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Improved Air Compressors.

CONSTRUCTED BY THE DELAMATER IRON WORKS, FROM THE DESIGNS OF MESSRS. REYNOLDS AND FISH.

With Supplement.

THE use of compressed air as a motive power is destined to receive an enormous development, as its capabilities and advantages become better understood. What countless wealth is thrown away in the unheeded falls of our rivers and the flow and ebb of the ocean tides, simply because few consider that the power thus wasted could be conveyed to almost any distance, at very trifling cost, by means of compressed air, or rope transmission. As long ago as 1837, a series of experiments were made in Coscia, by order of the Italian Government, to determine the resistance of tubes to the flow of air though them; it was found that:

1. The resistance is directly as the length of the tube.
2. It is directly as the square of the velocity of the flow.
3. It is inversely as the diameter of the tube.

And as the volume is directly as the square of the diameter when the velocity is given, it follows that, under a given pressure and velocity, the relative resistance, that is to say, the resistance divided by the power, will vary inversely as the cube of the diameter.

There is, consequently, a great advantage in making the tubes and openings through which the air has to pass as large as possible. Experience has shown that tubes can be made so as to allow of very little leakage. At the Mont Cenis tunnel no leak was ever found in tubes nearly a mile and a half in length, nor did the expansions and contractions of the tubes, due to changes of temperature, appear to affect sensibly the firmness of the joints. On one occasion it became necessary to leave the receivers full of compressed air for twenty-four days; the loss in all that time did not exceed 5-1000 part of the daily supply.

It is therefore possible to transmit power by compressed air to very great distances, with scarcely appreciable loss in its transmission. There is, however, a much more important source of loss than that just mentioned. When air or any other elastic fluid is compressed, there is generated an amount of heat which is the exact equivalent of the force employed in the compression. This heat, in practice, is radiated from the compressor, the reservoir and tubes, and is lost; when the compressed air has attained the same temperature it possessed before compressing, it has lost in cooling exactly as much power as was expended in compressing it; but since the air still remains under a considerable pressure, if allowed to expand, its temperature falls below that of the atmosphere, and in so doing it develops work, but inasmuch as the temperature in expansion will not be depressed nearly as much as it was increased in compression, the loss of work will always be considerable, increasing with the pressure to which the air has been subjected; this loss is moreover susceptible of exact calculation. Taking the case of the Mont Cenis tunnel, where a pressure of six atmospheres was attained, the air, instead of being compressed to one sixth of its volume, as would have been the case were no heat generated, actually entered the reservoir when its volume had been reduced but 3.6 times, and, theoretically, the power available would have been but 60 per cent. of that expended; practically it was somewhat less than this. If the air were compressed to eight atmospheres there would remain available but 55 per cent., and for about eleven atmospheres of compression but fifty per cent. of the compressing power could be obtained. If the compression is less, say four atmospheres, 67 per cent. would be secured; for three atmospheres 73 per cent. would, according to theory, be available, and so forth; hence we see that where the lower pressures will perform the work to be done, and will not necessitate the use of extra large and costly engines to utilize the power, there is an evident advantage in not using a very high degree of compression.

To this loss of power, practically inherent in compressed air, we must add the loss due to its transmission through tubes; this, where the pressure is not excessive, and where the velocity is reduced by the use of large tubes, is a much smaller item of loss than the other; it would not be over one-third or one-fourth of it, and in carrying the air through, say, 10 to 15 miles of pipe, would not exceed, say, 5 to 8 per cent.

As we have stated, it is impossible, under ordinary circumstances, to utilize more than, say, fifty to sixty per cent. of the power expended in compressing the air, yet, from the fact that compressed air enables us to carry, at a small cost, the power wasted in water-falls to points where it can be used with advantage, the loss of 50 per cent. in the motive power is a small matter, and the actual power obtained would cost, in general, much less than if generated with our most economical steam engines.

The use of compressed air for driving underground machinery, whether it be hoisting engines, rock drills, coal-cutters or other machines, is peculiarly advantageous, for it provides a valuable addition to the ventilation of the mine, and reduces the temperature, which in deep mines is so excessive. It can be carried to much greater distances than steam which, moreover, is very destructive to mine timber.

One of the chief reasons for the limited application of compressed air to the transmission of power has been the complexity and mechanical defects in the compressing machines. These defects, however, are being overcome as the attention of our engineers is directed to the subject, and the application of compressed air for the transmission of power will undoubtedly receive an immense extension from the simplification of these machines. We present our readers herewith a cut of one of the most compact, simple and practical of our air compressors.

