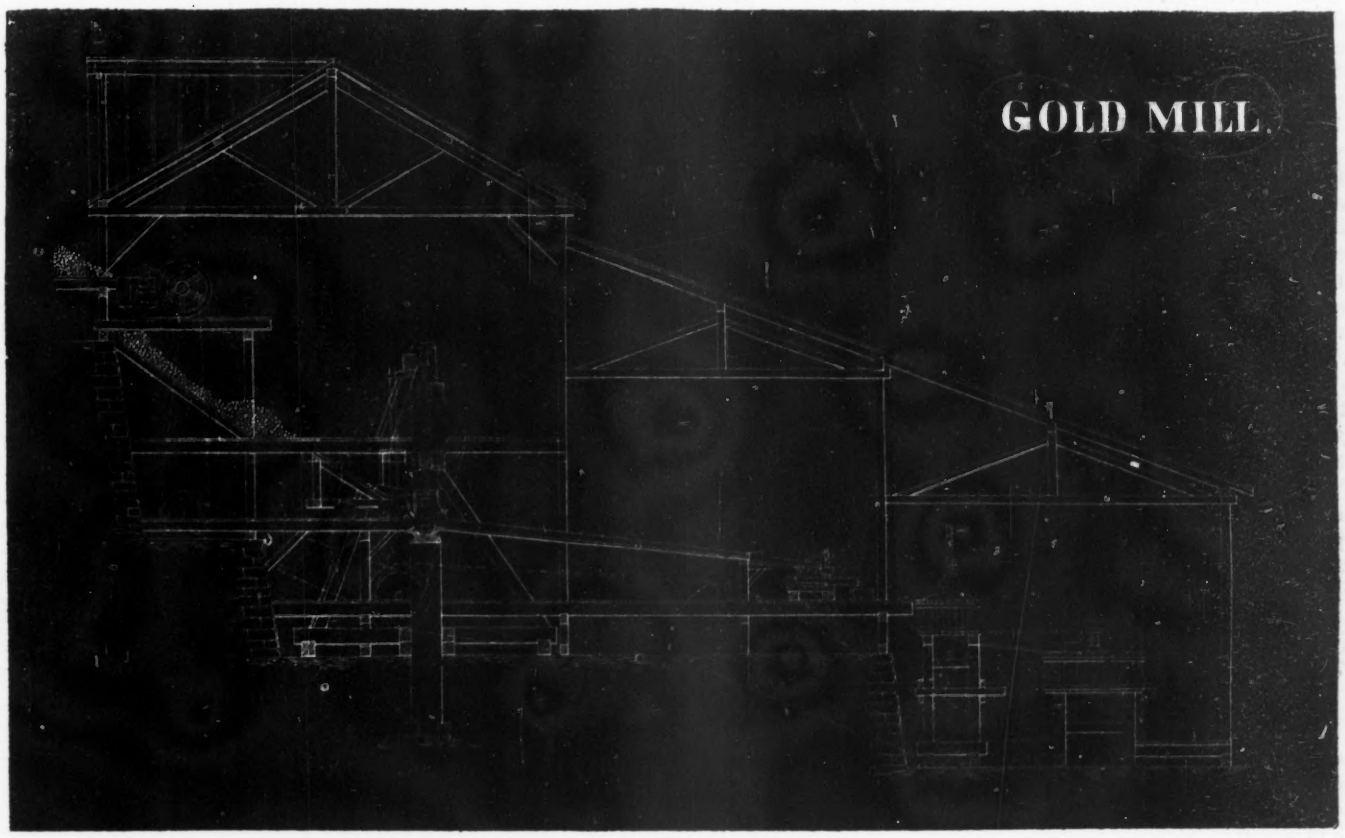
American Amalgamating Machinery—The Gold Mill.

We present this week a sketch of the American gold mill as built at the Union Iron Works, San Francisco. The engraving shows ore from mine, thrown down before the Blake rock breaker. From this machine the broken ore passes down an incline to the self-feeder, and thence to the stamps. Amalgamation usually takes place, in the first instance, within the battery box. Considerable gold is also gathered from the bottom of the box, not having been pounded fine enough to pass through the screens. In front of the latter is an apron of amalgamated plates, which is the second trap set to catch the metal. Beyond the apron come the blanket tables where the pulp undergoes mechanical separation, the resulting two qualities receiving different treatment.

The sands which pass the blankets, and are therefore of second quality, are passed through the first concentrators, then through the second concentrators, and finally into the tail sluices outside the building. The sand which remains on the blankets is washed into tanks, then passed through Atwood vats and over copper riffles, after which it goes through the second concentrators and tail sluices, like the second qnality.

Other arrangements are followed, but they all obey one rule—to obtain as thorough a separation of the gold as is possible by repeated reworking of the sand. In the figure, the long blanket table is seen reaching from the battery to the first concentrator. Below the latter is a Wheeler amalgamating pan and a settler, the latter being a step interposed before the tailing sluices. On the concentrators, pyrites, or, as it is generally called in the West, "sulphurets," is obtained more or less pure. It is usually roasted in reverberatory furnaces and treated by chlorination, but when the amount will not pay for this treatment the concentrated mineral is sometimes run through a good grinding pan with mercury, and then stored for future use.



The Coals of the Kanawha Valley, West Virginia.

BY JNO. J. STEVENSON, PH. D.*

ALONG the Great Kanawha river the Upper Coal Group is observable up to about twelve miles below Charleston. It contains two coal beds of workable thickness. The lower one is the *Pittsburgh* (VIII of Ohio section) and is usually known as the "Raymond seam." It is much reduced in thickness where it crosses Pocatalico Creek and is very inferior in quality to the same bed in its northern extension. The limestone overlying this coal in Northern Ohio and Pennsylvania as well as in the northern part of West Virginia, is here greatly degraded, being represented by only a calcareous shale containing a few nodules of limestone. The upper bed of coal is occasionally of workable thickness, but is of no economical importance. When the section has been completed, this coal will probably be proved identical with the one given in Dr. Hildreth's section at Pomeroy, which is No. X of the Ohio section, and likely the equivalent of the *Uniontown* coal of Pennsylvania.

The Barren Group reaches to Charleston and runs out in the hills a short distance above the city. It is about five hundred feet thick and contains, as far as I am informed, no workable coals. It is interesting to note that along a rudely north and south line, beginning at Pittsbnrgh and running to the Great Kanawha, the Barren Group varies but little in thickness.

The Lower Coal Group sinks under the river a short distance below Charleston. Its development here, as compared with that observed in the coal field farther to the north, is extraordinary. In northern West Virginia the thickness is barely two hundred feet; in the First Geological District of Ohio, it rarely exceeds three hundred feet, while in either case it contains only six or seven coal beds. In this valley it is readily separable into two portions, the upper of which is exposed

* Read before the Lyceum Natural History, February 17, 1873.

along the river from Charleston to the Falls, a distance of thirty-five miles. Including the Mahoning sandstone, it is not less than nine hundred feet thick, and contains at least fifteen beds of coal, each of which is of workable thickness at different localities. The lower division is exposed above the Falls to Sewell Mountains, a distance of certainly thirty miles in a straight line. It contains only two or three beds of coal that are anywhere of workable size and is made up chiefly of massive sandstones, with rarely a thin shale of limestone. The estimation of its thickness is attended with some difficulty, as the dip is undulating, and there may be one or two broad anticlinals. There is no reason to believe, however, that it is any thinner than the upper division. We have here, then, a total thickness of not less than eighteen hundred feet, with about twenty coal seams, most of them workable at some point. The extraordinary development of this group continues southwesterly, until its thickness becomes about twenty-five hundred feet in Tennessee. A careful survey of the State of West Virginia would doubtless reveal some very important facts in this connection, and would aid in solving some perplexing problems arising from this variation.

The Mahoning sandstone is conspicuous in the river hills above Charleston, and, as in its northern extension in this State and Pennsylvania, holds about midway a coal which frequently becomes of available thickness. It rests upon a variable bed of black flint, five to feet twelve thick, which is occasionally associated with a thin seam of cannel.

A few feet below the flint, and separated from it by shale, often arenaceous, is a coal partly cannel and partly bituminous. At Cannelton it is five feet four inches thick, and on Paint Creek, near Coalburg, it is seven feet. This is usually regarded as identical with the *Upper Freeport* of Pennsylvania (VI of Ohio). Aside from its position, one finds in its deportment evidence of this identity, since, wherever I have observed it in West Virginia, it shows a decided tendency to become partly cannel. Though I have not visited Peytona, yet an examination of the map, and the fact that Coal river heads near that locality and so cannot have cut very deeply into the country, seem to render it probable that this coal, known locally as the "Stockton seam," is the same with the cannel there worked. It seems hardly possible that the "Gas coal," situated five hundred and fifty feet below the "Stockton" at Cannelton, can be available at Peytona.

At Cannelton a five feet coal is seen a few feet below the last, but at Coalburg it is absent, or is represented by two small seams occupying about the same relative position. Mr. RIDGWAY identifies this with the *Lower Freeport* of Pennsylvania. That is an exceedingly variable bed and cannot be traced satisfactorily in southwestern Pennsylvania or northern Western Virginia. The whole of the state lying between the Baltimore Railroad and the Great Kanawha River, is as yet unexplored. Under such circumstances it is doubtful whether one is justified in making the determination solely upon the ground of relative position, this being, at best, an unsafe guide.

At Cannelton, the second seam below the "Stockton," is a cannel of insignificant thickness. At Coalburg, however, this place is occupied by the "Great Splint Coal," which in some respects is the most important bed along the river, although its importance is probably local. At the Kanawha Salines no such bed appears, but where it should be, there occur several thin beds considerably separated. On Paint and Cabin Creeks its thickness is not far from eleven feet and on Campbell's Creek, if Mr. RIDGWAY's identification be accurate, it is six feet. At Coalburg it has been worked extensively for several years by the Kanawha and Ohio Company, under the superintendence of Mr. WILLIAM H. EDWARDS, so favorably known to the scientific world by means of his beautiful work on the *Butterflies of North America*. At the mines of this company the bed exhibits the following section:

1. Sandstone,.....
2. Clay shale,.....1 inch.
3. *Coal*,.....6 inches.
4. Dark slate,.....4-7 inches.
5. *Coal*,.....3 feet 2 inches.
6. Clay,.....3-5 inches.
7. Coal,.....1 foot 6 inches.

The roof is very irregular. Not unfrequently a huge clay "hip" comes down two or three feet, crossing the entries in a rudely northeast and southwest direction, and having a width of from five to twenty feet. Such "hips" are not always of clay but are sometimes an odd mixture of sandstone and coal, the latter included not as layers, but as fragments, as if it had been cut out after consolidation, though in several instances the bowl-shape of these fragments leads to the belief that it may have been removed before consolidation. These "hips," when traced across different entries, are seen to taper off at each end.

The thin layer of clay ordinarily interposing between the sandstone and coal contains numerous impressions of *Lepidodendron* and *Sigillaria*, but usually in poor preservation. Some years ago a series of remarkably fine leaf-scars of *Bothrodendron* were found in entry I of the company's works. Of these, several were sent to the Smithsonian Institution and to Mr. LESQUEREUX. The rest were retained by Mr. EDWARDS, but were lost during the destruction of his house by fire, a year ago.

The dark slate, No. 4, is rich in bitumen, breaks with a semi-conchoidal fracture, but does not burn readily and is regarded as detrimental to the coal. The *coal*, No. 5, is the most important portion of the seam, and with No. 3, affords the marketable coal, which is sold in Cincinnati as Kanawha semi-cannel. When first shipped, the proprietors named it "Splint," simply to distinguish it, and without reference to the British signification of the term. This name was afterward applied to all the open-burning coals of the Kanawha Valley. The coal is clean, breaks with a neat, sharp fracture, bears transportation well and contains no appreciable quantity of sulphur. It is made up of thin alternating layers of cannel and bituminous coal, for the most part not more than one-twelfth of an inch thick, though occasionally a layer of cannel occurs one or two inches. It is consequently dry and open-burning, with no tendency to cake upon the fire. The "slack" yields a coke of only slight density. Owing to the open-burning character, as well as to the freedom from sulphur, this coal is destined to become of very great economical importance. Experiments have been made with it in the iron furnaces of southeastern Ohio, and in each case it has proved to be of the best quality. Owing to the uncertain outlet afforded by the Kanawha River, little has been done with this coal, but now that the Chesapeake and Ohio Railroad has been completed, the operators in the Kanawha Valley will be able to forward a steady supply, so that its introduction into southeastern Ohio for use in iron smelting is a matter of comparatively short time.

No. 7 is variable in thickness and contains more bituminous coal than the preceding. It is of excellent quality but is too brittle to bear transportation. The larger proportion of bituminous matter led to the belief that it could be coked, but experiments in this direction have not been successful.

The clay parting, No. 6, is of uncertain thickness. At the mines of the Kanawha and Ohio Company, it is seldom more than four inches, but followed westward it rapidly increases, so that at the western boundary of the company's property it is two feet. A similar increase, though by no means so great, is observable in the upper parting, so that, as far as one may judge with the imperfect exposures presented, there is much reason to believe that the thin coals at Kanawha Salines, occupying the position of this bed, are nothing other than its subordinate *coals*, 3, 5 and 7, separated by the partings, 4 and 6, greatly increased in thickness.

About forty feet below this coal is found a seam of cannel, nearly three feet thick, well exposed at Cannelton, Paint Creek, and on both sides of the river at Coalburg. It is of good quality and will probably prove of much value.

Five hundred and fifty feet below the "Stockton" coal at Cannelton, there is a bed of bituminous coal nearly seven feet thick and known as the "Gas coal." This is seen at Coalburg and has been worked opposite that village on the northeast bank of the river. Its thickness there is inconsiderable, barely three feet, and its quality poor. At Cannelton Mr. RIDGWAY observed a limestone below this coal, which he identifies with the *Ferriferous* of Pennsylvania. This is not exposed at or opposite Coalburg and I did not observe it at Cannelton. If Mr. RIDGWAY be accurate in his determination of the limestone, the "Gas coal" is very probably the *Kittanning* of Pennsylvania (No. IV of the Ohio section). In this case the persistent seam a short distance below the limestone is the equivalent of the Ohio No. III.

The coal below these belong to the lower division of the group, which I had no opportunity to examine. They are said to be well exposed in the gorge of New River.

The dip of the strata below the Falls of Kanawha to Charleston, is somewhat less than 30′, but below Charleston they are horizontal, or at least the dip is inappreciable. Above the Falls it is very undulating and one may expect to find one or more broad anticlinals between the Falls and Big Sewell Mountain.

Dr. Siemens on the Manufacture of Wrought Iron.

An important discourse, specially interesting to iron and steel manufacturers, was delivered on the 20th of March, to a crowded audience of the Fellows of the Chemical Society, at their rooms in Burlington House, by Dr. C. WILLIAM SIEMENS, F.R.S., on the manufacture of wrought-iron and steel direct from ore by a method lately perfected by him, and already adopted at some of our leading steel works. Dr. SIEMENS at first referred to a previous discourse delivered by him in the same room in May, 1868, when he described at length the various processes then in use for the manufacture of steel, including the meltings of steel in crucible and regenerative gas furnaces, and its manufacture by the Siemens-Martin (scrap) process, and added that since that date, both these methods have been extensively adopted in England and abroad, notably by the Landore Steel Company, Messrs. Vickers, Sons & Co., the Dowlais Iron Company, etc., etc.; the first-named works producing at the present time upwards of 1,000 tons of steel per week, partly by the scrap process, and partly from the decarburization of pig iron, by means of iron ores. Touching manganese in steel, it was remarked by Dr. SIEMENS that whereas, when a pig iron containing a sufficient proportion of manganese was used for making steel by the Bessemer process, it was found unnecessary to add spiegel at the end of the operation, but only molten cast-iron to give the metal the necessary degree of carburization, in making steel on the open hearth of a regenerative gas furnace the manganese contained in the pig iron is, on the contrary, almost the first ingredient that is oxidized; this oxidization being beneficial, inasmuch as the manganese which disappears with the slag takes with it, at least, a proportion of the sulphur and phosphorus contained in the metal, the material resulting from the operation being of superior quality, similar to crucible steel, although only No. 3 Bessemer pig iron is employed for its manufacture. Dr. SIEMENS named different processes for making wrought iron, which had been, and are still in use, from the Catalan forge to the blast furnace and its necessary puddling furnaces, and gave the quantities of fuel required in each case for the production of a ton of wrought iron, which vary between the limits of ten tons of wood and 4 tons of coal, this latter representing the consumption when the most improved blast furnaces and puddling furnaces are employed. He then described the various methods, by which he at-

tempted to solve the problem he had in view, viz. : the production of wrought iron and cast steel direct from iron ore, in a manner suited to the requirements of the present age. In doing this, he not only gave an outline of all these methods, but took care to explain the causes of failure and the successive improvements made by him from time to time, which finally led him to devise the apparatus, the subject of his discourse. This apparatus consists of a regenerative gas rotative furnace, the rotator being lined with bricks, made in a special manner from bauxite (a mineral consisting chiefly of alumina), and into which, after having been heated to a high temperature, a charge of say one ton of ore with the necessary fluxes, or admixture of other ores, to form a liquid slag under the influence of heat, is introduced. The rotator is thereupon set in motion, and an intense flame being directed into it, in order to heat the ore thoroughly, carbon for deoxidation is introduced when the ore is on the point of melting. Upon this a violent reaction sets in, and carbonic oxide gas is freely liberated, to utilize which a blast of air is admitted through one of the regenerators into the furnace, the admission of gas being at the same time reduced. It is found that under these conditions, the metallic iron is soon precipitated from the molten ore, on which the slag is tapped off, and a greater speed of motion than before is given to the rotator to ball up the iron, which balls may be at once taken out for shingling, if it is desired to produce wrought iron, or they may be melted with the addition of spiegeleisen if cast steel is to be produced. A charge of twelve cwt. of wrought iron may be thus made in two hours, and the same weight of steel in 2½ hours with a consumption of 28 cwt. of coal to the ton of wrought iron produced, or 30 cwt. to the ton of steel, which is about one half of the weight of coal required for making a ton of pig iron in a blast furnace. Hitherto, Dr. SIEMENS has mainly confined his operations to the treatment of pure iron ores, such as the African, Spanish, and hematite ores, but he has also tried inferior ores, as Cleveland and purple, with which he has succeeded in making very good iron, and he stated that he could make a better quality of iron from such ores than is possible by the methods now in use, by sacrificing a certain proportion of iron, as he considered that phosphoric acid is not precipitated so easily as iron, and therefore, by stopping the operation before the whole of the iron is reduced, this impurity will almost entirely pass away in the slag.

The small consumption of coal recorded, appears astounding at first sight, but on consideration it will be seen that the proportion named should be ample for the purpose of melting and deoxidising the ore, which are the only two operations required by this process for the production of wrought iron, while, by the existing methods, the ore has to be deoxidised, carburised, and melted, and afterwards decarburised by puddling, all of which operations are attended with a large consumption of expensive fuel, such as hard coke and coal. Samples of the iron and steel made by this process, partly supplied by the Landore Steel Company, and partly by Messrs. Vickers, Sons & Co., were exhibited, and appeared remarkably good. It was stated that during a week's work at the Landore Steel Company's Works, the yield in metal had averaged 57-91 per cent. on the weight of the ore charged, which was Mokta, containing 63 per cent. of metallic iron, and that with an ore containing 58 per cent. of metallic iron, a yield of 51 per cent. had been obtained at Dr. SIEMEN's Sample Steel Works, near Birmingham.