It can be driven by means of a water wheel, wind-mill, steam engine, or other motor. It occupies a space of but 10 ft. 6" x 6'4" on the ground plan and 11 ft. 3 in. in height. The air compressing cylinders are 20 inches in diameter, 24 inch stroke, and, in this particular machine, are driven by a 14 inch belt on a 42 inch pully, making about 60 revolutions per minute. The air pistons are trunks connected to the crank pins by connecting rods three times the length of the stroke. The cylinder casings, tank, bedplate, and housing brackets are all cast in a single piece, making a very simple and substantial structure. The crank wheels are turned and balanced; the crank shaft, which also carries the large spur wheel, is of wrought iron, 7 inches diameter. The teeth of the spur are of small pitch, but are strengthened by a shrouding on each side, and by one in the middle, making really two wheels in one casting.

One of the most important features in this compressor is an ingenious contrivance of MESSRS. REYNOLDS & FISH, by which the air discharge valve drops from its seat as soon as the pressure in the receiver exceeds that for which the weighted lever is set. This puts the compressing cylinders in direct communication one with the other, so that, instead of the engine being strained by the full pressure of the steam, and making a useless expenditure of work, the work done is simply moving the pistons back and forth freely in an atmosphere compressed to the same degree on each side of the piston.

Several of these machines have been constructed by the DELAMATER IRON WORKS, and the tests made at the shops have been very satisfactory. Full particulars can be obtained by addressing the DELAMATER IRON WORKS, foot of West 13th street, or MESSRS. REYNOLDS & FISH, 23 Park Row, New York.

Notes.

The total amount of *pig iron made by the furnaces of Milwaukee in* 1873, was 35,123 tons, about 500 tons less than the amount estimated at the beginning of the year. The total product of all the furnaces of Wisconsin was 73,983 tons.

The contracts for the building and machinery of *a new rolling mill at Milwaukee, Wis.*, for the Milwaukee Iron Company, are already let, and it is expected to have the new establishment in full operation by the 1st of September next. The main building will be of brick and iron, 80 by 216 feet, and the capacity of the mill is estimated at 50 tons of bar iron per day. The company enters upon this new enterprise with every assurance of success, and it cannot be doubted that its advent marks a new era in the manufacturing industries of Milwaukee. It is the only link that has been wanting in the chain of facilities afforded by Milwaukee for the successful prosecution of iron manufactures of every description.

Ground has been broken for an *iron furnace at Hackettstown, N. J.*, between the railroad and canal, twenty acres having been set apart for it. The furnace is to be a fifteen feet bosh, stack fifty-five feet, and will have a 400 horse power engine. It will be capable of turning out from 200 to 225 tons of iron per week.

The Reading Company is rapidly completing its new ship yard and plate mills at Port Richmond, the buildings for which will be 240 by 100 feet, and one of which will have a moulding loft of 60 by 260 feet. The initial expenditure for the enterprise is $600,000, and adjoining the yard will be constructed a dry dock 60 feet wide and 525 feet long, capable of holding any ship afloat, except the Great Eastern.

The Classification and Heating Power of Coals.

Translated from the French of M. L. GRUNER, by R. P. ROTHWELL, Mining Engineer.

THE real value of a coal depends upon its heating power, and on a certain number of additional properties, among which we may name *cohesion* or *friability*,* the proportion as well as the chemical nature of the ash, and, especially, what I will call the coking power, *i. e.*, the property of softening, or even melting under the action of heat.

Any rational classification of coals must be based on all these properties. Unfortunately, till recently, we knew only in a very imperfect manner the real heating power of coals; and it was thought we could determine it by an elementary analysis. DULONG proposed the formula:

$$P=8080\,C+34{,}462\left(H-\frac{O}{8}\right)$$; when P=heating power sought, C=weight of carbon; $H-\frac{O}{8}$ = weight of *free* hydrogen, *i. e.*, the total hydrogen less that already burnt to *water* by the oxygen that the coal contains. Doubtless DULONG considered this formula as giving only a kind of *industrial* value, for he knew well enough that we cannot, in a calorific sense, assimilate a ternary chemical compound to a simple mixture of C. and H.; and that the H. is not simply combined with the O. in coal. But at that time, at least, it was thought that C. and H., considered as simple bodies, possessed always the same calorific power. The influence of molecular constitution on the calorieity of bodies was ignored; it was not known that the heat of combustion of a body, simple or compound, is, in general, greater in proportion as its molecular condensation is less advanced.

It is now established by the labors of FAVRE, SILBERMANN, REGNAULT, BERTHELOT and others, that the heat of combustion, like the specific heat, varies with the density.