The President of the Society (Dr. FRANKLAND, F. R. S.), Professor WILLIAMSON, F. R. S., Mr. I. LOWTHIAN BELL, Mr. RILEY, and other leading metallurgical chemists, took part in the discussion which ensued.

Theory of the American Amalgamation.

The *Berg-und Hüttenmännische Zeitung* publishes a paper devoted to combating the views advanced by DE VIAL in the same journal for 1870. According to GRUETZNER, the magistral is the chief agent in inducing the commencement of the amalgamation, and the mercury is the principal reducing agent. The surface of the silver particles is converted to argentic chloride by salt, and the former is reduced by mercury, $2AgCl+2Hg=Hg_2Cl_2+2Ag$, and the pure silver beneath the chloride at once amalgamates with the mercury. The mercury promotes the reduction of cupric chloride to cuprous chloride, and is changed, in small quantities, to mercurous chloride, which exerts the same reaction as cuprous chloride on silver and its compounds. It also reduces the cupric oxide, which is constantly striving to form and which is able to convert even silver suboxide, to cuprous oxide, chiefly in the presence of a concentrated sodium chloride solution, and decomposes it, being aided in this by the concentrated lye. The mercury also reduces the argentic sulphide, with formation of sulphuric acid, to metallic silver, which last is absorbed by the mercury as soon as formed, while the sulphuric acid set free decomposes the sodium chloride, which aids very much the completion of the process. Consequently, the practice of the American amalgamation depends more on an exposure of the surface of the metallic silver (in decomposed ores) and decomposition of the argentic sulphide to metallic silver than on the formation of argentic chloride. This theory is supported by the unusually favorable action produced by the addition of metallic copper, or, still better, copper amalgam. The reactions are : $2O+2Cu_2Cl_2=2CuO+2CuCl_2$; $2Hg+2CuO$ (striving to form)$=Cu_2O+Hg_2O$; $Cu_2O+Hg_2O+2AgS=Cu_2S+SO_2+2Ag+2Hg$, and the amalgamation takes place thus : $2Hg+2AgS+2Cu_2Cl_2+2O=Cu_2S+2Hg+2Ag+2CuCl_2+SO_2$, the last being converted by the air and oxychloride of copper to sulphuric acid. The excess of mercury or of silver amalgam formed in the patio acts--after exciting electro-chemical activity, in consequence of friction, of contact, and of the action of the cupric chloride under the influence of some chlorides—in such a manner as to form subsulphide of copper, sulphuric acid, cupric chloride, and metallic silver, thus :—

$$8NaCl+4CuSO_4=4CuCl_2+4Na_2SO_4.$$
$$4Hg+4CuCl_2=2Cu_2Cl_2+2Hg_2Cl_2$$
$$2Hg\ (\text{in excess})+2AgS+2Cu_2Cl_2+2O=2Ag+Cu_2S+2Hg+2CuCl_2+SO_2.$$
$$Hg_2Cl_2+Cu_2S=CuCl_2+CuS+2Hg.$$

The above equations do not include, however, all the chemical reactions which take place, and many of which are important in diminishing the loss of mercury. The cuprous chloride is formed, in addition to the reaction previously mentioned, by the reaction of cupric chloride on argentic sulphide, and cupric subchloride by ferrous sulphate acting on oxychloride of copper [$2FeSO_4+4(CuO, CuCl_2)=FeSO_4+4Cu_2Cl_2+SO_3$]. Cuprous chloride is also formed in the presence of salt and heat by the reaction of a solution of ferrous chloride on the cupric oxide of the magistral [$2FeCl_2+3CuO=Cu_2Cl_2+CuCl_2+Fe_2O_3$].

British Coal Statistics.

The Coal Committee of the House of Commons, appointed to inquire into "the present dearness and alleged scarcity of coal," heard Mr. RICHARD MEADE, assistant keeper of mining records, and director-general of the Geological Survey, who gave the following figures of coal produced in the different collieries of Great Britain for the last five years. In 1867 the produce of coal was 104,375 tons ; in 1868, 103,014,000 tons ; in 1869, 107,000,000 tons ; in 1870, 110,000,000 tons ; and in 1871, 117,000,000 tons. Messrs. SPENCE and COMPANY, of Manchester, had estimated last year's produce to be 120,000,000 tons. The collieries at work in 1867 were 3258 ; in 1868, 2922 ; in 1869, 2852 ; in 1870, 2851 ; in 1871, 2810. In 1872 there would probably be a larger number, as many pits had been recently sunk. The number of coal mines in 1871 in the Durham and Northumberland coal-fields was 304 ; Cumberland, 27 ; Yorkshire, 423. The coal-fields of Derbyshire, Nottinghamshire, Leicestershire, and Warwickshire numbered 187 ; Staffordshire and Worcestershire. 423 ; Lancashire, 376 ; Cheshire, 29 ; Shropshire, 59 ; Gloucester and Somerset, 101 ; Monmouthshire, North Wales, 58 ; South Wales, 299 ; Scotland, 420 ; and in Ireland, 30. The export of coal was, for 1867, 10,565,829 tons ; 1868, 10,967,000 tons ; 1869, 10,745,000 tons ; 1870, 11,702,000 tons ; 1871, 12,748,000 tons ; 1872, 13,212,000 tons. That left for home consumption, for 1867, 93,809,000 tons ; 1868, 92,047,000 tons ; 1869, 96,554,000 tons ; 1870, 98,587,000 tons ; 1871, 104,438,000 tons ; 1872, 106,889,000 tons.

The chief consumption of coal arose in the manufacture of pig-iron, and its subsequent conversion into bar-iron. In 1867, the quantity of pig-iron produced was 4,761,000 tons ; of which 567,000 tons were exported, leaving the pig-iron for conversion into bar-iron, 4,194,000 tons.. The coal used in the production of pig-iron in 1867 amounted to 14,283,000 tons ; and the coal used for converting pig-iron into bar-iron, deducting the quantity exported, was 14,780,000 tons ; in 1868, the pig-iron produced was 4,593,000 tons ; exported, 555,000 tons ; leaving to be converted into bar-iron, 4,038,000 tons ; the coal used in the production of the pig-iron was 14,910,000 tons, and about 14,970,000 tons for the conversion ; in 1869, the pig-iron produced was 5,445,000 tons ; exported, 711,600 tons ; leaving 4,734,000 tons to be converted ; in 1870, the pig-iron produced was 5,963,000 tons ; exported, 753,000 tons ; leaving 5,210,000 tons for conversion ; in 1871, the pig-iron produced was 6,627,000 tons ; exported, 1,057,000 tons ; leaving 5,570,000 tons for conversion ; in 1867, the quantity of coal used in the manufacture of pig-iron in Great Britain was 14,283,000 tons ; for its conversion into bar-iron, 14,049,000 tons ; making a total, of 28,332,000 tons ; in 1868, the figures were 14,910,618 tons ; for conversion, 14,790,000 tons ; total, 29,701,000 tons ; in 1869, 16,237,000 tons ; for conversion, 15,859,000 tons ; total, 32,196,000 tons ; in 1870, 17,890,000 tons ; conversion, 17,454,000 tons ; total, 35,344,000 tons ; in 1871, 19,881,000 tons and 18,658,000 tons, making 38,540,000 tons ; in 1872, 21,000,000 tons, and 18,993,000 tons, making 39,993,000 tons of coals used, showing an increase of consumption over 1871 of 1,453,000 tons.

The consumption of coal in 1869 in collieries for various purposes amounted to 6,714,000 tons ; for metal mines, 511,000 ; in the manufacture of steel and other purposes, 25,327,000 tons ; steam navigation, 3,277,000 tons, including what was used by the navy ; railways and locomotives, and other purposes, 2,027,500 tons ; army departments, 195,000 tons ; gas making, 6,312,000 tons ; water works and miscellaneous, which included paper making, smiths' work, and things of that kind, 1,500,000 tons ; the whole amounting to 79,170,000 tons for 1869. The quantity used for domestic purposes was 17,512,000 tons. It was estimated that the consumption was at the rate of 14 cwt. per head of the population. The consumption of coal for other purposes than iron manufacture was for 1870, for copper manufacture, 437,500 tons ; lead manufacture, 150,000 tons ; zinc, 214,000 tons ; collieries, 6,742,000 tons ; metal mines, 508,000 tons. And then there was a group of manufactures difficult to get a correct basis for, so far as each was concerned, including manufactures for steel and other purposes, steam navigation, railroads, army departments, gas making, water works, and miscellaneous, making a total of 37,100,000 tons. In 1871, the quantity of coal consumed in the general manufacture was 22,100 tons ; in copper, 367,000 tons ; lead, 157,000 tons ; zinc, 172,000 tons ; collieries, 6,578,000 tons ; metal mines, 530,000 tons ; making a total, with those already referred to, of 39,000,000 tons of coal. There had been no special increase under any of those heads, except gas making, in which there was a considerable increase.

The Joliet Iron and Steel Works.

The Joliet Iron and Steel Company's works, at Joliet, Ill., comprise 100 acres of level ground with solid rock bottom a few inches below the surface. On the west side of the Chicago and Alton Railroad are two blast furnaces, each having a stack 72 ft. high, by 20 ft. dimneter at the boshes. The stacks have boiler iron shells, resting on cast-iron entablatures and columns, with water boshes, after the most approved designs. The elevator tower contains two independent steam hoists, either one capable of stocking both furnaces. The hot-blast stoves are very large, and constructed after the most approved general designs, with improvements in detail. The casting-house (in front of the stacks) is 120 by 113 ft., and 30 ft. high; the stock-house (in the rear of the stacks) is 250 by 85 ft. by 30 ft. high; the boiler house (on the south of the stacks), is 88 by 84 ft., by 30 ft. high; the engine-house (on the south of the boiler-house), is 84 by 52 ft., by 42 ft. high. The eight hot-blast stoves, immediately in the rear of the stacks, occupy a ground space of 68 by 22 ft., each nest, and are 30 ft. high. The elevator tower, between the hot-blast stoves, is 30 by 20 ft., in extreme ground dimensions and 86 ft. high. The extreme ground dimensions of the whole structure are 420 by 240 ft.

The buildings have brick arched doors and windows. The rear of the stock-house is composed of wooden columns, for which iron may at any time be substituted. The roofs of the casting-house and hot-blast shed are entirely of iron. The engine, boiler and stock-house roofs, not being exposed to fire, have wooden trusses and slate covering.

There are 12 boilers, 65 ft. by 42 inches, with domes and mud-drums, and an iron stack, 13 ft. in diameter by 150 ft. high; also, four independent, vertical, non-condensing engines, by TOTTEN & Co., Pittsburgh, made unusually heavy, from the company's specifications. Each engine has an 84 inch air cylinder, and 36 inch steam cylinder, by 6 feet stroke.

The ore is delivered, either by the canal, in the rear of the stock-house, or by railway, on an elevated track running through the stock-house. It is dropped directly into calcining kilns that use gas from the furnaces, and is thence hoisted, hot, to the stacks, where it is charged by the bell and hopper. Coal and coke from a distance, and coke made in the Company's ovens adjacent, are delivered in the same way. The limestone occurs on the spot.

The water works stand just north of the furnaces, on the canal basin bank. The pumping-house is on the general rock level, and the water from the canal is raised only four feet. It is then forced into a stand-pipe 40 ft, high by 18 inches in diameter. The works consist of a boiler and two steam-pumps, capable of throwing 1600 gallons per minute each. The suction and main are 18 inches in diameter; the distributing pipes are, to the Bessemer works, 10 inches; to the new steel rail mill, 12 inches; to the iron rail-mill, 10 inches. There are also pipes to the coke ovens and blast furnaces, although the latter have an independent water supply. All these pipes lie in 4 by 4½ ft. stone tunnels, built on the bed rock, and covered with flat stones. The tunnels afford shelter for the pipes, and are warmed by blowing the exhaust steam from the engines into them. They also serve as a sewer for the drainage of all the works. The buildings are 50 by 50 ft. in extreme dimensions.

The establishment includes coal washing works and coke ovens on the Belgian plan, built by Mr. ENDRES of Pittsburgh. The latter include 25 ovens and occupy a space of 140 by 25 feet. The washing machinery fills a building 65 by 30 feet. Firebrick works covering a space 400 by 50 feet are placed beyond the coke ovens.

The Bessemer plant contains a converting building which is 115 by 84 feet, and 30 feet high, with a shed wing 75 by 42 feet for ovens, weigh office, laboratory and moulding department, also a smaller wing for stopper room and ovens. Adjoining this building, on one side, is the melting-house, 115 by 48 ft., by 48 ft. high; and on the other side, the engine-house, 70 by 40 feet, by 40 ft. high, large enough for blowing machinery for a second Bessemer plant. Adjoining the engine-house, is the boiler-house, 70 by 42 feet, by 20 feet high. The extreme dimensions of these buildings are 215 by 157 feet. There are 9 feet basements under all these buildings, in addition to the heights given, which are taken from the general level, 9 feet above the bed rock. All these structures are of stone, heavily buttressed, and having brick arched doors and windows. The roofs of the melting and converting houses and wings are entirely of iron, and these buildings are fireproof throughout. The roofs of the engine and boiler-houses, in which there is no exposure to fire, and which are separated from the other buildings by continuous walls and parapets, have timber trusses and slate covering.

The machinery is as follows: Eight boilers, each 15 by 5 feet, with 4¼ inch return tubes, having mud-drums, domes, copper expansion joints, wrought iron steam-pipes, and Langen grates for burning slack coal. A double, vertical, non-condensing blowing-engine, with poppet steam valves, having two air cylinders of 58 inch diameter, and 2 steam cylinders of 40 inch diameter, with 4½ feet stroke; total height, 32⅔ feet; bed, 11 and one-sixth by 18 feet; fly wheel 20 feet diameter, weighing 20 tons. The engine was built by I. P. MORRIS & Co., Philadelphia. A Worthington Duplex Pumping-engine to actuate the hydraulic machinery; water cylinders, 9 inches; steam cylinders, 25 inches; stroke, 2 feet. A water accumulator with 24 inch ram, 13¼ feet stroke, and 52 ton weight-box. An air receiver, 48 by 5½ feet. Two feed-pumps, a feed-water heater, hot water tank, cold water tank, an artesian well, and connections for the pressure pumps, and all the steam, feed, discharge, and drainage pipes, cocks, and valves for the supply of artesian and canal water, cold or hot for all purposes; for conveying exhaust steam, blow-off water, and drainage to the sewer; for feeding boilers, and for supplying engines and pumps. This necessarily complex pipe apparatus is in the well-lighted basement of the engine-house, and easily accessible.

The Converting-house machinery is as follows: Two 5 ton converters, 8 feet in diameter by 14 feet high over all, with wrought iron shells and trunnions, made in England. Also the piers, columns, and platforms for supporting and working the same, and 14 inches by 6 feet hydraulic rotating cylinders with wrought iron racks, and 8 duplicate bottoms; two 8 inch hydraulic lifts under the converters, with 2 bottom cars and hydraulic cylinders for moving them, with their connections; two wrought iron brick-lined converter stacks and hoods; a 12 ton hydraulic ladle crane (20 inch ram, 6½ feet stroke, and 15¾ feet jib), with rotating, extension, and ladle-tipping gear, and 12 duplicate ladles and stopper apparatus; two 10 ton Worthington side ingot cranes (hydraulic), with 13 inch ram, 9 feet stroke, and 22 feet jib; an English 5 ton centre hydraulic ingot crane with 18 inch ram, 8½ feet lift, and 21 feet jib. A regulator, consisting of a working platform, and distributing pipes and tanks for the air and water to converters, ladle blowers, and all hydraulic cranes and cylinders, with the necessary valves and hand levers; a casting pit 37 feet diameter, and mould stands; an English hydraulic crane (like the one before mentioned) in the moulding wing; a steam-hammer and fire for testing trial ingots; oven cars, ingot cars, and the necessary tools, fixtures, and movables. All the hydraulic and air pipes lie in a 9½ by 6½ feet lighted, brick-arched tunnel on the bed rock, and under the general floor, where they are protected from frost by steam radiators, and where they are conveniently accessible for repairs.

The converters and their moving gear, and three of the five cranes (all of English manufacture), and the blowing engine, were removed from the Freedom Iron and Steel Works, and re-arranged in accordance with modern plans.

The Melting-house machinery is as follows: Two 2 ton elevators with 45 ft. lift, actuated by hydraulic cylinders 9 in. diam. by 22½ ft. stroke, and all the necessary platforms, coke and iron cars and charging scales; three 5 ft. (internal) cupola furnaces 14 ft. high, with fire-brick lined stacks, tuyere-boxes, valves, slag discharging apparatus, spouts, etc. (room and supporting walls are made for a fourth cupola if required); two 12 ton ladles for melted iron; two 20 ton Fairbanks scales (all iron) for supporting the ladles and weighing the charges; boiler-plate spouts and runners with their platforms, from the ladles and spiegel furnaces to the converters; two reverberatory furnaces, each 16 by 6 ft. over all, by 6 ft. high, with independent sheet iron; firebrick-lined stacks for melting spiegeleisen; a cupola charging floor 44 by 22 ft. over all, and 37 feet above the general level, composed of cast and wrought iron beams and iron floor supported on iron columns; an iron floor (25 ft. high) around the cupola and spiegel furnaces, the rest of this 25 ft. floor being paved with stone; an iron floor 44 by 14 ft. around the ladles; a floor 115 by 12 ft. (made of iron plates behind the converters), 8½ ft. above the general level in the rear of the converters; a vertical engine 20 by 26 inches, and line shafting and pulleys for driving the fans and grinding machinery; a No. 8 Sturtevant pressure blower and fixtures and pipes for driving the cupolas; a duplicate of the same; a No. 6 Sturtevant fan for blowing the spiegel furnaces; a Blake crusher, and a Storer crusher and connections for preparing refractory materials for vessel linings, etc.; two cinder mills and connections for cleaning cupola *debris* and saving the shot iron; store bins under the ladles and cupolas and on the various floors for fuel, tuyeres and refractory materials; inclined cupola dischargers, which deposit the cupola and other *debris* outside the building; and all the necessary tools and working details. The cupolas, ladles, spiegel furnaces and all heavy parts stand on stone piers, walls, and arches, faced with brick where exposed to fire, the spaces between them and around them being utilized for storing purposes.

(To be Continued.)

The Increased Cost of Coal Getting in Lancashire.

A few reliable facts upon the above question, gathered in the mining districts of south-west Lancashire, will be interesting in the present exceptional condition of the coal trade. In order to judge of the present cost of getting coal, it will be necessary to make a comparison with the cost a few years ago. In the year 1863, when the wages of colliers were probably at their lowest ebb, the cost—exclusive of the wages of clerks, the expenses of management, and other incidental charges,—of getting each ton of one class of coal (cannel) was 3s. 5d. to 3s. 6d. per ton. In 1869, this had risen to 4s. 5d. to 4s. 11d. per ton; in 1870 it fell to 3s. 9d. to 4s. 2d; at the latter end of 1871 it advanced to 4s. 3d.; in the first half of 1872 to 5s., and in the second half to 6s. With this year a still more rapid stride has been made, and the cost now ranges from 7s. 9d. to 8s. 5d. per ton. It will thus be seen that the cost of the underground working and winding of coal has more than doubled during the last ten years, and the above figures, which are taken from the returns of one of the largest colliery firms in the south-west Lancashire district, represent a fair average of what has been and is being paid by colliery proprietors in the coal field. With regard to the get of coal, the returns of some collieries show a most serious decrease. For the first month in 1869 the output of one mine was 6021 tons, but for January this year, with very nearly the same number of men employed, the windings have only reached 3670 tons. The position of all the collieries is of course not so bad as this, but candid agents of the men even admit that this year there will have been a falling off of from 10 to 12 per cent. upon the average output of previous years.

THE COAL TRADE.

NEW YORK, May 1, 1873.

The prices at the auction sale as averaged by Mr. JOHN MOORE, 64 Trinity building, were :

	May.	April.	Advanced.
5,000 Lump	$4.27	$4.17½	9½c.
10,000 Steamer	4·22½	4.15	7½
17,000 Broken	4.49	4.34½	14½
13,000 Egg	4.67	4.58	9
25,000 Stove	5.10	5.03	7
10,000 Chestnut	4.30	4.17	13
80,000 Average	4.65	4.56½	8½

Prices at the auction sale, therefore, followed the late advance by the companies very closely. The bidding was quite lively, and there was no indication whatever of a weakening market. On the contrary, the result of the sale will probably be to strengthen the demand. It is undeniable that the brisk spring season has not opened as early as was expected and the cause is without denial attributed to the hope that the late advances would not be maintained. We have already expressed the opinion that prices are certain to rule higher this year than last, and all that can be struggled for now is to keep down the rise as much as possible. It does not seem to us that the prospect for success is very good. Many elements of weakness have been removed by the companies, and the only thing that can give buyers a real power over the price of coal is the indiscretion of producers. If the latter gentlemen carry their demands so far as to inflict unjustifiable and unbearable injury upon the business of consumers, they will have to take the back track, for no combination of individuals or companies can compare in power with the real necessities of widely ramified industries which have many sources of supply open to them. The history of commerce presents too many instances of the overthrow of the strongest combinations by antagonists who seemed comparatively weak, but who had right on their side. But we have several times shown that the producers in this case have the most reasonable grounds for demanding that coal shall bear a higher rate than last year, and so long as they moderate their prices to something like a fair correspondence with what the industries can afford to pay, there is little hope that any combination of the consumers can overthrow the combination of producers.

The Bituminous Trade.

In bituminous coal, business continues very good. Prices are firm and likely to continue so. Virginia gas coal is selling in New York at $8.50 delivered, but we are informed that the companies are not anxious to sell at that rate. Perhaps when Senator MORTON has made his onslaught on the prevailing railroad management he may be able to put in a word for the oppressed Virginia gas coal companies. Until that time it seems likely that Mr. GARRETT, of the Baltimore and Ohio road, will continue to dictate the conditions under which they are to do business.

Anthracite Coal Trade for 1872 and 1873.

The following table exhibits the quantity of Anthracite Coal passing over the following routes of transportation for the week ending April 26, 1873, compared with the week ending April 27, 1872.

COMPANIES.	1872. WEEK.	1872. TOTAL.	1873. WEEK.	1873. TOTAL.
*Phila & Reading R.R†	53,925	1,325,428	79 700	1,536,643
*Schuylkill Canal	30 867	123,365	18,250	71,840
*Lehigh Valley R. R.	68,130	1,154,916	68,172	1,134 109
Lehigh & Sus. R. R.	41,343	477,801	56,340	568,742
" " Canal	26,927	50,795	24,877	32 819
Scranton North	10 369	192 219	11,381	213 091
" South	49 069	613,291	55,937	663,393
Penn. Coal Co., rail	29,128	337,534	26,665	2 5,211
" " " canal	356	336		1 148
Del. & Hud C. Co. Canal	32 648	49,206	46 752	72,377
" " East	11,693	202 432	7 322	120,991
" " West	....	104,283	9.974	129 910
" " South	7,307	112 139	5 638	104,746
Shamokin	8,547	135,473	12,172	151,418
Trevorton	....	....	....	....
Lykens Valley Coal Co.	....	....	....	....
Wyoming North	....	....	....	....
Wyoming South	....	....	....	....
P. N. Y. C. & R. R. Co.	17,173	210,872	12,343	224,216
Williamstown Col'y	....	.....	....	....
Big Lick Col	....	.....	....	....
Total	376,482	5,150,110	411,626	5 341,644
1872			376,482	5,150,110
Increase			35,144	191,534
Decrease				

These figures are for the week and fiscal period commencing Nov. 30

† Less coal transported for Company's use and Bituminous coal.

Pennsylvania Coal Company.

Shipments of Pittston Coal for the week ending April 26, 1873.

	1873. WEEK.	1873. YEAR.	1872. WEEK.	1872. YEAR
By Railway	26,665 01	285,211 02	29,127 15	337,534 07
" Canal	.....	1,147 14	355 11	355 11
	26,665 01	286,358 16	29,483 06	337,889 18
Increase 1873	54,531 02			

Bituminous Coal Trade, 1872 and 1873.

The following table exhibits the quantity of Bituminous Coal passing over the following routes of Transportation for the week ending April 26, 1873, compared with week ending April 27, 1872.

COMPANIES.	1872. Week.	1872. Year.	1873. Week.	1873. Year.
C. & O. Canal	16,527	99,295	16,844	74,892
B. & O. R. R.	30,531	356,485	31,964	417,762
Penn. S. Line	....	.....	846	3?,584
H. & B. T. R. R.	....	87.940	11,111	153,419
*Harrisburg & D.	7,908	172,648	7,247	117,122
*L. V. R. R.	298	11,493	530	10,·19
P. & N.Y.C. & R. Co.	8,440	127,657	6,897	105,420
Cumberl'd Branch Canal	5,994	32,842	3,635	15,259
" Railroad	932	2,973	1,546	32,817
Total	70,630	891,333	80,530	960,094
			70,630	891,333
Increase			9,900	68,761

Report of Coal Transported over Central R.R. of N. J. (Lehigh and Susq. Div.)

Week ending April 26—Compared with same time last year.

REGION SHIPPED FROM.	TIDE. tons ct.	LOCAL. tons ct.	CANAL. tons ct.	TL WEEK tons cwt.	TL. DATE tons.cwt.
Wyoming	24468 15	10478 12	3331 18	38892 05	524750 15
Upper Lehigh		2649 14	824 11	3474 05	63782 05
Beaver Meadow	1805 00	1051 09	1289 13	4138 02	56119 14
Hazleton		71 04	8139 18	8211 02	12890 06
Mauch Chunk	121 06	3670 18	8851 16	12644 00	133971 04
Total	26396 01	17921 17	23 31 1	67349 14	791515 04
Prev'ly reported	376646 05	334137 03	13382 02	724165 10	
Total to date	403042 06	352059 00	36113 18	791515 04	
Same time 1872	331054 09	236672 17	30278 10	598005 16	
Increase	71987 17	115386 03	6135 08	193509 08	
Decrease					

DISTRIBUTION.	WEEK 1873.	WEEK 1872.	YEAR 1873	YEAR 1872.
Forwarded East by Rail to Tidal points	26396 01	29699 07	403042 06	331054 09
Forwarded East by Rail to Local points	7835 16	9775 14	156698 13	109021 19
Forwarded East by Rail use Central Division	1907 14	1493 15	29001 11	24512 01
Forwarded East by Rail use L. & S.	147 08	118 11	4433 14	2976 03
Delivered at and above Mauch Chunk	1410 08	858 05	26671 09	17751 12
Delivered at Coalport & Hazard for Canal	23031 16	14095 12	60887 05	43491 11
Delivered to L. V. R. R. at Packerton	248 00	232 05	12018 12	5099 07
Delivered to L. V. R. Rd. at Sugar Notch	1438 01		26991 07	
Delivered to L. & B. R. R. at Plymouth Bridge	4964 10	5125 04	71770 07	64093 14
Total	67349 14	59398 13	791515 04	598005 16

Penn. and N. Y. R. R.—Coxton, Pa.

Coal tonnage for week ending April 26, 1873.

	Week. Tons. Cwt.	Total. Tons. Cwt.
Anthracite received :		
From Lehigh Valley R. R.	6,598 08	136,861 05
" Lack. & B. R. R.	988 17	12,311 05
" Pleasant Valley R. R.	4,628 11	62,781 07
" Sul. & Erie R. R.	156 08	12,262 01
Total	12,343 04	224.215 18
Same time last year	12,173 03	210,872 09
Increase	170 01	13,343 09
Decrease		
Distributed :		
To Lehigh Valley R. R.	2,336 00	17,564 01
To Lack. & B. R. R.		413 17
To S. Central R. R.	1,510 02	42,438 09
To Ithaca & A. R. R.	2 156 04	34,041 01
To Erie R. W. Pockets for shipm't.	4,455 06	76,904 00
To Individuals on line of road	314 03	15,486 12
To points at & above Coxton for use of Co.	269 01	10,967 06
To points between Waverley and Elmira	1,302 08	26,460 12
Total	12,343 04	224,215 18
Bituminous received from BARCLAY R. R.		
Shipped north from Towanda	6,782 04	104,737 09
Shipped south from Towanda	25 12	683 00
Northern Central R. R.	....	.....
Total	6,807 16	105,420 09
Same time last year	8,440 02	127,656 18
Increase	.....	.....
Decrease	1,632 06	22,236 09
Distributed :		
To Erie Railway	6,782 04	89,643 14
To So. Central R. R.	....	14 941 09
To Ithaca Valley R. R.	....	117 09
Lehigh Valley, R. R.	6 00	346 01
To individuals on line of Railroad.	19 12	253 12
To points on line of road for use of Company	....	118 04
Total	6,807 16	105,420 09
Grand totals transported		
Anthracite	12,343 04	224,215 08
Bituminous	6,807 16	105,420 19
Total	19,151 00	329,636 07
Same time last year	20,613 05	235,529 07
Increase	.....	
Decrease	1,462 05	8,892 00

Northern Central Railway, Shamokin Division.

Below is the return of Coal sent over the Shamokin Division of the N. C. R. W., for the 7 days ending April 18, 1873.

	Tons. Cwt.	Tons. Cwt.
East	2,272 03	
West	9,900 07	
		12,172 10
Same time last year		8,547 08
Increase		3,625 02
Decrease		.....
Total amount shipped to date		154,417 18
Same time last year		135,473 06
Increase		18,944 12
Decrease		

Philadelphia & Reading Railroad and Branches.

COAL TONNAGE

For the Week ending Saturday, April 26th, 1873.

BY RAILROAD.—ANTHRACITE.

PASSING OVER MAIN LINE AND LEB. VAL. BRANCH.

	Tons.	Cwt.
From St. Clair	33,607	01
" Port Carbon	4,161	18
" Pottsville	2,746	02
" Schuylkill Haven	30,790	04
" Pine Grove	5,625	10
" Tamaqua	16,535	09
" Harrisburg	55	03
" Dauphin	5,292	15
Total	98,814	02

FOR SHIPMENT BY CANAL.

Passing Frackville Scales	6,864	10
" Mill Creek "	1,775	17
" Schuylkill Valley Scales	881	02
" Mt. Carbon "	1,426	13
" Cressona "	7,972	15
" Pine Grove "	.....	
" Tamaqua "	193	04
Total	19,114	01

SHIPPED WESTWARD VIA CATAWISSA AND WILLIAMSPORT BRANCH AND NORTHERN CENTRAL RAILROAD.

Via Catawissa & Williamsport Br.	104	
" N. C. R. R. passing Locust Gap	2,573	
" " " Shamokin	3,929	07
" " " Herndon	....	
Total	6,606	14

SHIPPED WEST OR SOUTH FROM PINE GROVE.

Via Schuylkill & Susquehanna R. R.	770	8
" Lebanon & Pine Grove Branch	1,085	14
Total	1,856	12

CONSUMED ON LATERALS.

From Frackville Scales	615	13
" Mill Creek "	548	06
" Schuylkill Valley Scales	733	07
" Mt. Carbon "	758	13
" Cressona "	273	14
" Pine Grove "	30	03
" Tamaqua "	391	13
Total	3,351	09

LEHIGH AND WYOMING COAL.

Received via Silverbrook Junction, Sent East	4,663	01
Cat. & Wpt. Br. Sent West	9	1
" " Rupert, Cat. & Wpt. Br.	....	
" " Allentown, E. Penn'a Br.	102	19
" " Alburtis, " "	15	00
" " Oreland, G. & N. Br.	1,229	13
" " Willow Street R. R.	585	00
Total	6,630	03

BITUMINOUS.

From Harrisburg	7,226	16
" Connecting R. R., G. & N. Br.		
" Junction R. R.	20	00
Total	7,246	16

COAL FOR COMPANY'S USE.

Anthracite	8,405	07
Bituminous	256	07
Total	8,661	14

RECAPITULATION.

	Total for Week.	Corres-p'g week last year.	Increase and Decrease.
Passing over Main Line and Leh. Val. Branch	98 814 02	84,574 15	i 14,239 07
For Shipment by Canal	19,114 01	30,649 12	d 11,535 11
Shipped Westward via Northern Central R. R.	6,606 14	5,452 04	i 1,154 10
Shipped West or South from Pine Grove	1,856 12	2,170 03	d 313 11
Consumed on Laterals	3 351 09	2,445 08	i 906 01
Lehigh and Wyoming Coal	6,630 03	1,188 08	i 5,441 15
Total Anthracite paying freig't	136,373 01	126,480 10	i 9,892 11
Bituminous	7,246 16	7,908 03	d 661 07
Total of all kinds paying freig't	143.619 17	134,388 13	i 9,231 04
Coal for Company's use	8,661 14	7,617 01	i 1,044 13
Total Tonnage for Week	152,281 11	142.005 14	i 10.275 17
Previously this year	1776582 16	1684316 03	i 92 267 13
Total to date	1928861 07	1826320 17	i 102,543 10

SHIPPED BY CANAL.

From Schuylkill Haven	18,250 00	27,964 00	d 9,714 00
" Port Clinton	.....	2,508 00	d 2,508 00
Total Tonnage per Week	18,250 00	30 472 00	d 12,222 00
Previously this year	53,590 10	99,159 09	d 45,568 19
Total to date	71,840 10	129,631 09	d 57 790 19

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, April 26th, 1873.

	WEEK.	SEASON
North	58,856 13	737 074 18
South	5 638 02	103,745 09
Total 1873	64,494 15	840,820 07
Corresponding time in 1872 :		
North	50,657 17	778,011 12
South	1,306 13	112,138 11
Total	57 964 10	890,150 03
Increase North		
Decrease North		
Increase South		
Decrease South		
Increase	6,530 0	
Decrease		

Report of Coal Transported over Lehigh Valley Railroad

Report of coal tonnage for the week ending April 19, 1873, with totals to date, compared with same time last year.

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL Tons. Cwt.
Total Wyoming	21,901 01	283,956 09
" Hazleton	48,154 13	695,291 15
" Upper Lehigh	28 05	1,728 18
" Beaver Meadow	14,614 11	234,758 13
" Mahanoy	7,912 03	145,728 06
" Mauch Chunk	27 14	1,739 11
Total	92,638 07	1,363,203 12
Same time last year	89,681 14	1,358,907 11
Increase	2,956 13	4,296 01
Decrease		
Forwarded East from Mauch Chunk by rail	68,171 18	1,133,108 18
Same time last year	68,130 04	1,154,915 12
Increase	41 14	
Decrease		21,806 14

DISTRIBUTED AS FOLLOWS.

Forwarded East from Mauch Chunk by rail	67,424 04	1,110,678 17
do East for use L. V. R. R.	747 14	22,430 01
Delivered at and above Mauch Chunk for use of L. V. R. R.	1,433 02	27,789 02
To P. & N. Y. R. R.	6,569 08	136,861 05
To Northern Central R. R.	252 12	3,851 04
To D. H. & W. R. R.	171 02	14,835 06
To L. & S. R. R. at Packerton for rail	127 08	5,354 15
Delivered at M'h Chunk	32 05	1,503 12
Delivered on line of road above Mauch Chunk	201 00	7,053 14
To L. & S. R. R., at Penn Hav., for railroad		1,541 10
Do. for canal	8,185 06	8,585 14
To Lehigh Canal Mauch Chunk	1,951 04	1,940 12
To Catawissa Railroad		35 00
To L. & B. R. R. at Lack. Junc.	6,443 02	20,783 00
Total	92,630 07	1,363,203 12

Statement of Coal Transported over Cumberland and Pennsylvania Railroad

During the week ending Saturday April 26, and during the year 1873, compared with the corresponding period of 1872.

WEEK.

	C. & O. C'l Tons. Cwt.	B. & O. R. R. Tons. Cwt.	Pa. S. Line Tons. Cwt.	Total. Tons. Cwt.
1873	16,844 05	31,964 00	846 06	49,654 11
1872	16,527 01	30,530 15	....	47,057 16
Increase	317 04	1,433 05	846 06	2,596 15
Decrease	.....	.....	....	

YEAR.

1873	74,892 00	417,761 17	32,583 14	525,237 11
1872	99,294 11	356,485 06	....	455,779 17
Increase	....	61,276 11	32,583 14	69,457 14
Decrease	25,402 11	....	....	....

Cumberland Branch R. R.

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B. & O. R. R. Co Tons. Cwt.	Total. Tons. Cwt.
1873	3,034 17	1,546 04	5,181 01
1872	5,994 01	932 07	6,923 08
Increase	—	613 17	
Decrease	2,359 04	.....	1,745 07

YEAR.

1873	15,258 15	33,816 17	49,075 12
1872	32,812 05	2,972 19	35,815 04
Increase		30,863 18	13,260 08
Decrease	17,583 10		

Delaware Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna, & Western Railroad for the week ending Saturday, April 26, 1873.

	WEEK. Tons. Cwt.	YEAR. Tons. Cwt.
Shipped North	11,384 06	203,091 01
Shipped South	55,036 19	683,382 16
Total	66,421 05	886,473 17
For the Corresponding time last Year:		
Shipped North	10,369 05	192,218 14
Shipped South	49,069 09	673,290 11
Total	59,438 14	865,509 05
Increase	6,982 11	20,964 12
Decrease	.....	.....

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, April 26th, 1873.

	WEEK.	SEASON.
By Delaware and Hudson Canal	46,752	72,377
By Railroad, East	7,322	12[illegible],901
" West	9 974	129,910
" South	5,638	103,746
Total 1873	69,686	427,024
Corresponding time in 1872:		
By Delaware and Hudson Canal	32,648	49 206
By Railroad, East	11 693	202,432
" West	....	104 283
" South	7,307	112,139
Total	51,648	468,060
Decrease	41,036	

Lehigh Canal Coal Trade.

Shipped for the week ending April 25, 1873.

	Week. Tons. Cwt.	Total. Tons. Cwt.
Total from Mauch Chunk Region	6,609 06	10,357 15
" " " " Hazardville		
" " Beaver Meadow Region.	1,679 00	2,581 01
" " Mahanoy Region	185 00	462 07
" " Hazleton Region	8,185 06	8,585 14
" " Upper Lehigh Region	1,119 01	1,987 08
" " Wyoming Region	4,469 05	
" " " " Hazardville.		9,244 07
Total	22,076 18	32,818 12
Corresponding week last year	20,926 18	50,795 00
Increase	1,150 00	
Decrease		17,976 08

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

	AT NEW YORK. May 1.		AT PHILADELPHIA. May 1.	
SCHUYLKILL.	R. A.	W. A	R. A.	W. A.
Lump	$— —	$5 45	— —	4 10
Steamer	— —	5 45	— —	4 10
Broken	5 70	5 45	4 35	4 10
Egg	5 85	5 60	4 50	4 25
Stove	6 05	5 75	4 70	4 40
Chestnut	5 20	5 95	3 85	3 60
Pea	— —	— —	— —	— —
LEHIGH.				
Freight to New York 50 cents.				
Lump, (on board)	— —	5 35	— —	— —
Broken	— —	5 30	— —	— —
Egg	— —	5 30	— —	— —
Stove	— —	5 60	— —	— —
Chestnut	— —	4 35	— —	— —
Pea	— —	— —		
SPECIAL COALS *				
Honey Brook, Le'h W. A.	4 70@5 60		— —	— —
Spring Mountain " "	— —@— —		— —	— —
Sugar Loaf " "	— —@— —		— —	— —
Room Run " "	4 70@5 60		— —	— —
Hill & Harris " "	4 70@5 60		— —	— —
Shamokin " "	4 70@5 60		— —	— —
Lykens Valley " "	4 85@6 10		— —	— —
Broad Top " "	6 60@6 10		5 35	— —

Company Coals.