	Calorics.
We know that if carbon from wood charcoal develops	8080,
The charcoal of gas retorts, which is more dense, gives only	8047
Natural graphite	7797
The diamond only	7770
We know also that the heating power of crystallized sulphur is	2262,
while that of the denser amorphous S., run in a melted state into water, is only	2217.

It follows from this, that, to apply DULONG's formula to coals, we should substitute for the calorific power of hydrogen in a gaseous state that of hydrogen in a solid state, and, instead of 8080, which represents the heat of combustion of carbon, having, according to M. VIOLETTE, a density greater than 2, we should put the greater number corresponding to the less condensed state of the carbon in coals.

I will give, presently, the approximate numbers we should adopt for hydrogen and carbon, if we wish to use DULONG's formula. I would also remark that the method proposed by BERTHIER, does not give us, any more than does DULONG's formula, the true heating power of fuels; for his method assumes that the heat produced is proportional to the amount of oxygen consumed, a supposition which also ignores the condition, more or less condensed, of the combustible elements.

Before proceeding further, let us take the case of a compound fuel where the heating power varies also with the degree of molecular condensation. We refer to the numerous isometric hydro-carbons represented by the formula $C_{2n}\,H_{2n}$, the combustion heats of which were determined by FAVRE & SILBERMANN as long ago as 1852.†

	Calorics.		Calorics.
Olefeant Gas	$C_4\,H_4$ gave 11,858	Carbure,	$C_{22}\,H_{22}$ 11,262
Amylène,	$C_{10}\,H_{10}$ 11,491	Cetene,	$C_{32}\,H_{32}$ 11,118
Paramylène	$C_{20}\,H_{20}$ 11,303	Metamylène	$C_{40}\,H_{40}$ 10,928

Of these last five numbers, corresponding to liquid hydro-carbon, MM. FAVRE and SILBERMANN concluded that with each addition of one $C_2\,H_2$, the heat of combustion diminishes 37.48 calorics per unity of weight of the compound.

The same diminution of calorific power is found in the ternary compounds. All heat set free in the act of condensation is lost beyond recovery by the act of combustion. Now, coals are ternary compounds condensed to various degrees, and this is why a simple elementary analysis, which determines nothing as to the mode of combination, can teach nothing as to their calorific power, and therefore does not indicate their industrial value.

Prof. STEIN, of Dresden, goes still further, and asserts in his work on the coals of Saxony (1857), p. 11, "*That an elementary analysis teaches nothing about the actual properties of coal.*" This assertion appears rather too general; it is also in opposition to the conscientious work of M. REGNAULT, who concluded from his analyses "that the elementary composition of coals of the carboniferous formation, and of the same quality, varies only within very narrow limits."‡

This difference between the conclusions of two learned chemists is explained by the peculiar character of the Saxon coals; those of the Plauen basin containing on an average 22.3 per cent. of ash, and those of the Flöha even 44.87 per cent.; and we know that under these conditions an exact elementary analysis is impossible.

Of the others, those of the Zwickau basin always contain a large amount of *fusain* mineral (*Russkohle*), which has an entirely abnormal character; the *fusain* contains often over 10 per cent of water, while the fuel, properly so called, contains rarely more than 3 to 3.5 per cent. of hydrogen. This would necessarily greatly modify the mean composition and the properties of the coals of this basin; we cannot, therefore, generalize the conclusions of Mr. STEIN, and they should not be considered as applying to the purer coals of other fields; nor, on the other hand, could we admit without restrictions the opposite conclusions of M. REGNAULT. It is well known at the present time that the elementary composition of coals does not always agree with their essential properties, *i. e.*, with their caking and heating powers. This disagreement shows itself in a very striking manner in the direct determination of the heating power of certain coals, as made by MM. SCHEURER-KESTNER and CH. MEUNIER, of Mulhouse.* I should add also, that these scientific investigations agree with the general results obtained in industrial tests made a few years ago, by Dr. BRIX, in Berlin, and by the French and English navies. Studying with some attention these different results, we arrive at the conclusion, which I expressed long ago from an examination of the coals of the Loire basin, "that the real value of a coal may be better determined by a proximate than by an elementary analysis."†

The proximate analysis, which consists in distilling coal in a retort and burning the residue, enables us to determine directly the caking power as well as the nature and amount of ash. It is also easy to show, especially by SCHEURER-KESTNER's and MEUNIER's work, that the heating power increases and decreases with the proportion of fixed carbon left by the distillation. This is true, at least, for bituminous coals, but not always for anthracite and lignites. The following table contains a summary of SCHEURER-KESTNER's and MEUNIER's investigations; it gives in the first column the actual heating power, in the succeeding columns the elementary composition, then the heating power calculated by DULONG's law, and from the total carbon and hydrogen contained; in the last column is the proportion of coke or fixed carbon in each case, after deducting the ashes and supposing the coal dried at 10° Cent. (We translate the term "houille grasse" as caking coal, long-flaming, or short-flaming, indicating sufficiently whether the coal be "fat" or "lean.")—TR.