May, 1873.

	L.	Str.	Gra.	Eg.	Sto.	Chest
*Scranton at E. Port	4 35	4 35	4 55	4 75	5 60	4 35
Pittston at Weehawken	4 80	4 80	4 80	5 00	5 50	4 70
*Lackawana at Weehawken	4 70	4 70	4 90	5 15	5 60	4 70
Wilk'b're at Hoboken	4 55	4 75	4 90	5 10	5 45	4 55
Old Co. Lehigh at Pt. John'n	5 60	—	5 35	5 35	5 50	4 70
New York Coal Exchange	5 35	—	5 20	5 20	5 35	4 65

For freights to different points see "Freights."
*To contractors only.

Prices at Baltimore—May, 1873.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 75@6 00
Pittston and Plymouth, do	5 50@5 75
Shamokin Red or White Ash, do	5 50@5 75
*Lykens Valley Red Ash, do	@5 80
By retail, all kinds per ton of 2,240 lbs	7 50@8 00
*George's Creek and Cumberland f. o. b. at Locust Point for cargoes	@5 00
Fairmont and Clarksburg gas f. o. b. at L. Point	6 50
Kanawha Cannel, coarse	@12 00

* Freight to New York $2 15.

BITUMINOUS COALS.

Kittaning Coal Co.'s Phœnix Vein, f. o. b. at Phila	$
Lemon " " "	
Cumberland Vein Coal	
Tyrconnel f. o. b.	$7 00

Prices at Georgetown, D.C., and Alexandria, Va.

May, 1873.

George's Creek and Cumberland f. o. b. for shipping $4 60@4 75

Prices at Havre de Grace, Md.

May, 1873.

Wilkesbarre and other White Ash for Cargoes	$ @
Lykens Valley	@
Shamokin Red or White Ash	

Bituminous Coals (Cumberland).

Georgetown, F.o.b	$4 60
Baltimore "	5 00
New York "	7 25
South Amboy "	6 75

Prices of Foreign Coals.

May, 1873.

Duty 75 c. per ton.

Corrected weekly by ALFRED PARMELE, No. 32 Pine street, N. Y.

Liverpool Gas Caking	— —@— —
" " Cannel	17 00@— —
" House "	22 00@23 00
" " Orrel	19 00@— —

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$20 00@22 00
" Cannel, "	23 00@25 00

Per ton 2,000 lbs. delivered.

Prices of Gas Coals.

May, 1873.

PROVINCIAL.

Corrected weekly by Louis J. Bellout, Jr., 41-43 Pine st., N. Y.

	Coarse	Slack.
Block House	$2 50	$1 00
Gowrie	2 50	0 00

Corrected by Bird, Perkins & Job, 27 South street.

	Coarse.	Culm of Coal.
Pictou nett	$2 50	1 50
Sydney	2 50	1 00
Lingan	2 00	1 00
Caledonia	2 00	1 00

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty on all slack coal or Culm: 40c per ton of 28 bushels, 80 pounds to the bushel. On all bituminous coal or shale: 75 cents per ton of 28 bushels.

AMERICAN.	Nominal quo Currency.
Westmoreland f. o. b.	$6 50 @7 00
Fairmount Gas Coal Co. of N. Y. "	6 50 @7 00
Despard Coal Co. "	6 50 @7 00
Penn. "	6 50 @7 00
Newburg Orrel Gas. "	6 50 @7 00
West Fairmount Gas Coal. "	6 50 @7 00
Redbank Cannel, Penn. "	6 50 @7 00
AT PHILADELPHIA.	
Westmoreland "	6 50 @7 00

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven Lump and St., net, $1 60; Br., Egg and Ch., $1 65; Stove, $1 75 Shipping at Pt. R., 25c., for use at Phil., $2 18 from Pt. Carbon.

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Phillipsburgh	$0 72
C. R. R., N. J., Phillipsburgh to Elizabethport	06
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$2 23

MAUCH CHUNK TO PORT JOHNSTON.

L. V. R. R., or L. & S. R. R. from M. C. to Phillinsb'g	$0 72
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 06
Shipping expenses	25
Wharfage	10
Total	$2 23

TO HOBOKEN

L. V. R. R., Mauch Chunk to Phillipsburgh	72
Morris & Essex R. R. Phillipsburgh to Hoboken	1 06
Shipping expenses	25
Wharfage	00
Total	$2 23

TO SOUTH AMBOY.

L. V. R. R.	72
B. & D. R. R.	$1
Cam. & Am. R. R.	
Shipping Expenses	35
Total	$2 23

PENN HAVEN TO ELIZABETHPORT.

L. V. R. R. Penn Haven to Phillipsburgh	84
C. RR. of N. J. Phillipsburgh to Elizabethport	1 06
Shipping expenses	15
Wharfage	20
Total	$2 25

Freights.—May, 1873.

TO EASTERN PORTS.	Cumberland. From Georgetown.	Cumberland. From Baltimore	Anthracite. From Philad'a.	Anthracite. From Port Johnson, Port Elizabeth, and Hoboken.	Anthracite. From Newburgh.	Anthracite. From Rondout.
Amesbury	3 75	—		—	—	—
Bangor	3 25	3 50		—	—	—
Bath	3 25	3 12		—	—	—
Boston	2 50	3 00		2 10	2 30	2 40
Bridgeport	—	2 50		1 00	—	—
Bristol	—	—		1 40	—	1 65
Cohasset Nar'ows	—	—		—	—	—
Derby	3 25	—		1 25	—	—
Dighton	—	—		—	—	—
East Cambridge	2 75	2 75		2 00	—	—
Fall River	2 40	2 75		1 40	1 60	1 65
Hackensack	—	3 00		—	—	—
Hartford	3 50	3 25		1 50	—	1 75
Hoboken	50	—		50	—	65
Jersey City	—	—		50	—	65
Lynn	—	—		—	—	—
Middletown	—	—		1 30	—	1 51
Mystic	—	—		1 25	—	1 50
New Bedford	3 00	3 00		1 50	—	1 70
Newburyport	3 25	3 12		2 20	—	2 50
New Haven	2 50	2 60		1 00	1 20	1 25
New London	2 75	2 75		1 25	—	1 40
Newport	—	—		1 40	1 60	1 65
New York	2 00	2 15		50	—	65
Norwalk	2 75	2 75		1 00	—	1 25
Norwich	2 75	2 75		1 35	—	1 55
Pawtucket	3 00	3 00		1 50	—	1 76*
Portland	3 25	3 00		2 00	—	2 25
Portsmouth, N. H	3 25	3 12		2 20	—	2 50
Providence	2 75	2 75		1 40	1 60	1 70
Rockport	—	—		—	—	—
Saco	—	—		—	—	—
Sag Harbor	—	—		1 25	—	—
Salem	3 25	3 00		2 00	—	2 40
Stamford	—	—		1 00	—	1 25
Stonington	—	—		1 25	—	—
Taunton	—	—		1 90	—	—
Warren	—	—		1 40	—	—
TO RIVER PORTS						
Albany	—					
Oatskill	—					
Cocksackie	—					
Coeymau's	—					
Cold Spring	—					
Fishkill	—					
Haverstraw	—					
Hudson	3 00					
New York vessels	2 00					
Nyack	—					
Poughkeepsie	—					
Rhinebeck	—					
Rondout	—					
Saugerties	—					
Sing Sing	—					
Stuyvesant	—					
Tarrytown	—					
Troy	—					
West Point	—					
Yonkers	—					

* And Towing.

St. Thomas	$— — Gold.
Martinique	— — "
Demerara	— — "
New Orleans	— —
Mobile	— — "

Foreign and Provincial Freight

May, 1873.

Foreign.
Newcastle and Ports on Tyne, per keel of 21 1-5 tons, 4
Liverpool, 5 per cent primage

TO NEW YORK.

Provincial	
Sydney	$3 50
Lingan	3 50
Cow Bay	3 75
Port Caledonia	3 50
Little Glace Bay	3 50

TO BOSTON.

Sydney	3 00
Lingan	3 00
Cow Bay	3 00
Port Caledonia	3 00
Little Glace Bay	2 90

MARKET REVIEW.

NEW YORK, May 1, 1873.

IRON—The market for Scotch Pig is inactive; occasionally, lots from dock are disposed of at prices below our quotations, and the business from store is only to meet the light demand prevailing for some time past; we have only to note sales of 250 tons Gengarnock at $40@$50 from dock (in Jersey City;) and 50 do. from yard, $52. American Pig is quiet and firm; we quote No. 1 $50 No. 2 $47@$48, and Gray Forge $40@42; we heard of a rumor of 100 tons No. 1 Crane having been sold at $50 but we

could not confirm it. Rails, both old and new, are very quiet and without business. Scrap is dull and nominal in absence of business. Refined Bar from store is dull, and prices are a little softer.

LEAD—Pig is less active, but prices remain firm and tend upwards; 50 tons Foreign sold at 6¼ cents, but 6¼@6⅜ is the general asking price for Foreign, and 6½@6⅝ for Domestic, all gold. Bar 9¼ cents, Sheet and Pipe 10½ cents, and Tin-lined Pipe 16½, less 10 per cent. to the Trade.

COPPER—New Sheathing is steady at 43 cents, and Bolts and Braziers 45, Bronze and Yellow Metal Sheathing 27, and Y. M. Bolts 32 net cash. Ingot remains very dull; we hear of no business, and quote Lake nominally 33 cents. In English there has been some business, and we note sales of 50 tons B. S. part 30½ cents, 30 days.

STEEL—There is no change in values—stocks light and demand good.

A Sheffield (Eng.) paper says:—"Bessemer Steel continues in great request, its application to new purposes being almost weekly extended. It can be produced so much cheaper than cast Steel made in the old way, and yet is so tough and endowed with many of the virtues of the best cast steel that there is no wonder that its use is becoming pretty nearly universal."

SPELTER—Is very quiet, but Silesian is held firmly at 7⅞a 8 cents gold; domestic, 10c. currency.

TIN—There is still an almost entire absence of demand for Pig, and though previous prices are asked, they are wholly nominal; a few small lots of Straits have been taken at 32a 32½ cents; English is held at 32 and Banca 37⅛ gold. The quotations come from London per cable lower, Straits there £141, and English £145. Plates remain very quiet, the recent reduction in prices not having quickened the demand to any extent; we note sales of 250 bxs. Charcoal Terne at $10,75 gold; 500 do. Charcoal Tin, within our range; and 500 do. Coke Tin, on private terms.

ZINC—Mosselmann Sheet is steady at the Company's price for lots from agents' hands. From Dealers' hands, it can be bought cheaper than from the Company—100 casks sold from agents' hands, at 10 cents less per cent. gold. Manganese, black oxide, 3½; Manganese, per oxide, 5½.

The Foreign Market.

LONDON, April 19, 1873.

IRON.—There has been considerable activity in Glasgow pig; 7,000 tons were sold on Wednesday at varying prices, according to cash, the ruling quotation being 118s. In rails the trade has been quiet, and shipping orders have been very small. The quotations for Welsh bars remain unaltered. There has been a slight rise in the extreme price of Staffordshire nail rods, viz., £15 10s., as against £15 last week; but the quotations of different makers vary so widely, that only approximate prices can be given.

TIN.—The market has been quiet, with prices lower than last week. Buyers, however, still hold off in the expectation of a still further fall in prices, an expectation that is likely to be realized, though not to any great extent. The sales reported were:—Thursday, 500 slabs Banca sold at £145 10s. per ton for cash; 5 tons Straits at £145 for cash; and 20 tons at £143 10s. for May. Friday, Saturday, and Monday no market. Tuesday, market flat, and prices still going down:—25 tons Straits sold at £144 for cash; and 50 tons at £142, May—July. Wednesday 6½ tons Australian ore sold at £92 2s. 6d. for fine; £65 for common; and £49 for inferior. Five tons Portuguese ore, common, sold at £71 10s. In Straits, 30 tons were sold at from £143 to £144 10s. for cash; only 5 tons, however, reached the latter price.

TIN PLATES.—The market continues firm, but the amount of business reported has been inconsiderable.

LEAD.—The market continues very firm, and a large amount of business has been done, with little or no alteration in the high prices of last week. £23 5s. to £23 10s. was readily obtained for good soft English pig.

SPELTER—Maintains its price, and is still both scarce and dear. Common Silesian was sold at £27 10s., and best at £28.

ZINC.—The market was active, the price for rolled ranging from £34 to £37 per ton.

QUICKSILVER.—Market easier, £13 15s. per bottle being the highest price obtainable.

COPPER.—Messrs. VIVIAN, YOUNGER & BOND write:—"On the 12th instant telegraphic advices from Valpariso came to hand with charters for the first fornight of last month, equal to 2,200 tons in fine copper in the proportion of 1,800 tons bars and Ingots to 400 tons ores and regulus; 700 tons of the available stock are included in these charters. By advices from Chili to the 28th February, the exports, and what was loading and chartered for during the first two months of the year, show a decrease of 3,470 tons fine compared with the same period last year, while production appears to be preceeding on a much more moderate scale. Transactions were unimportant until yesterday, when a considerable business was done (partly on private terms). Since our last issue of the 10th inst. about 1,600 tons Chili bars have changed hands at £90 10s. to £91 for good ordinary brands, and £92 to £92 10s. extra prompt. In Australian about 500 tons sold, in Wallaroo chiefly at £97, £96 15s. being accepted for a small parcel, and £97 10s. to £98 10s. one and three months' prompt; Burra £96 10s. to £97. The market closes steadily at quotations." At the Truro Ticketing, on Thursday, 3,353 tons of copper ore were sold, realizing £14,730 4s. The particulars of the sale were:—Average standard, £109 16s.; average produce, 6⅛; average price per ton, £4 8s.; quantity of fine copper, 218 tons 2 cwts. Compared with the last sale, the decline has been in the standard 10s., and in the price per ton of ore about 9d.

"IRON."

METALS.

NEW YORK, May 1, 1873.

IRON.—Duty: Bars, 1 to 1¼ cents ₱ lb; Railroad, 10 cents ₱100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ₱ lb; Pig, $7 ₱ ton; Polished Sheet, 3 cts. ₱ lb; Galvanized 2¼; Scrap Cast, $6; Scrap Wrought, $8 per ton. All less 10 per cent. No Bar Iron to pay a less duty than 35 per cent. ad val.

	Store Prices.
Pig, Scotch—Coltness ₱ ton	60 00@— —
Gartsherrie	58 00@— —
Glengarnock	52 00@— —
Eglinton	51 00@— —
Pig, American, No. 1	50 00@— —
Pig, American, No. 2	47 00@48 00
Pig, American, Forge	40 00@42 00
Bar Refined, English and American	— —@110 00
Bar Swedes, assorted sizes (gold	137 50@142 50
	Store Prices, Cash.
Bar, Swedes, 1¼ to 5 x ¼ & ⅞ 2 sq. & 6 to 12 x ¼ & ⅛	150 00@160 00
Bar, Refined, ¼ to 2 in. rd. & sq. 1 to 6 in. x ¼ to 1 in.	100 00@— —
Bar, Refined, 1¼ to 6 by ¼	— —@105 00
Bar, Refined, 2½ to 2¾ round 1 & 1¼ by ¼ & 5:16	107 50@— —
Large Rounds	110 00@120 00
Scroll	120 00@165 00
Ovals and half-round	125 00@145 00
Band	— —@117 50
Horse Shoe	— —@125 00
Rods, ⅜ to 3-16 inch	105 00@150 00
Hoop	125 00@172 50
Nailrod	9¼@ 9¾
Sheet, Russia, as to assortment (gold)	16 @ 17
Sheet, Singles, D. and T. Common	—6¼@— 7¼
Sheet, D. and T. Charcoal	—7¼@— 8¼
Sheet, Galv'd, list 5 per cent, discount	—@— —
Rails, English (gold), ₱ ton	70 00@— —
Rails, American, at Works in Pennsylvania, currency	80 00@— —

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper 4 cents ₱ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 43
Copper Bolts	— @— 45
Copper Braziers, 16oz. and over	— @— 45
Copper Nails	— @— 45
Copper, Old Sheathing, &c. mixed lots	28 @— 30
Copper, Old, for chemical purposes, 14@16 oz.	— @— —
Copper, American Ingot	33 @— —
Copper English Pig	— @— 30¾
Yellow Metal, New Sheathing & Bronze	27 @— —
Yellow Metal Bolts	— @— 32
Yellow Metal Nails, Sheathing and Slat'g	27 @— 30

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb. Pipe and Sheet, 2½ cents ₱ lb.

Galena, ₱ 100 lbs	$— @— —
Spanish (gold)	6 62½@6 75
German, do.	— —@6 75
English do.	6 75 @7 12½
Domestic	6 50 @— —
Bar (net)	9 25 @— —
Pipe (net)	— —@10 50
Sheet	— —@10 50

STEEL.—Duty; Bars and ingots, valued at 7 cents ₱ lb or under 2¼ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 3½ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.

English Cast (2d and 1st quality) ₱ lb	— 18¾@— 23
English Spring (2d and 1st quality)	— 9½@— 10¾
English Blister (2d and 1st quality)	— 14 @— 18½
English Machinery	— 14½@— —
English German (2d an 1st quality)	— 12½@— 14½
American Blister "Black Diamond"	— — @— 11½
American, Cast, Tool do.	— — @— 17
American, Spring, do.	— — @— 11
American Machinery do.	— 11½@— 12
American German, do	— 9 @— —

TIN.—Duty; Pig, Bars, and Blocks, 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent.; Roofing 25. ad val.

	Gold ₱ lb.
Banca	— @37½
Straits	— @32⅛
English	32 @32¼

PLATES.

Fair to Good Brands.	*Gold.*	*Currency*
I. C. Charcoal, ₱ box	$11 75 @12 25	$14 00 @14 50
I. C. Coke	9 75 @10 50	11 75 @12 50
Coke Terne	8 50 @ 9 50	10 25 @11 25
Charcoal Terne	10 75 @11 00	12 00 @12 25

SPELTER—Duty: In Pigs, Bars & Plates, $1.50 p. 100lbs.

Plates, Foreign (gold) p. 100 lb.	7 75 @—7 87½
Plates, Domestic p. lb.	9 @—11

ZINC—Duty: Pig or Block, $1.50 per 100 lb.; Sheet 2½c. per lb.

Sheet per lb.	—10½@11

San Francisco Stock Market.

BY TELEGRAPH.

NEW YORK, May 1, 1873.

Our reports from the San Francisco Stock Board are dated April 25th and 29th, with the exception of a decline in Eureka Grass Valley of $2 00 per share. The market has decidedly advanced. The most noteworthy advance for a long time past, however, is the rise in Savage—which has doubled itself since our last—the report placing it at $96 per share. Ophir is appended to the report as selling at $21; and Hale and Norcross at $40 per share. The quotations for the two dates are as follows:

	April 25.	April 29.
Savage	57	96
Crown Point	120¼	120
Yellow Jacket	—	70
Kentuck, "New Issue"	—	8½
Chollar Potosi	—	54½
Gould & Curry "New Issue"	—	10
Belcher "New Issue"	88½	89
Imperial	—	5¾
Raymond & Ely	77	64
Meadow Valley	—	15¼
Eureka G. V.	—	24
Ophir	21	22
Hale and Norcross	40	—

The following were received since the above.

SAN FRANCISCO, May 2.—Mining Stocks—Raymond and Ely, 56½; Hermes, 18; Hale and Norcross, 51½; Savage, 80½; Ophir, 34; Belcher, 85½.

VIRGINIA CITY, Nevada, May 1.—The suit of the Raymond and Ely Silver Mining Company against the Hermes Mining Company, involving immense interests, and which has been on trial before the United States Court at Pioche for ten months past, resulted to-day in favor of the Hermes Company. The whole community at Pioche has been greatly excited pending the trial, and the result was made the subject of heavy wagers. About $40,000 changed hands there to-day on the issue. A personal difficulty between opposing counsel has grown out of the suit which is expected to result in a hostile meeting between HARRY I. THORNTON and Mr. PERLEY, the first-named being the challenger. Mr. PERLEY was of the counsel for the Raymond & Ely Company. The excitement is still running high, and a number of shooting affrays between persons interested in the contest occurred to-day, in which three men were wounded, one of them fatally, it is believed.

SAN FRANCISCO, May 1.—There is an intense excitement here to-day, among dealers in mining stocks, over the verdict in the great mining suit between the Raymond & Ely and Hermes Companies, in Nevada. Many of the brokers have lost heavily on Raymond & Ely.

Report of Coal Transported over Lehigh Valley Railroad

Report of coal tonnage for the week ending April 19, 1873, with totals to date, compared with same time last year.

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL Tons. Cwt.
Total Wyoming	21,901 01	283,956 09
" Hazleton	48,154 13	695,291 15
" Upper Lehigh	28 05	1,728 18
" Beaver Meadow	14,614 11	234,758 13
" Mahanoy	7,912 03	145,728 06
" Mauch Chunk	27 14	1,739 11
Total	92,638 07	1,363,203 12
Same time last year	89,681 14	1,358,907 11
Increase	2,956 13	4,296 01
Decrease		
Forwarded East from Mauch Chunk by rail	68,171 18	1,133,108 18
Same time last year	68,130 04	1,154,915 12
Increase	41 14	
Decrease		21,806 14

DISTRIBUTED AS FOLLOWS.

Forwarded East from Mauch Chunk by rail	67,424 04	1,110,678 17
do East for use L. V. R. R.	747 14	22,430 01
Delivered at and above Manch Chunk for use of L. V. R. R.	1,433 02	27,789 02
To P. & N. Y. R. R.	6,569 08	136,861 05
To Northern Central R. R.	252 12	3,851 04
To D. H. & W. R. R.	171 02	14,835 06
To L. & S. R. R. at Packerton for rail	127 08	5,354 15
Delivered at M'h Chunk	32 05	1,503 12
Delivered on line of road above Manch Chunk	201 00	7,053 14
To L. & S. R. R., at Penn Hav., for railroad		1,541 10
Do. for canal	8,185 06	8,585 14
To Lehigh Canal Mauch Chunk	1,351 04	1,900 12
To Catawissa Railroad		35 00
To L. & B. R. R. at Lack. Junc.	6,443 02	20,783 00
Total	92,63 07	1,363,203 12

Statement of Coal Transported over Cumberland and Pennsylvania Railroad

During the week ending Saturday April 26, and during the year 1873, compared with the corresponding period of 1872.

WEEK.

	C. & O. C'l. Tons. Cwt	B. & O. R. R. Tons. Cwt.	Pa. S. Line Tons. Cwt.	Total. Tons. Cwt.
1873	16,844 05	31,964 00	846 06	49,654 11
1872	16,527 01	30,530 15	....	47,057 16
Increase	317 04	1,433 05	846 06	2,596 15
Decrease	.....	.....	....	

YEAR.

1873	74,892 00	417,761 17	32,583 14	525,237 11
1872	99,294 11	356,485 06	....	455,779 17
Increase	....	61,276 11	32,583 14	69,457 14
Decrease	25,402 11	....	....	....

Cumberland Branch R. R.

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B. & O. R. R. Co Tons. Cwt.	Total. Tons. Cwt.
1873	3,634 17	1,546 04	5,181 01
1872	5,994 01	932 07	6,926 08
Increase		613 17	
Decrease	2,359 04	.....	1,745 07

YEAR.

1873	15,258 15	33,816 17	49,075 12
1872	32,842 05	2,972 19	35,815 04
Increase		30,843 18	13,260 08
Decrease	17,583 10		

Delaware Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna, & Western Railroad for the week ending Saturday, April 26, 1873.

	WEEK. Tons. Cwt.	YEAR. Tons. Cwt.
Shipped North	11,384 06	203,091 01
Shipped South	55,036 19	683,382 16
Total	66,421 05	886,473 17
For the Corresponding time last Year:		
Shipped North	10,369 05	192,218 14
Shipped South	49,069 09	673,290 11
Total	59,438 14	865,509 05
Increase	6,982 11	20,964 12
Decrease	.....	.....

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, April 26th, 1873.

	WEEK.	SEASON.
By Delaware and Hudson Canal	46,752	72,377
By Railroad, East	7,322	12[illegible],951
" West	9 974	129,910
" South	5,638	103,746
Total 1873	69,686	427,024
Corresponding time in 1872:		
By Delaware and Hudson Canal	32,648	49 206
By Railroad, East	11 693	202,432
" West	....	104 283
" South	7,307	112,139
Total	51,648	468,060
Decrease	41,036	

Lehigh Canal Coal Trade.

Shipped for the week ending April 25, 1873.

	Week. Tons. Cwt.	Total. Tons. Cwt.
Total from Mauch Chunk Region	6,609 06	10,357 15
" " " Hazardville		
" " Beaver Meadow Region.	1,6'9 00	2,581 01
" " Mahanoy Region	185 00	462 07
" " Hazleton Region	8.185 06	8,585 14
" " Upper Lehigh Region	1,119 01	1,987 08
" " Wyoming Region	4,469 05	
" " " " Hazardville.		9,244 07
Total	22,076 18	32,818 12
Corresponding week last year	20,926 18	50,795 00
Increase	1,150 00	
Decrease		17,976 08

Prices of Coal by the Cargo.

(CORRECTED WEEKLY.)

	AT NEW YORK. May 1.		AT PHILADELPHIA. May 1.	
SCHUYLKILL.	R. A.	W. A	R. A.	W. A.
Lump	$— —	$5 45	— —	4 10
Steamer	— —	5 45	— —	4 10
Broken	5 70	5 45	4 35	4 10
Egg	5 85	5 60	4 50	4 25
Stove	6 05	5 75	4 70	4 40
Chestnut	5 20	5 95	3 85	3 60
Pea	— —	— —	— —	— —
LEHIGH: Freight to New York 50 cents.			— —	— —
Lump, (on board)	— —	5 35	— —	— —
Broken	— —	5 30	— —	— —
Egg	— —	5 30	— —	— —
Stove	— —	5 60	— —	— —
Chestnut	— —	4 25	— —	— —
Pea	— —	— —		
SPECIAL COALS*				
Honey Brook, Le'h W. A.	4 70@5 60		— —	— —
Spring Mountain " "	— —@— —		— —	— —
Sugar Loaf " "	— —@— —		— —	— —
Room Run " "	4 70@5 60		— —	— —
Hill & Harris " "	4 70@5 60		— —	— —
Shamokin " "	4 70@5 60		— —	— —
Lykens Valley " "	4 85@6 10		— —	— —
Broad Top " "	6 60@— 10		5 35	— —

Company Coals.

May, 1873.

	L.	Str.	Gra.	Eg.	Sto.	Chest
*Scranton at E. Port	4 35	4 35	4 55	4 75	5 60	4 35
Pittston at Weehawken	4 80	4 80	4 80	5 00	5 50	4 70
*Lackawana at Weehawken	4 70	4 70	4 90	5 15	5 60	4 70
Wilk'b're at Hoboken	4 55	4 75	4 90	5 10	5 45	4 55
Old Co. Lehigh at Pt. John'n	5 60	—	5 35	5 35	5 50	4 70
New York Coal Exchange	5 35	—	5 20	5 20	5 35	4 65

For freights to different points see "Freights."
*To contractors only.

Prices at Baltimore—May, 1873.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 75@6 00
Pittston and Plymouth, do	5 50@5 75
Shamokin Red or White Ash, do	5 50@5 75
*Lykens Valley Red Ash, do	@5 80
By retail, all kinds per ton of 2,240 lbs	7 50@8 00
*George's Creek and Cumberland f. o. b. at Locust Point for cargoes	@5 00
Fairmont and Clarksburg gas f. o. b. at L. Point	6 50
Kanawha Cannel, coarse	@12 00

* Freight to New York $2 15.

BITUMINOUS COALS.

Kittaning Coal Co.'s Phœnix Vein, f. o. b. at Phila	$
Lemon " " "	
Cumberland Vein Coal	
Tyrconnel f. o. b.	$7 00

Prices at Georgetown, D.C., and Alexandria, Va.

May, 1873.

George's Creek and Cumberland f. o. b. for shipping $4 60@4 75

Prices at Havre de Grace, Md.

May, 1873.

Wilkesbarre and other White Ash for Cargoes	$ @
Lykens Valley	@
Shamokin Red or White Ash	

Bituminous Coals (Cumberland).

Georgetown, F.o.b.	$4 60
Baltimore	5 00
New York	7 25
South Amboy	6 75

Prices of Foreign Coals.

May, 1873.

Duty 75 c. per ton.

Corrected weekly by ALFRED PARMELE, No. 32 Pine street, N. Y.

Liverpool Gas Caking	— —@— —
" " Cannel	17 00@— —
" House	22 00@23 00
" Orrel	19 00@— —

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$20 00@22 00
"Cannel, "	23 00@25 00

Per ton 2.000 lbs. delivered.

Prices of Gas Coals.

May, 1873.

PROVINCIAL.

Corrected weekly by Louis J. Belloni, Jr., 41-43 Pine st., N. Y.

	Coarse	Slack.
Block House	$2 50	$1 00
Gowrie	2 50	0 00

Corrected by Bird, Perkins & Job, 27 South street.

	Coarse.	Culm of Coal.
Pictou nett	$2 50	1 50
Sydney	2 50	1 00
Lingan	2 00	1 00
Caledonia	2 00	1 00

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty on all slack coal or Culm: 40c per ton of 28 bushels, 80 pounds to the bushel. On all bituminous coal or shale: 75 cents per ton of 28 bushels.

AMERICAN.	Nominal quo Currency.
Westmoreland f. o. b.	$6 50 @7 00
Fairmount Gas Coal Co. of N. Y.	6 50 @7 00
Despard Coal Co	6 50 @7 00
Penn. "	6 50 @7 00
Newburg Orrel Gas "	6 50 @7 00
West Fairmount Gas Coal "	6 50 @7 00
Redbank Cannel, Penn "	6 50 @7 00
AT PHILADELPHIA.	
Westmoreland "	6 50 @7 00

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven Lump and St., net, $1 60; Br., Egg and Ch., $1 65; Stove, $1 75 Shipping at Pt. R., 25c., for use at Phil., $2 18 from Pt. Carbon.

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Phillipsburgh	$0 72
C. R. R., N. J., Phillipsburgh to Elizabethport	06
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$2 23

MAUCH CHUNK TO PORT JOHNSTON.

L. V. R. R., or L. & S. R. R. from M. C. to Phillipsb'g	$0 72
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 06
Shipping expenses	25
Wharfage	10
Total	$2 23

TO HOBOKEN

L. V. R. R., Mauch Chunk to Phillipsburgh	72
Morris & Essex R. R. Phillipsburgh to Hoboken	1 06
Shipping expenses	25
Wharfage	00
Total	$2 23

TO SOUTH AMBOY.

L. V. R. R.	72
B. & D. R. R. } Cam. & Am. R. R. }	1
Shipping Expenses	25
Total	$2 23

PENN HAVEN TO ELIZABETHPORT.

L. V. R. R. Penn Haven to Phillipsburgh	84
C. RR. of N. J. Phillipsburgh to Elizabethport	1 06
Shipping expenses	15
Wharfage	20
Total	$2 25

Freights.—May, 1873.

TO EASTERN PORTS.	Cumberland. From Philada.	Anthracite. From Georgetown.	From Baltimore	From Philada.	From Elis. Port, Port Johnson, and Hoboken.	From Newburgh.	From Rondout.
Amesbury		3 75	—		—	—	—
Bangor		3 25	3 50		—	—	—
Bath		3 25	3 12		—	—	—
Boston		2 50	3 00		2 10	2 30	2 40
Bridgeport		—	2 50		1 00	—	—
Bristol		—	—		1 40	—	1 65
Cohasset Narrows		—	—		—	—	—
Derby		3 25	—		1 25	—	—
Dighton		—	—		—	—	—
East Cambridge		2 75	2 75		2 50	—	—
Fall River		2 40	2 75		1 40	1 60	1 65
Hackensack		—	3 00		—	—	—
Hartford		3 50	3 25		1 50	—	1 75
Hoboken		50	—		50	—	65
Jersey City		—	—		50	—	65
Lynn		—	—		—	—	—
Middletown		—	—		1 30	—	1 50
Mystic		—	—		1 25	—	1 50
New Bedford		3 00	3 00		1 50	—	1 70
Newburyport		3 25	3 12		2 20	—	2 50
New Haven		2 50	2 60		1 00	1 20	1 25
New London		2 75	2 75		1 25	—	1 40
Newport		—	—		1 40	1 60	1 65
New York		2 00	2 15		50	—	65
Norwalk		2 75	2 75		1 00	—	1 25
Norwich		2 75	2 75		1 35	—	1 55
Pawtucket		3 00	3 00		1 50	—	1 70
Portland		3 25	3 00		2 00	—	2 25
Portsmouth, N.H		3 25	3 12		2 20	—	2 50
Providence		2 75	2 75		1 40	1 60	1 70
Rockport		—	—		—	—	—
Saco		—	—		—	—	—
Sag Harbor		—	—		1 25	—	—
Salem		3 25	3 00		2 00	—	2 40
Stamford		—	—		1 00	—	1 25
Stonington		—	—		1 25	—	—
Taunton		—	—		1 25	—	—
Warren		—	—		1 90	—	—
TO RIVER PORTS					1 40	—	—
Albany		—	—				
Catskill		—	—				
Cocksackie		—	—				
Coeymans		—	—				
Cold Spring		—	—				
Fishkill		—	—				
Haverstraw		—	—				
Hudson		3 00	—				
New York vessels		2 00	—				
Nyack		—	—				
Poughkeepsie		—	—				
Rhinebeck		—	—				
Rondout		—	—				
Saugerties		—	—				
Sing Sing		—	—				
Stuyvesant		—	—				
Tarrytown		—	—				
Troy		—	—				
West Point		—	—				
Yonkers		—	—				

* And Towing.

St. Thomas	$— — Gold.
Martinique	— — "
Demerara	— — "
New Orleans	— —
Mobile	— — "

Foreign and Provincial Freight

May, 1873.

Foreign.
Newcastle and Ports on Tyne, per keel of 21 1-5 tons, 6
Liverpool, 5 per cent primage

TO NEW YORK.

Provincial	
Sydney	$3 50
Lingan	3 50
Cow Bay	3 75
Port Caledonia	3 50
Little Glace Bay	3 50

TO BOSTON.

Sydney	3 00
Lingan	3 00
Cow Bay	3 00
Port Caledonia	3 00
Little Glace Bay	2 90

MARKET REVIEW.

NEW YORK, May 1, 1873.

IRON—The market for Scotch Pig is inactive; occasionally, lots from dock are disposed of at prices below our quotations, and the business from store is only to meet the light demand prevailing for some time past; we have only to note sales of 250 tons Gengarnock at $40@$50 from dock (in Jersey City;) and 50 do. from yard, $52. American Pig is quiet and firm; we quote No. 1 $50 No. 2 $47@$48, and Gray Forge $40@42; we heard of a rumor of 100 tons No. 1 Crane having been sold at $50 but we

could not confirm it. Rails, both old and new, are very quiet and without business. Scrap is dull and nominal in absence of business. Refined Bar from store is dull, and prices are a little softer.

LEAD—Pig is less active, but prices remain firm and tend upwards; 50 tons Foreign sold at 6¼ cents, but 6¼@6⅜ is the general asking price for Foreign, and 6⅜@6⅝ for Domestic, all gold. Bar 9¼ cents, Sheet and Pipe 10½ cents, and Tin-lined Pipe 16½, less 10 per cent. to the Trade.

COPPER—New Sheathing is steady at 43 cents, and Bolts and Braziers 45, Bronze and Yellow Metal Sheathing 27, and Y. M. Bolts 32 net cash. Ingot remains very dull; we hear of no business, and qnote Lake nominally 33 cents. In English there has been some business, and we note sales of 50 tons B. S. part 30½ cents, 30 days.

STEEL—There is no change in values—stocks light and demand good.

A Sheffield (Eng.) paper says:—"Bessemer Steel continues in great request, its application to new purposes being almost weekly extended. It can be prodnced so much cheaper than cast Steel made in the old way, and yet is so tough and endowed with many of the virtues of the best cast steel that there is no wonder that its use is becoming pretty nearly universal."

SPELTER—Is very quiet, but Silesian is held firmly at 7⅛a 8 cents gold; domestic, 10c. currency.

TIN—There is still an almost entire absence of demand for Pig, and though previous prices are asked, they are wholly nominal; a few small lots of Straits have been taken at 32a 32½ cents; English is held at 32 and Banca 37½ gold. The qnotations come from London per cable lower, Straits there £141, and English £145. Plates remain very quiet, the recent reduction in prices not having quickened the demand to any extent; we note sales of 250 bxs. Charcoal Terne at $10,75 gold; 500 do. Charcoal Tin, within our range; and 500 do. Coke Tin, on private terms.

ZINC—Mosselmann Sheet is steady at the Company's price for lots from agents' hands. From Dealers' hands, it can be bonght cheaper than from the Company—100 casks sold from agents' hands, at 10 cents less per cent. gold. Manganese, black oxide, 3½; Manganese, per oxide, 5½.

The Foreign Market.

LONDON, April 19, 1873.

IRON.—There has been considerable activity in Glasgow pig; 7,000 tons were sold on Wednesday at varying prices, according to cash, the ruling quotation being 118s. In rails the trade has been quiet, and shipping orders have been very small. The qnotations for Welsh bars remain unaltered. There has been a slight rise in the extreme price of Staffordshire nail rods, viz., £15 10s., as against £15 last week; bnt the qnotations of different makers vary so widely, that only approximate prices can be given.

TIN.—The market has been qniet, with prices lower than last week. Buyers, however, still hold off in the expectation of a still further fall in prices, an expectation that is likely to be realized, though not to any great extent. The sales reported were:—Thursday, 500 slabs Banca sold at £145 10s. per ton for cash; 5 tons Straits at £145 for cash; and 20 tons at £143 10s. for May. Friday, Saturday, and Monday no market. Tuesday, market flat, and prices still going down:—25 tons Straits sold at £144 for cash; and 50 tons at £142, May—July. Wednesday 6½ tons Australian ore sold at £92 2s. 6d. for fine; £65 for common; and £49 for inferior. Five tons Portuguese ore, common, sold at £71 10s. In Straits, 30 tons were sold at from £143 to £144 10s. for cash; only 5 tons, however, reached the latter price.

TIN PLATES.—The market continnes firm, bnt the amount of business reported has been inconsiderable.

LEAD.—The market continnes very firm, and a large amount of business has been done, with little or no alteration in the high prices of last week. £23 5s. to £23 10s. was readily obtained for good soft English pig.

SPELTER—Maintains its price, and is still both scarce and dear. Common Silesian was sold at £27 10s., and best at £28.

ZINC.—The market was active, the price for rolled ranging from £34 to £37 per ton.

QUICKSILVER.—Market easier, £13 15s. per bottle being the highest price obtainable.

COPPER.—MESSRS. VIVIAN, YOUNGER & BOND write:—"On the 12th instant telegraphic advices from Valpariso came to hand with charters for the first fornight of last month, equal to 2,200 tons in fine copper in the proportion of 1,800 tons bars and Ingots to 400 tons ores and regulus; 700 tons of the available stock are included in these charters. By advices from Chili to the 28th February, the exports, and what was loading and chartered for during the first two months of the year, show a decrease of 3,470 tons fine compared with the same period last year, while prodnction appears to be preceeding on a much more moderate scale. Transactions were unimportant until yesterday, when a considerable business was done (partly on private terms). Since our last issue of the 10th inst. about 1,600 tons Chili bars have changed hands at £90 10s. to £91 for good ordinary brands, and £92 to £92 10s. extra prompt. In Australian about 500 tons sold, in Wallaroo chiefly at £97, £96 15s. being accepted for a small parcel, and £97 10s. to £98 10s. one and three months' prompt; Burra £96 10s. to £97. The market closes steadily at qnotations." At the Truro Ticketing, on Thursday, 3,353 tons of copper ore were sold, realizing £14,730 4s. The particulars of the sale were:—Average standard, £109 16s.; average produce, 6½; average price per ton, £4 8s.; quantity of fine copper, 218 tons 2 cwts. Compared with the last sale, the decline has been in the standard 10s., and in the price per ton of ore about 9d.

"IRON."

METALS.

NEW YORK, May 1, 1873.

IRON.—Duty: Bars, 1 to 1¼ cents ℔ lb; Railroad, 10 cents ℔100 lbs.; Boiler and Plate, 1½ cents ℔ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ℔ lb; Pig, $7℔ ton; Polished Sheet, 3 cts. ℔ lb; Galvanized 2½; Scrap Cast, $6; Scrap Wrought, $8 per ton. All less 10 per cent. No Bar Iron to pay a less duty than 35 per cent. ad val.

	Store Prices.
Pig, Scotch—Coltness ℔ ton	60 00@— —
Gartsherrie	58 00@— —
Glengarnock	52 00@— —
Eglinton	51 00@— —
Pig, American, No. 1	50 00@— —
Pig, American, No. 2	47 00@48 00
Pig, American, Forge	40 00@42 00
Bar Refined, English and American	— —@110 00
Bar Swedes, assorted sizes (gold	137 50@142 50
	Store Prices, Cash.
Bar, Swedes, 1¾ to 5 x ⅜ & ⅞ 2 sq. & 6 to 12 x ⅜ & ⅛	150 00@160 00
Bar, Refined, ⅞ to 2 in. rd. & sq. 1 to 6 in. x ⅜ to 1 in.	100 00@— —
Bar, Refined, 1¼ to 5 by ⅜	— —@105 00
Bar, Refined, 2⅛ to 2¾ round 1 & 1¼ by ¼ & 5:16	107 50@— —
Large Rounds	110 00@120 00
Scroll	120 00@165 00
Ovals and half-round	125 00@145 00
Band	— —@117 50
Horse Shoe	— —@125 00
Rods, ⅜ to 3-16 inch	105 00@150 00
Hoop	125 00@172 50
Nailrod	9¼@ 9½
Sheet, Russia, as to assortment (gold)	16 @ 17
Sheet, Singles, D. and T. Common	—6¼@— 7¼
Sheet, D. and T. Charcoal	—7¼@— 8½
Sheet, Galv'd, list 5 per cent, discount	—@— —
Rails, English (gold), ℔ ton	70 00@— —
Rails, American, at Works in Pennsylvania, currency	80 00@— —

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper 4 cents ℔ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ℔ lb	— @— 43
Copper Bolts	— @— 45
Copper Braziers, 16oz. and over	— @— 45
Copper Nails	— @— 45
Copper, Old Sheathing, &c. mixed lots	28 @— 30
Copper, Old, for chemical purposes, 14@16 oz	— @— —
Copper, American Ingot	33 @— —
Copper English Pig	— @— 30½
Yellow Metal, New Sheathing & Bronze	27 @— —
Yellow Metal Bolts	— @— 32
Yellow Metal Nails, Sheathing and Slat'g	27 @— 30

LEAD.—Duty: Pig, $2 ℔ 100 lbs.; old Lead, 1½ cents ℔ lb. Pipe and Sheet, 2½ cents ℔ lb.

Galena, ℔ 100 lbs	$— —@— —
Spanish (gold)	6 62½@6 75
German, do.	— —@6 75
English do.	6 75 @7 12½
Domestic	6 50 @— —
Bar (net)	9 25 @— —
Pipe (net)	— —@10 50
Sheet	— —@10 50

STEEL.—Duty: Bars and ingots, valued at 7 cents ℔ lb or under 2¼ cents; over 7 cents and not above 11, 3 cents ℔ lb; over 11 cents, 3½ cents ℔ lb, and 10 ℔ cent ad val. Store prices.

English Cast (2d and 1st quality) ℔ lb	— 18½@— 23
English Spring (2d and 1st quality)	— 9½@— 10½
English Blister (2d and 1st quality)	— 14 @— 18½
English Machinery	— 14½@— —
English German (2d an 1st quality)	— 12½@— 14½
American Blister "Black Diamond"	— —@— 11½
American, Cast, Tool do.	— —@— 17
American, Spring, do.	— —@— 11
American Machinery do.	— 11½@— 12
American German, do	— 9 @— —

TIN.—Duty: Pig, Bars, and Blocks, 15 ℔ cent. ad val.; Plate and Sheets and Terne Plates, 25 ℔ cent.; Roofing 25. ad val.

	Gold ℔ lb.
Banca	—@37½
Straits	—@32⅝
English	32 @32¼

PLATES.

Fair to Good Brands.	Gold.	Currency
I. C. Charcoal, ℔ box	$11 75 @12 25	$14 00 @14 50
I. C. Coke	9 75 @10 50	11 75 @12 50
Coke Terne	8 50 @ 9 50	10 25 @11 25
Charcoal Terne	10 75 @11 00	12 00 @12 25

SPELTER—Duty: In Pigs, Bars & Plates, $1.50 p. 100lbs.

Plates, Foreign (gold) p. 100 lb.	7 75 @—7 87½
Plates, Domestic p lb.	9 @—11

ZINC—Duty: Pig or Block, $1.50 per 100 lb.; Sheet 2½c. per lb.

Sheet	per lb.—10½@11

San Francisco Stock Market.

BY TELEGRAPH.

NEW YORK, May 1, 1873.

OUR reports from the San Francisco Stock Board are dated April 25th and 29th, with the exception of a decline in Eureka Grass Valley of $2 00 per share. The market has decidedly advanced. The most noteworthy advance for a long time past, however, is the rise in Savage—which has doubled itself since our last—the report placing it at $96 per share. Ophir is appended to the report as selling at $21; and Hale and Norcross at $40 per share. The quotations for the two dates are as follows:

	April 25.	April 29.
Savage	— 87	96
Crown Point	— 120½	120
Yellow Jacket	— —	70
Kentuck, "New Issue"	— —	6½
Chollar Potosi	— —	54½
Gould & Curry "New Issue"	— —	10
Belcher "New Issue"	— 88¾	89
Imperial	— —	5¾
Raymond & Ely	— 77	64
Meadow Valley	— —	15¼
Eureka G. V.	— —	22
Ophir	— 21	22
Hale and Norcross	— 40	—

The following were received since the above.

SAN FRANCISCO, May 2.—Mining Stocks—Raymond and Ely, 56½; Hermes, 18; Hale and Norcross, 51½; Savage, 80½; Ophir, 34; Belcher, 85½.

VIRGINIA CITY, Nevada, May 1.—The suit of the Raymond and Ely Silver Mining Company against the Hermes Mining Company, involving immense interests, and which has been on trial before the United States Court at Pioche for ten months past, resulted to-day in favor of the Hermes Company. The whole community at Pioche has been greatly excited pending the trial, and the result was made the subject of heavy wagers. About $40,000 changed hands there to-day on the issue. A personal difficulty between opposing counsel has grown out of the suit which is expected to result in a hostile meeting between HARRY I. THORNTON and Mr. PERLEY, the first-named being the challenger. Mr. PERLEY was of the counsel for the Raymond & Ely Company. The excitement is still running high, and a number of shooting affrays between persons interested in the contest occurred to-day, in which three men were wounded, one of them fatally, it is believed.

SAN FRANCISCO, May 1.—There is an intense excitement here to-day, among dealers in mining stocks, over the verdict in the great mining suit between the Raymond & Ely and Hermes Companies, in Nevada. Many of the brokers have lost heavily on Raymond & Ely.

MISCELLANEOUS.

THE ENGINEERING AND MINING JOURNAL.

ROSSITER W. RAYMOND, Ph. D.
JOHN A. CHURCH, E. M. Editors.

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CONTENTS FOR THIS WEEK.

THE suspension of Commissioner VAN BUREN and his immediate assistants, on charges of corruption and improper conduct, affecting several, members of the body, is an unpleasant surprise to the country. But everybody applauds the promptness of the government in publicly repudiating at once the huckstering practices of which complaint is made; and no one will lament the downfall of the really guilty parties. Mr. VAN BUREN, it is confidently believed, will prove himself entirely innocent, so far as any complicity with dishonorable acts is concerned. Unfortunately the responsibility of a lax and confused management, permitting all sorts of irregularities, must rest upon him; and in view of this, he ought to resign, as soon as his personal honor has been vindicated. We freely admit that the miserable whiffling and delay of Congress in its legislation upon this subject was enough to defeat the efforts of the Commissioner. Everything that folly and stupidity could do to hamper his action was done. But when all is said, the fact remains, and is notorious among those who have been behind the curtain, that Mr. VAN BUREN undertook a job which was too much for him, and that he sailed in a hurry, after the necessary appropriation had been at last secured, leaving everything at odds and ends behind him, and carrying with him two shiploads of goods, the precise character of which will be known only when they are unloaded at Trieste. Judging from the way they went into the ships, some of them will be in a pretty condition when they come out. However, the exhibitors belonging to our profession need not be alarmed. Ores and slags and cast-iron may be depended upon to hold their own in a *mêlée* with glass, crockery, mammoth squashes, kerosene and New Jersey silks.

WE trust the members of the Institute will not forget to bring forward at Philadelphia the result of their thought and experience. It is really a crowning disgrace of American metallurgy, and indeed of the metallurgy of all English speaking people, that some of the most common operations of the furnace man and iron worker are almost entirely undescribed. Where, for instance, is a good summary of the various methods by which a blast furnace may be blown out, to be found? This is sometimes a very important operation, requiring the greatest care and the use of the best method, when the lining is to be preserved. But although the modes of accomplishing the task are quite numerous, it is only in rare cases that they are described. The members of a profession so busy as the iron-workers cannot be expected to write complete treatises on metallurgy. But it is not too much to ask that they shall describe individual operations which are ingenious or successful. The hand-books of the science are usually the work of professors or other men whose labors deal more with the pen than with the operations of practice. But the work of these gentlemen is complete or incomplete precisely in proportion as the practical workers have furnished them with full or fragmentary information. The great principles of the science, the fascinating considerations of theory, are far in advance, in point of thoroughness, of the merely practical, but really more valuable, experience of the actual worker in the metal. Such subjects as blowing in, blowing out, the shape of the furnace best adapted to the production of white iron or gray iron with a maximum of economy; these, and subjects like them, are of the greatest importance to both workers in, and students of, the metallurgy of iron. But though these are among the simplest and most ordinary operations they are the very ones which have received the least attention from writers. We would like to see these things taken out of their present traditional condition and made the subject of historical treatment. The Institute of Mining Engineers is a young organization and can afford to give its first years to the collection of just such information. We hope it will do so, and beginning with the first principles of iron manufacture, build up the whole body of the art, so that in a very few years there will be material for a complete work on the subject, a work in which theory and practice occupy their just relations, and which will afford the American student a means of ascertaining the method of anthracite iron manufacture without going to Wales for his examples.

The Bullion Product of Nevada, for 1872.

From the forthcoming Report of the U. S. Commissioner of Mining Statistics.

THE mining industry of this State has been more productive during the year 1872 than in any former year, bringing the State to the foremost position in its yield of precious metals. Detailed accounts of the different districts are given below. It may be said, on the whole, that the smelting works of Nevada have not been so prosperous as in the preceding year, owing partly to increased scarcity and dearness of charcoal, partly to vexatious litigations, causing stoppage of operations, and, in one case, to the diminution in value of the ores smelted. These losses have been more than compensated by the great activity of the stamp-mills, and particularly the productiveness of the Comstock and the Pioche mines. The outlook for 1873 is favorable.

The bullion product as given by Mr. VALENTINE, Superintendent of Wells Fargo & Co's. Express, is $25,548,811, an estimate which I regard as a close approximation. The following table, compiled from sources independent of the express shipments, corroborates Mr. VALENTINE's estimate, and indicates at the same time the distribution of this production.

Comstock Mines and Tailings	$13,569,724
Lincoln County	5,500,000
Lander County	3,495,000
Humboldt County	600,000
White Pine County	785,000
Nye County	450,000
Elko County	450,000
Esmeralda County	93,000
	$24,942,724

The difference of $606,087 is probably to be ascribed to the shipments from Virginia and Gold Hill, which are always much larger than the aggregate of the reports obtained from separate mines. The elements of the estimate above given of $13,569,724 for the Comstock are given below; and it will be seen that many small outlying mines are not included.

Yield of the Comstock Mines.—The following is the yield of the leading mines, as given by the Virginia *Enterprise*, from the Assessor's returns. The average per ton is that of the last quarter only:

	Tons.	Value.	Average. Per ton.
Belcher	83,194	$4,794,669	$65 00
Crown Point	110,762	4,598,849	31 79
Chollar-Potosi	44,350	752,012	15 07
Empire	11,248	177,377	15 10
Hale & Norcross	38,064	617,325	17 64
Savage	53,083	811,867	14 03
Sierra Nevada	18,380	122,577	7 39
Woodville	650	10,504	16 16
Kentuck	11,183	141,847	8 90
Challenge	380	1,125	4 83
Total	371,349	$12,028,152	

To this amount should be added the product of the Yellow Jacket, estimated at $520,000, and the amount produced from tailings, estimated (on the basis of the Assessor's returns for nine months) at $1,021,572, making a total of $13,569,724. The mines and works of outlying districts, shipping through Virginia and Gold Hill, undoubtedly swelled this sum still further. Unfortunately I have not at hand for comparison the express shipments from these two points alone.

The Diamond Drill Abroad.

WE described in an article published a month or two ago, some of the uses of the diamond drill in this country, and since then, the valuable paper of Prof. BLAKE, on the recent progress in the construction and use of that important tool has appeared in our columns. England seems to be as energetic in utilizing the peculiar powers of the implement as we are, and the diamond drill, as a means of exploration, has grown into an importance in that country which has not been attained by any other invention in the field of mining.

In this country, some of the first work done by the drill as an explorer, was in situations where a favorable result was hardly to be expected, that is to say, in rock which presented only feeble and scattering indications of its value as an ore, indications which might readily be missed by any small aperture, and which even

a full sized shaft would not be perfectly certain of developing. In England the drill starts out in a fairer field. It has been applied to the exploration of homogeneous strata instead of irregular pockets. The Barrow Hematite Iron and Steel Company is boring at Paddock Hall, near Barrow, in search of coal. At the depth of sixty feet red sandstone was struck. At Rampside, where another bore hole is going down, a depth of one hundred and sixty feet was reached, two months or more ago, the whole boring being in red sandstone. The existence of coal near Barrow is a problem, the importance of which will be seen at once, by all who are familiar with the condition of the iron industry in that district. The ores are rich, and so pure that Barrow is the leading producer of Bessemer steel and Bessemer pig in Great Britain, but it is obliged to look to Durham for its coke. If coal can be cheapened there, the future of Barrow as an iron producing and manufacturing district will be enormously magnified.

Iron ore has also been prospected for in the same district and with success. By using the diamond drill, Messrs. ALEXANDER BROGDEN & SON have proved the existence of beds in districts hitherto unworked, and at depths where it was not supposed to exist. The importance of these discoveries in a region whose manufacturing industries are growing faster than its smelting ability, while the latter is outstripping the production of the mines, cannot be exaggerated.

As to the work done by the foreign drills, we are told that at Gillick, in the Cleveland district, a two-inch hole has been put down to a depth of 902 feet in forty-five days. The strata pierced consist of sandstone, slate, a little limestone, and a bed of ironstone thirty-five feet thick. In the Ulverston district, the drill bored a hole of three hundred and twenty feet in thirty-two days, another of three hundred and fifty feet in forty days, and, a third of one hundred and sixty-four feet in seven days, commencing at a depth of one hundred and sixty-four feet. The rock is mountain limestone.

A "crown" or as it is called in this country a *bit*, which is the end piece containing the diamonds, was exhibited at the meeting of one of the English societies. It had cut two thousand feet through hard stone, mostly millstone grit, without being used up. The stones in this crown, however, are said to have been of exceptionally good quality, and the amount of work done by them is far above the average.

Sub-aqueous work with the drill is also in progress as we learn, from the following paragraph, published in the *Ironmonger:*

"A couple of rock- or scarps seriously impede the navigation of the river Tees below Middleborough, the upper scarp damming the water back to such an extent that, though it is only some two hundred yards long, there is at low water a difference of nearly a foot of level between the water on the upper and lower sides of the rock. A machine on Major Beaumont's principle is now at work commencing the operations necessary for removing this barrier, which has to be broken up by explosives. These have to be placed in holes bored for their reception, which is a matter of difficulty under water with the ordinary apparatus. The Diamond Drill gets over this, as it bores as well at the bottom of deep as of shallow water. The *modus operandi* is as follows:—A hollow pile consisting of an ordinary pipe is lowered on to the rock, and steadied by guy-chains. The drill, weighing some hundredweight, is fixed on the top of the pile, and is driven by a wire rope from an engine on a barge alongside, but clear from the pile. The small section of the pile keeps it steady, no matter how rough the water may be, and the tossing of the barge does not affect it. The idea is to perforate the whole surface of the rock with bore-holes, which will be charged with dynamite and fired. The present apparatus is only being used to explore the rock, and by actual trial to judge of its thickness, and the amount of explosives and number of holes that may be required to break it up. This having been ascertained, special means will be applied by which twenty holes can be in progress at the same time. The holing power of the Diamond Drill is such that a five-foot hole 2½ inches in diameter can be put down in granite in half an hour, and in softer rocks at proportionately greater speed, and this irrespective of the distance the rock may be from the surface of the water."

From the above notes it will be seen that there is no lack of appreciation of this tool in England. We learn also, that it will probably be used in several important works on the Continent, and it is expected to find a field of active usefulness in Australia.

The use of the drill in exploring for coal and iron is especially satisfactory. At the Rossie Iron works, situated in the town of that name, New York State, borings are going on for the exploration of the Caledonia ore bed. After passing through sixty-five feet of rock, ore was struck and penetrated to the depth of forty-eight feet without cutting through it. The core assayed sixty per cent. of iron. At this place the drill worked through fifteen to twenty-five feet a day. At the Rose Clare lead mine, in Hardin County, Illinois, a drill is also in use by the Pell company, and is reported to have made valuable discoveries of ore.

The Siemens' Process for Iron Making.

WE print in another column Dr. SIEMENS' description of his new process for converting ore into steel blooms in the rotary furnace. The Doctor is sanguine, as most inventors are, but it is altogether too soon either to deny or confirm the accuracy and economy of his results. One source of expense is the fact that the loss of iron is higher by his method than by the ordinary course of operations. But, in this country, the question of whether it is better to lose iron or burn coal, is one which must be decided by the conditions in each special case, for we have enough of both ore and fuel to answer the demands of any process whatever. The Danks furnace, which is the best known revolving apparatus, is acknowledged to be a poor melter, and wasteful of heat in the simply mechanical melting down of the charge. Mr. DANKS obtains heat by adding an oxide to burn the carbon in the pig. Dr. SIEMENS reverses this operation, adding carbon to burn the oxygen of the ore. If the heat developed by this method is sufficient to keep the iron pasty in puddling, the same process may answer for the reduction of ore. The report of Dr. SIEMENS' paper speaks of a solution of the spongy iron as soon as formed, in a bath of pig metal, the result of the admixture being steel. Remembering the extreme heat necessary in the Siemens-Martin process for maintaining a sufficient temperature to keep the steel fluid enough, or soft enough, to take up the wrought scrap equally throughout the mass, we fail to see how, in a furnace which is an acknowledged bad melter, this necessary condition of the bath can be maintained without great expense of fuel.

But we have no intention of criticising the process before it is developed and tested by more complete trials. Some remarks made after the reading of the paper touched upon the blast furnace, and treated it in a manner which we cannot see the justice of. Professor WILLIAMSON, for instance, said that it is "utterly faulty in principle," and it is the fashion with many men—mostly theoretical men—to speak of the blast furnace as a very imperfect machine. It is, in fact, just the contrary. The first requisite for the reduction of ores is that the atmosphere of the furnace shall have a maximum reducing power, so far as its composition is concerned, and second, that this reducing power shall be aided by the highest temperature which can be obtained. The blast furnace answers both of these requirements so completely that its operation is simply perfect, as perfection goes in human affairs. Its atmosphere is almost entirely composed of carbonic oxide until the moment of vigorous reduction has passed, when the gas, by virtue of that reduction, contains a considerable, though still not a preponderating, proportion of carbonic acid. As to the second requirement, it derives heat from three sources: first, the combustion of the fuel, second, the heat in the blast, and third, the heat accumulated in the materials. The sum of these heat integers is attained in the hearth, where the temperature reaches a point which is very close on, if it does not entirely cover, the fusion of wrought iron.

In its mechanical operation the blast furnace is equally remarkable. The materials are charged where the heat is lowest, and are fully prepared for fusion before they reach the hottest point. These advantages have produced that remarkable economy of fuel which is witnessed in the iron industry of the present day.

The chief argument of the objectors to the blast furnace is that it burns the carbon to carbonic oxide only, giving an economical return of only 50 per cent. of the fuel's heat producing power. They fail to see that this is not a defect of the blast furnace but rather one of its excellencies. The production of carbonic oxide is demanded, not by the necessities of the furnace, but by the requirements of the work to be done. The work of reduction demands an atmosphere rich in carbon, and this without regard to the apparatus in which the operation is performed. The blast furnace merely presents itself as the machine which can maintain with the greatest regularity this atmosphere rich in carbon, and poor in oxygen.

The experiments of BELL, GRUNER, and others, have proved the extreme susceptibility to oxydation, of iron when exposed at a high temperature in an atmosphere of carbonic oxide. We fail to see how ore can be reduced in a furnace in which the fuel is completely burned. Indeed, we refrain from criticising Dr. SIEMENS' process, because there are a number of points which we are unable to understand, and cannot elucidate by a reference to the published abstract of his paper. We can only unite with Mr. BELL in saying that we have a fondness for the blast furnace and we have no fear that it will be supplanted.

NEW PUBLICATIONS.

ELEMENTARY TREATISE ON NATURAL PHILOSOPHY. By A. PRIVAT DESCHANEL, *Formerly Professor of Physics in the Lycée Louis-le-grand, Inspector of the Academy of Paris.* Translated and Edited, with Extensive Additions, by J. D. EVERETT, M. A., D. C. L., F. R. S. E., Professor of Natural Philosophy in the Queen's College, Belfast. In Four Parts. New York: D. APPLETON & Company. 1873.

We have received of this work Part I., embracing mechanics, hydrostatics and pneumatics; and Part II., devoted entirely to heat. The two are bound separately, in flexible covers, making two volumes of very convenient lightness, but paged continuously for binding together in a single volume of 504 octavo pages. The paper, print and illustrations are of the best quality—the latter, which are very numerous, having been, we presume, electrotyped from the French originals.

Concerning the treatise itself, there is somewhat to say on both sides. We are not certain that to take a handsome book in a foreign tongue, translate it, and amend it, as Prof. EVERETT has done, is the best way to produce a complete, symmetrical and systematic manual. One author, in such a case, is apt to hamper the other. Yet if we may judge from the additions and changes made in this case by the English editor, Prof. DESCHANEL's book, notwithstanding its general adoption in the government schools of France, was in serious need of amendment. Its characteristic excellence Prof. EVERETT has retained. As he says in his preface, "There is great danger in the present day lest science-teaching should degenerate into the accumulation of disconnected facts and unexplained formulæ, which burden the memory without cultivating the understanding. Prof. DESCHANEL has been eminently successful in exhibiting facts in their mutual connection; and his applications of algebra are always judicious."

The devotion of a whole Part—one-fourth of the entire work—to the subject of heat, indicates how greatly the importance of this topic has been increased by the establishment of the modern doctrine of force and its correlations. It is a good

sign that manuals for instruction, as well as works for reference, are made in accordance with modern theory and nomenclature.

We regret that the editor has translated the title *Traité de Physique* into *A Treatise on Natural Philosophy*. That vague name for the science of physics belongs to an era of vague knowledge on the subject, and is deservedly falling into disuse. There is no more reason for calling physics Natural Philosophy than for bestowing the same dignity upon chemistry, astronomy, or zoology. This blemish is, however, but trifling; the excellence of the book is all-pervading and obvious.

THE ADMINISTRATION OF JUSTICE UNDER MILITARY AND MARTIAL LAW. By CHARLES M. CLODE, of the Inner Temple, Barrister-at-Law. London: JOHN MURRAY.

Mr. CLODE is well known to our military officers as the author of an extremely valuable work on the Constitutional History of the British Army. The present volume is not only a "History of the Military Code both before and under the Military Act," but also a manual of the "Administration of Justice under Military and Martial Law." Mr. CLODE's able and thorough treatment of the first subject makes the book interesting even to the general reader.

Our own army is governed by a military code mainly derived from the English code, and our writers on military law have drawn their illustrations largely from the works on the Mutiny Act and English Articles of War. When we add that Mr. CLODE's book abounds in references to the writings of CUSHING, BENÉT, and other American authorities, its value to the officers of our service will be apparent. It is imported by Scribner & Co., and for sale by Van Nostrand. Price $6 00.

NEW LIFE IN NEW LANDS. Notes of Travel, by GRACE GREENWOOD, New York; J. B. FORD & Co., $2.00.

This volume contains the letters written by Mrs. LIPPINCOTT from Colorado, the great interior basin, and the Pacific coast, to the New York *Times*. Few books of travel that we have read combine so much keenness of observation, facility and aptness of description, rollicking humor and shrewd good sense. The author sees things in their true outlines, albeit, we must confess, *couleur de rose*. To one who has travelled in the West, these letters are like his own memories, out of which discomforts and disappointments have vanished, leaving a sunset landscape—all glory. To one who has not travelled there, they will give just the impression he ought to receive, namely, one that will make him crazy to go, and will not forsake him utterly when he arrives.

FIFTH ANNUAL REPORT *of the American Railway Master Mechanics' Association*, J. H. SETCHEL, *Cincinnati, Ohio, Secretary.*

At the time of the annual meeting in Boston in June last, we gave considerable space to the proceedings of the Railway Master Mechanics. Those proceedings, consisting of reports and discussions, were of an exceedingly practical and valuable kind. Like men whose minds are on the end rather than the means, they exhibited little oratory, but developed that most valuable trait in a speaker—the ability to "talk to the subject," which is the charm of English public speaking of this day. Their views, based on a varied experience of the relative value of steel and iron in the construction of boilers, belongs to metallurgical as well as to mechanical engineering, while the construction of boilers, means of preventing incrustation, and numerous other subjects are of interest to all users of power. Extracts from this report are now floating through our foreign exchanges, and we never meet them without being struck with the unseen influence which always follows an effort for self-improvement. To send abroad the result of our own experience is to get it back again with very much added to it. The next annual meeting will be held at Baltimore on the first Tuesday in May, 1873.

The Yellowstone National Park Report of the Superintendent, for 1872. Washington Government printing office.

The duties of the superintendent of a park situated in the heart of the Indian country, unfenced, forbidding and, according to common views, almost impossible to visit, ought to be peculiar. The name of the superintendent is Mr. N. P. LANGFORD. He visited his charge last summer, examined the best routes for roads, received applications for authority to build hotels (!) and saw mills, and gave warning to a number of squatters. He recommends the incorporation of the Park in the Territory of Montana for the reason that there is no means of entering it from Wyoming in which it now lies. His report of its scenery is enthusiastic enough to please the stanchest American of us all; but alas! geysers and mud volcanoes are changeable things, and the large mud volcano seen by Prof. HAYDEN in 1870, is now gone. A huge crater, in which trees 125 feet high were engulfed, marks its position. Still the Park does not appear to have suffered real loss of its attractions, for when one geyser decreases some other breaks out, or takes on greater dimensions.

Railroad Conventions.

The *Railroad Gazette* publishes the following list of important meetings of railroad men this year:

The American Railway Master Mechanics' Association, in Baltimore, beginning May 13.

The Railway Association of America, at the St. Nicholas Hotel, in New York, on the 14th and 15th of May.

The American Society of Civil Engineers, on the 21st and 22 of May, in Louisville.

The Master Car Builders' Association, on the 11th, 12th and 13th of June, in Boston.

Particular attention is called to the Master Mechanics' meeting, which we have heretofore announced as beginning May 6, as was announced also on the cover of the report of the last convention.

The Western Lead Miners' and Smelters' Association.

A meeting of lead miners and smelters in the Mississippi Valley has been held at St. Louis, in response to a call which had for its object the formation of a Western Lead Miners' and Smelters' Association. Quite a large number of representatives were present. Granby was represented by Hon. H. T. BLOW and Judge HERSEY; Joplin mines by DAVIS & MURPHY, MOFFET & SARGENT and RIGGIN & CHAPMAN; Rose Clare Lead and Spar Company of Hardin County, Illinois, by M. F. CAZIN, and Southeast Missouri by Mr. JOHN EVANS, of Hopewell; Mr. BLISS, of St. Louis Lead Mining Company; J. P. FOX, Esq., of St. Louis; Messrs. A. LA GRAVE & SON, of Penn mines, St. Francois County, Mo.; Col. J. D. SLOCUM, of Pioneer Mining and Smelting Company, and Mr. Lockwood, of Mine LaMotte. Letters were read from Mr. WILLIAM RYAN, of Dubuque, Mr. N. CORWITH, of Chicago, and Mr. C. P. PARSONS, of the St. Joseph lead mines of St. Francois County, Mo. A committee with Hon. H. T. BLOW as Chairman and R. B. LOCKWOOD as Secretary, was appointed to collect information and will report at a meeting to be held April 3, 1874. We are glad to see this beginning of united action among the Western lead workers. The lead interests of the Mississippi States after languishing for some years now have an excellent prospect of more energetic life It is simply ridiculous that a region which includes Missouri and Illinois with their immense undeveloped lead properties, should continue to be an importer of that metal, and we know of no better method of calling to the development of those properties the attention it deserves, than this organization for united action.

ENGLISH CORRESPONDENCE.

LONDON, April 17, 1873.

EDITOR ENGINEERING AND MINING JOURNAL: The pilot who brought the "Celtic," of the White Star Line, out of New York harbor, on the 29th of March, says that it was the worst storm in which he ever attempted to pilot a ship across the bar. It was so bad, in fact, that we could not put him off, and had to bring him on to Liverpool. The roughness of the first forty-eight hours was more than compensated by the charming weather experienced for the balance of the passage. The "Celtic" is the perfection of a sea-going steamer, and the manner in which the comfort of the passengers is cared for, is worthy of the highest commendation.

Notwithstanding the loss of the "Atlantic," I imagine that there is not a passenger who sailed with us that would not, from preference, take a White Star steamer whenever obliged to cross the ocean.

The excitement here in England over the loss of the "Atlantic" is very intense, and, as is the custom here, nearly everybody who can get access to the columns of a newspaper rushes into print. The following communication of Mr. FAIRBAIRN to the *Times* has surprised sober-minded people, because he draws such sweeping conclusions without having "gone into calculations as to the strength of the Atlantic," as he expressly states in his article. He has been answered by the builders who claim to be able to prove that she was fully up to the maximum strength. Some one has very properly said that ships are not built for the express intention of being run on reefs and suspended amidships for the purpose of ascertaining if they will break in two, but are built for the purpose of withstanding the buffeting of the waves, and the consequent strain occasioned thereby. Here is Mr. FAIRBAIRN'S letter on the strength of iron ships:

"Will you allow me through the medium of *The Times* to direct the attention of iron ship builders and owners to what may be considered serious defects in the construction and proportions of iron ships? For a number of years we have gradually been sliding into what are considered the advantages of great length and narrow beam in construction, and, no doubt, if increased speed and enlarged space for cargo are to be the objects required, they may by these means be obtained. This, as a commercial view, may be desirable; but it must not be forgotten that, if done at all, it must be done at the risk of human life and the ultimate strength of the ship. This vessel of snake-like form is most dangerous, as any increase of length, unless accompanied by a proportionate width and depth, must always be looked upon as constituting an unsafe and unworthy ship.

"It is, perhaps, not generally known that to double the length of a vessel, without increasing her depth and width in the same proportion, is to reduce her powers of resistance one-half; or, in other words, if the Atlantic had been only 210 ft. instead of 420 ft. long, she would never have gone to pieces on the Meagher rocks at the entrance of Halifax Harbor.

"With such a length of ship, and a full cargo on board, nothing could have saved her from destruction in the position in which she was placed, with her bottom on a ledge of rock and her extremities suspended on each side. In such a position she must of necessity break in two when pressed by two powerfully loaded levers acting upon her fulcrum and sectional area at midships, or, as stated, at the foremast, where she broke in two and tumbled headlong into the water. But, in fact, it ought to be known to naval architects—as was well understood by Mr. E. REED, late Constructor of the Navy—that iron ships are neither more nor less than hollow beams floating in water, and, moreover, they follow precisely the same laws as any other girder—such as the Britannia and Conway bridges—where the strengths vary as the squares and the weights as the cubes. On this principle the strength of a ship should not be less than six times the heaviest load she has to carry, and that should be the *maximum*, if we are to escape those lamentable wholesale disasters which so frequently occur at sea.

"I have not gone into calculations as to the strength of the Atlantic; it is sufficient to notice that she was extremely weak for her length, and I sincerely hope the Commissioners now sitting will not fail to recommend to Parliament some tangible measure on the construction of iron ships; but I trust they will also insist on a definite law for compulsory periodical inspection. I think, sir, we are all agreed that it any principle of construction is practised known to be dangerous to human life, the parties exercising it should be liable for the consequences, and if long ships with narrow beam and limited depth can be proved to be insecure, ignorance of the laws of construction will not remove the responsibilities which they incur. It is therefore necessary that the Government or some other competent authority—such as the Board of Trade—should determine, for the public

good, what is safe and what is unsafe, and I therefore venture to maintain that, having these convictions, they should be carefully investigated and proved either that they are worthy or not worthy of adoption. In offering these remarks I have no desire to introduce theories, but simply to establish a system of construction calculated to meet all the requirements of a safe and useful description of vessel for the maintenance of our relations between this and foreign nations. I hope, therefore, I have not exceeded the boundaries of scientific inquiry. That unsound principles are at work in the building of iron ships I have not the shadow of a doubt, and I venture to hope that your powers of influencing the public will not only lead to a saving of life, but ultimately to a better and more durable construction of our war and mercantile marine."

The high price of coal in England (going as high as £3 in London) has been the cause of great suffering among the poor. As the Spring opens the prices are being very much reduced, but the coal supply of the future is a subject of very fruitful newspaper discussion. The *Times* publishes the following summary of the parliamentary appropriation made for the inspection of mines, which Congress or the State governments would do well to emulate:

"The Parliamentary vote proposed this Session for the inspection of coal and metalliferous mines, under the two Acts of 1872, shows a large advance over previous votes for inspection of mines, and amounts in the whole to 25,295*l.* The number of inspectors is increased from 12 to 26—viz., a chief inspector, with 1000*l.* a year; 13 inspectors, with salaries amounting together to 9,155*l.*; and 12 assistant inspectors, with 3,620*l.* There is also required 7,800*l.* for the travelling expenses of the 25 inspectors. The vote includes also a new item of 2,670*l.* for the Boards of Examination of managers of coal mines under the Act of last Session. This item comprises 180*l.* being 15*l.* each for 12 secretaries; 840*l.* for the traveling and personal expenses of 120 members of boards, computed at 7*l.* each; 270*l.* for their incidental expenses, including hire of rooms; 720*l.* for salaries of 36 examiners, at 10*l.* each for each half-yearly examination; 360*l.* to cover their traveling and personal expenses; and 300*l.* for hire of rooms for examinations and sundries. The fees for certificates of service and competency are estimated for the year at 2,000*l.*, which will go into the Exchequer by means of stamps."

I also clip out the following, giving the gold yield in Victoria for the last seven years:

"The following statement shows, for the last seven years, the average number of miners employed in the colony of Victoria, and the quantity of gold produced:—In the year 1866 the number of miners was 73,479, and the yield of gold 1,536,581oz.; in 1867, miners 65,857, yield 1,493,831oz.; in 1868, miners 63,181, yield 1,474,187oz.; in 1869, miners 68,037, yield 1,367,903oz.; in 1870, miners 60,367, yield 1,281,841oz.; in 1871, miners 58,101, yield 1,303,379oz.; in 1872, miners 54,651, yield 1,317,102oz. It will be seen from this that the labor employed in the production of gold was less last year than in any of the six preceding, while the results were comparatively better. Calculating the value of the gold obtained at 4*l.* per ounce, the value of the individual miner's earnings, judging from the gross results, was in 1866, 31s. per week; in 1867, 35s.; in 1868, 36s.; in 1869, a trifle less than 31s.; in 1870, a fraction more than 32s. per week; in 1871, about 34s 6d. per week; and in 1872, a small fraction over 37s. per week."

Major BROOKES of the Michigan Geological Survey is here, taking a rest, and giving the finishing touches to his report, which we may hope to see in print in the course of the next three or four months. M.

Cost of Mining.

Pacific coast papers frequently publish items like the following, which bear directly on a subject that the copper mines of Lake Superior are very much interested in:

"In regard to the trial between black powder and double hand drill, and Giant powder and single hand drill, in the cross-cut of the Eureka mine: Six men with single hand drill and black powder in five months drove 105 feet, or 21 feet per month. Six men with single hand drills and Giant powder drove 40 feet in one month, at a cost to the Eureka Company as follows:

DOUBLE HAND DRILL.

Labor,	per month	$468 00
Black Powder,	" "	11 50
Candles,	" "	11 70
		$491 20

SINGLE HAND DRILL.

Labor,	per month	$468 00
Giant Powder,	" "	75 00
Caps,	" "	18 75
Candles,	" "	11 70
		$573 45

Cost per foot Giant Powder and single hand drill..... $14 33
Cost per foot Black Powder and double hand drill... $23 39

or a saving in favor of single hand drill and Giant powder of 38¼ per cent.—*Mining Gazette, Lake Superior.*

Notes on German Metallurgy.

CARNALL'S *Zeitschrift* gives an account of experiments and improvements at the Prussian Smelting Works during 1871, by H. WEDDING. At Clausthal, round furnaces with four tuyeres were found to work better in smelting galena than either Rachette or larger round furnaces with eight tuyeres. It was found that the furnaces having a diameter of 39 inches at the level of the tuyeres answered best. Tuyeres having a diameter of 2½ inches, when compared with the old ones of 1·6 inches, were found to consume more fuel, and the production of lead matte was somewhat less favorable; but, on the other hand, a larger quantity of ore was passed through the furnace. Heating the blast from 140° C. to 180° C. was found to produce no effect on the working. At the works of the Lower Harz zinc is extracted as sulphate by pouring dilute sulphuric acid over the sifted fine ore, and then working the same through the ore. This operation is repeated a second time; and it has been found that, by using 10 per cent. sulphuric acid, having a density of 50° B., and then washing it with cold water, 17 to 20 per cent. crystallized zinc vitriol can be obtained, which contains about one-half the zinc oxide present. At the Altenau Smelting Works the cinder, obtained in refining the copper, is smelted with raw iron pyrites, the products being lead and copper matte. During 1870 numerous attempts were made to treat the silver slimes, obtained in the production of copper vitriol, in the wet way, but they all failed. The first experiments were made with sulphuric acid, then with a chloride of sodium solution. Experiments, made in the Lower Harz with copper ores, have shown that ores much richer in copper and sulphur can be treated in the wet way than it has been supposed in England could be the case; for while in the latter country 4 per cent. of copper has been regarded as the maximum, it was found in the Harz that ores containing twice as much could be treated by chloridizing, roasting, and extraction with pure and acidulated water.—*American Chemist.*

The Cost of the Strike in South Wales.

The London *Times'* correspondent at Merthyr estimates the loss occasioned by the great strike, now concluded, at two millions of money. He says:—"The strike affected nine works, owned by five different proprietaries in Monmouthshire. The number of collieries, exclusive of ironstone mines, which were included in the movement in Glamorganshire, was 60; blast furnaces, 67; puddling and mill furnaces, 736; and rolling mills, 43. In Monmouthshire there were 58 collieries, 62 blast furnaces, 780 puddling and mill furnaces, and 35 rolling mills brought to a standstill. The number of hands employed, inclusive of men, lads, and women and girls, at the works in Glamorganshire was, in round numbers, 34,000; and in Monmouthshire the number was 31,500. The totals are 118 collieries, 129 blast furnaces, 1,516 puddling and mill furnaces, and 78 rolling mills—including bar rolls and rail mills—at which 65,000 persons found employment. Out of that number probably 5,000 men continued at work upon repairs, etc., after the 28th of December, so that it may be said, without erring greatly on one side or the other, that on that date and on the 15th of January, when the Dowlais colliers struck, 60,000 men, boys, and girls ceased working and took to a temporary life of idleness. The strike lasted eleven weeks at all the works except those of the Llynvi Iron Company, where it terminated on the 15th of February, having lasted seven weeks. If those works had remained in the same condition as the others to the end of the struggle we should have found that the loss of trade throughout the district from the 28th of December last until the present date would have reached the enormous total of over £2,000,000. Deduct £50,000 as the estimated value of the coal sold and iron manufactured by the Llynvi Iron Company since the 17th of February, and the total still reaches nearly £2,000,000 sterling. But let us see what the workmen themselves have lost. The gross amount of the actual weekly payments in wages at the ironworks where the strike existed exceeded £75,000, which gives an average for every person employed of nearly 24s. per week, and the figures under this head show a loss of over £800,000 sterling, after deducting the sum paid to the Llynvi workmen during the four weeks that they have been working. Against that we have to set £40,000 distributed in the shape of strike pay by the Colliers' Union, and about £5,000 subscribed in various ways for the relief of sufferers; so that, after every allowance has been made, the loss which this strike has entailed upon the working men alone amounts to no less than three-quarters of a million of money."

The hearth of the Riverside blast furnace, at Wheeling, West Virginia, gave way a few days ago, and several tons of iron ran into the foundation below. The hearth was made of stone from a quarry near Martin's Ferry, and the intense heat fractured it. The accident necessitated the blowing out of the furnace, removal of the unburned stock in the stack and putting in of a new hearth, which will be made of Mt. Savage fire brick. The delay is estimated as four weeks and the loss at $10,000. The furnace had been in operation about thirteen months and had produced nearly 20,000 tons of iron.

MINING SUMMARY.

California.

We copy the following interesting review of the mining situation from the San Francisco *Commercial Herald and Market Review* of April 11:

While the mines on this coast have been yielding at even better than their accustomed rates, the past quarter has proved, generally, disastrous to those operating in the mining share market, the decline in the prices of stocks that commenced over a year ago, having continued steadily since. Only quite recently has this downward tendency been partially arrested, nor is it certain that some descriptions of stock will not undergo a further decline, while no permanent or marked advance need be looked for in any, without corresponding improvements in the mines they represent. Numerous mines that were quoted one year ago have dropped from the Stock Exchange list, and there is reason to believe that many others will, in like manner, soon disappear, with little prospect of early additions to fill their place. While this depreciation of mining shares has not much affected properties already opened and brought to a productive condition, it has greatly retarded work on such as were in progress of development, as well as discouraged the undertaking of new enterprises, much of the money lost through stock speculations having accumulated in the hands of parties not often disposed to invest freely in practical mining. As a consequence those accustomed to obtain aid from these active promoters of mining schemes, find themselves

without the capital necessary for working purposes; fewer mines are therefore being opened up at present than would otherwise be the case.

But, notwithstanding this demoralization of the stock market, it is undeniably true, that the mines of California are, as a whole, yielding better results just now than ever before. For several years past, we have had to remark a steady advancement in this branch of business throughout the gold-fields of California, the improvement with each recurring quarter becoming more manifest and significant. During the first three months of the current year this improvement has been especially noticeable. From one end of the State to the other, this industry has been progressive and prosperous. From San Diego to Siskiyou there is scarcely a county in which gold mining, in some of its forms, is not being actively and profitably prosecuted. At the southern end of the State, in

THE COUNTIES OF SAN DIEGO, SAN BERNARDINO AND LOS ANGELES,

We find this interest, from meagre proportions a few years ago, has reached a sturdy growth, with an encouraging future before it. In the San Diego mines, ten mills and several steam hoisting works have been put up, and a number of claims thoroughly opened with the aid of very little outside capital. The most of these mines have been forced to pay their own way, the owners crushing their ores with arastras, or shipping it abroad for sale or reduction, and thus accumulating enough money to put up mills and hoisting works. The bulk of the ore here yields from twenty to thirty dollars per ton, some of it as high as a hundred dollars or more. As wood and water are here in fair supply, and the lodes, though not large, are usually of good size and pay throughout, the prospects of the several districts that comprise the San Diego mining region are, at least, cheerful, if not extremely flattering. In San Bernardino, we have the placers on Lytle Creek, also placers and quartz in Holcomb Valley in the western part of the county, with the rich gold, silver and base metal lodes in its north-eastern section, all being worked with improving prospects, and remunerative results. The latter are situate in a desert country, which prevents their being extensively worked at present, but with railroad transportation, they can hardly fail to command means for their speedy development and become very valuable. Important discoveries of tin ore are also announced in this county. Between hydraulicing, sluicing, drift-digging, and dry-washing, all practiced to a greater or less extent, there is a good deal of activity in the mines in Los Angeles County. The earnings of the miners here have never been put up to the average of California wages; but, as a majority of the population are Mexicans and native Californians, the pay has proved to this class satisfactory; while the mines, by making a local market for a variety of produce that could not well have otherwise been disposed of, have greatly benefitted many other interests.

INYO COUNTY,

lying east of the Sierra Nevada, and comprising within its borders the most prolific silver lead bearing deposits in the State, having nearly recovered from the disastrous effects of the earthquake that visited it over a year ago, is shipping large quantities of base bullion to the San Francisco market, the most of it going to the Selby Smelting Works, for parting and refining. Several new mills and furnaces have been put up in that district lately, and the outturn of base bullion will be much larger this season than ever before. This section of the State will be greatly benefitted by the railroad, which, having reached so far south into the Tulare country, will hereafter command most of the carrying to and from that quarter.

Reaching north from Inyo, into the State of Nevada, very important mining interests are being built up in

THE COLUMBUS DISTRICT,

and in the vicinity of White Mountains, and still further to the south-east, in Lida Valley, where some exceedingly rich mines have lately been opened. The Columbus District, known from the time of its discovery, ten years ago, to be one of the richest in the country, was for a long time neglected, owing to its remoteness and difficulty of approach. Recently, parties in this city having obtained large interests there, first-class reduction works have been erected and preparations made for developing the mines on an extensive scale. The lodes in Columbus are remarkable for their regularity and the facility with which they can be opened up, as well as for the large amount of high grade ores they contain, the average value of the latter being more than three times that of the Comstock ores. There is not at the present time a locality on the coast that offers better opportunities for the investment of capital than this district, as a great number of the lodes have been thoroughly proven, and the owners, being without means for putting up mills, offer good inducements to parties disposed to supply this want. Columbus is, therefore, just now worthy of the special attention of capitalists, or others, seeking profitable investments in mines.

Throughout the southern arm of our gold fields, extending

FROM KERN TO AMADOR COUNTIES, INCLUSIVE,

we have to note a general activity, more work having been done and with better results the past winter than for many years before. A considerable number of old mines are also being reopened and many new and important enterprises projected here. In Kern County, where mining had been much depressed for a long time, there has come a reaction, infusing a good deal of life into quartz operations. Work has been resumed at many points on the Mother Lode, and we may hope soon to see that great ore-channel converted into a scene of active industry, from one end to the other. Operations have been re-commenced on the Pine-Tree Lode and other mines on the Mariposa Estate, which have long been idle, and there is now a good prospect of the Benton and perhaps some of the other large mills there being started up and kept in steady operation hereafter. Further north, at the Crown Lead, Penyon Blanco, Rawhide, Carson Hill, and immediate points on the Mother Lode, arrangements are being made, or have already been perfected, looking to a resumption of work and the erection of large mills the coming summer. In Calaveras and Amador Counties quartz mining is in a very prosperous condition, and it is probable that a number of new enterprises, some of them of great magnitude, will be inaugurated here before long.

IN THE MORE NORTHERN COUNTIES

there is an equal and even greater amount of activity and success to record. In various parts of El Dorado and Placer Counties, quartz deposits of remarkable richness have been struck during the winter. Very prolific seam-diggings—a novel feature in gold mining—have also been struck in this vicinity. These deposits seem extensive and are likely to supply a new and profitable field of placer mining. The earnings of the quartz mills in this section of the State have lately been highly satisfactory, this being especially true of those running in the neighborhood of Grass Valley. Here the Idaho, taking the place of the Eureka, Allison Ranch, and other once famous mines, is distinguishing itself by its large and profitable production.

THE HYDRAULIC AND DRIFT MINES,

throughout this tier of counties, have also been doing unusually well the past winter, some of the clean-ups made by the former surpassing anything yet accomplished in this line of operations. With many of the larger drift claims there has not yet been enough water to wash up the gravel taken out during the winter, the past season having been peculiarly unfavorable in this respect. As a consequence, the most of these companies have large accumulations of rich material on hand, from which, now that the spring will furnish an abundance of water, they will soon be able to release the gold.

From the great improvements introduced into, and the excellent results realized from, these branches of mining, they are likely to be rapidly extended hereafter. During the past year the value of this class of properties has largely appreciated, and they are now being sought after, as affording the best openings offering for the investment of money. Recently, the extreme northern counties have begun to attract notice, as presenting many favorable chances for hydraulic washing, and there is no doubt but we shall here find a tolerably good field for this class of operations.

IN THE OUTSIDE STATES AND TERRITORIES

the business of mining has been fair and in some localities extremely good during the past quarter, the bullion product having been maintained at about the usual average. Recent intelligence from Washoe announces valuable discoveries in the lower levels of several leading claims on the Comstock lode, and which, should these reports be substantiated by subsequent explorations, must serve to strengthen confidence in the mines along the entire Comstock range. As the ore bodies already developed in the Crown Point and Belcher have capacity to keep up former rates of production, it follows that these must be advanced according as additional sources of ore supply are opened up. Taken altogether the outlook for the Comstock is more hopeful just now than for some time past. Apart from the Raymond & Ely and the Columbus mines, and some few claims on the Comstock Lode, the Nevada mines have not yielded as well as was expected, and unless an early improvement is manifested, a dull summer may be looked for throughout many districts in that State. That some of these districts have caused great disappointment, it is useless to deny, and it is much to be hoped that a few of them, at least, will be able to vindicate their right to the extravagant claims they have hitherto put forth.

American Institute of Mining Engineers.

OFFICIAL BULLETIN.

Announcements to Members and Associates.

I. All members and Associates who pay their dues ($10,) for each current year, strictly in advance, will have sent to their address, regularly and weekly, the ENGINEERING AND MINING JOURNAL, which is the organ of the Institute, and will contain the proceedings and transactions, and all important papers read before the Institute and all notices of meetings. Back numbers cannot, as a general rule, be sent.

Those members and associates who have not paid their dues for the current year, are requested to do so at once. Money may be sent in postal orders, checks or bank bills, to the Secretary, THOMAS M. DROWN, 1123 Girard street, Philadelphia, Pa.

II. It is expected that the more important papers, read before the Institute, and the debates thereon, will be published in annual or occasional volumes to which those Members and Associates will be entitled who have paid their dues.

III. All authors of papers are requested to notify the Secretary in advance of the meetings, giving the subject and length of their papers. Attention is also called, in this connection, to Rules 12 and 13.

IV. The ninth rule has been amended, so that there will be hereafter three meetings a year, in February, May and October.

V. The annual meeting for 1873 will take place in Philadelphia, May 20. Communications in reference to it can be addressed to the secretary.

THOMAS M. DROWN, Secretary.

1123 Girard street, Philadelphia, Pa.

Advertisements.

The special advantages of the ENGINEERING AND MINING JOURNAL, *as a medium for advertisers, are so great and so widely known that it may seem almost needless to call attention to them. It is extensively circulated among the engineers of the country and takes a position in this respect before any other publication of the kind. It has a large and constantly increasing circulation among miners and mine owners, and men connected with mining operations generally. As it is the only paper in the country that makes this subject a specialty it has this field entirely to itself, and is the only direct and reliable means of reaching this class of persons. Being kept on file by almost every subscriber, it is doubly valuable as a permanent means of keeping an advertisement before the public. It is the Organ of the* AMERICAN INSTITUTE OF MINING ENGINEERS, *and is regularly received and read* BY ALL THE MEMBERS AND ASSOCIATES *of that large and powerful society,* THE ONLY ONE OF THE KIND IN THIS COUNTRY. *It is therefore the best medium for advertising all kinds of machinery, tools and materials used by engineers or their employees. It is the recognized organ of the coal trade, and is taken extensively by the trade throughout the country, and presents the very best means of reaching that very important class of men.*

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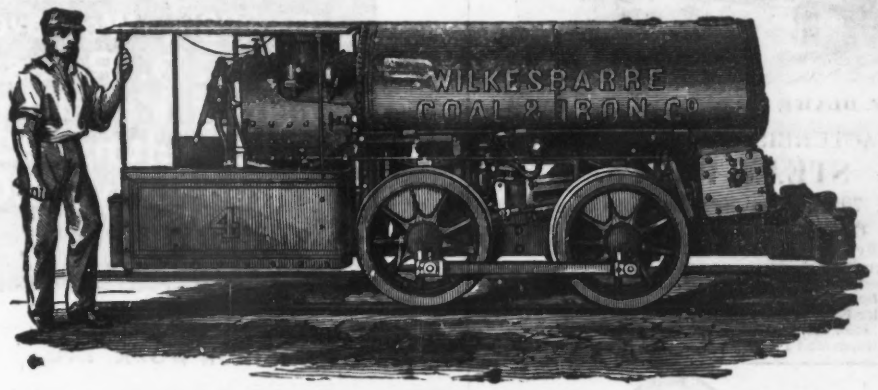

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Nov. 21:1y Dean of the Faculty.

TO COAL OPERATORS.

Proposals for the Sale or Lease of Coal Lands in Luzerne County.

PHILADELPHIA, April 15, 1873.

The undersigned hereby gives notice that he is prepared to receive proposals until June 1st, 1873, for the sale or lease of four tracts of land in the warrentee names of John Brady, Wm. Gray, Nathan Beach and Thomas Paschall, situate in Foster township, Luzerne Co., adjoining the lands of the Buck Mountain Coal Co., Sharp, Weisse & Co. and the Highland Coal Co., containing about 1400 acres. The right is reserved to reject any and all bids not satisfactory to the owners.

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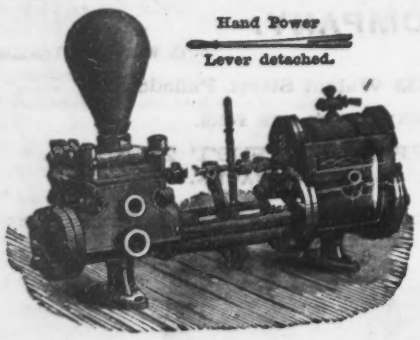

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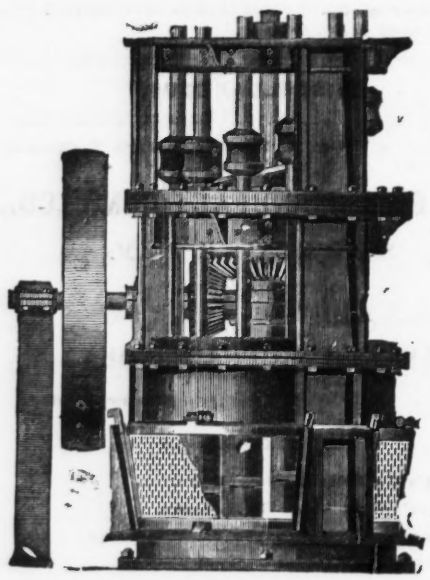

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A. CARR, Manufacturer & Proprietor.

Patented
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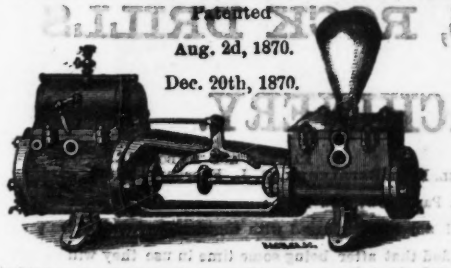
Dec. 20th, 1870.



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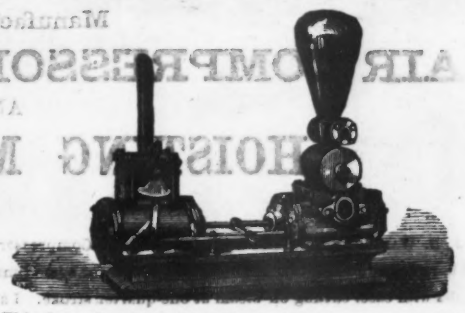

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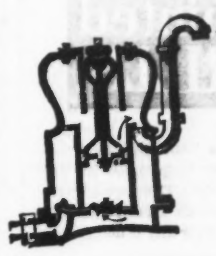

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