	Actual Heating Power.	Composition of Fuel.			Heating Power of C+H.	Heating Power according to DULONG's law.	Prop. of fixed Carb. or Coke per 100 of fuel dry and free from Ash.
		C	H	O+Az			
	Calorics.				Calorics.	Calorics.	
Anthracitic coal from the Creuzot	9456	92.36	3.66	3.98	8724	8552	88.1
Dry burning coal from the St. Paul du Creuzot mine	9263	90.79	4.24	4.97	8897	8683	84.2
Short-flaming fat, or caking coal from the pit Chaptal du Creuzot	9622	88.48	4.41	7.11	8670	8363	80.4
Caking coal from Ronchamp, approximating the short-flaming coals, (mean of 4 specimens,)	9077	88.32	4.79	6.89	8790	8494	73.0
Caking coal from Anzin, (Nord)	9257	84.47	4.21	11.32	8277	7789	77.2
Caking coal from Denain, (Nord)	9050	83.94	4.43	11.63	8310	7810	70.3
Long-flaming caking coal from Duttweiler (Saarbrück	8724	83.82	4.60	11.58	8358	7858	63.5
Long-flaming caking coal from Sultzbach (Saarbrück)	8603	83.35	5.17	11.48	8517	8024	64.4
Very long-flaming caking coal from Von der Heydt (Saarbrück)	8462	81.56	4.98	13.46	8306	7727	60.4
Long-flaming dry coal from Montceau (Saône et Loire), coke semi-agglomerated	8325	78.58	5.23	16.19	8151	7455	60.6
Long-flaming semi-caking coal from the upper beds of Friedrichsthal Saarbrück. The coke is slightly agglomerated	8457	78.97	4.67	16.36	7990	7287	58.5
Long-flaming dry coal from Luisenthal Saarbrück; coke not caked,	8215	76.87	4.68	18.45	7824	7032	59.0
Highly bituminous lignite from Bohemia	7924	76.58	8.27	15.15	9038	8387	25.0
Fat lignite from Manosque	7363	70.57	5.44	23.99	7576	6542	48.8
Dry lignite from Manosque	7006	66.31	4.85	28.84	7029	5788	46.8
Dry lignite from Rocherbleu	6480	72.98	4.04	22.98	7289	6300	52.0
Fossil wood passing into lignite, or bituminous wood, from Bohemia	6358	66.51	4.72	28.77	7001	5760	50.4
Bituminous wood	6311	67.60	4.55	27.85	7030	5831	51.4
Cellulose ($C_{12}\,H_{10}\,O_{10}$)	3622	44.44	6.17	49.39	5717	3590	28 to 30

If we now compare the different numbers forming this table, we will perceive

* The Germans use the name Transport Fähigkeit for the property of resisting blows without breaking in pieces. To measure it, 100 pieces, each about 500 grammes weight, are put in a wooden barrel, which can be turned on a horizonal axis; after 50 turns at a given speed, the fine is sifted out, and the proportion of large lumps obtained. The French navy has also tested the cohesion of coals by the same method.

† Annales de Physique et de Chimie, 3e série, t. XXXIV.

‡ Annales des Mines, 3e série, t. XII.—p. 205.

* Annales de Physique et de Chimie, 4e série, t. XXI. et. XXVI.

† Annales des Mines, 5e série, t. II., page 511.

without difficulty that several coals, almost identical in composition, have very different heating powers; the heat of combustion increases and diminishes with the proportions of coke, and seems to depend especially on the volatile elements. Thus, the coal from the pit Chaptal du Creuzot, and that of Ronchamp, contain almost the same proportions of carbon and hydrogen.

The Creuzot.....	C. 88.44	H. 4.41	O. 7.11
Ronchamp.....	C. 88.32	H. 4.78	O. 6.89

And the heating power of the first is 9622, and that of the second 9077.

Notwithstanding this identity of composition, the Creuzot coal yields only 19.6 per cent. of vol. matter, while that of Ronchamp yields 27 per cent. The first is, according to this classification, a *short-flaming caking coal;* and the second, an ordinary *fat or caking coal.* The manner of combination of the elements is entirely different in the two cases. The hydrogen and oxygen take up more carbon when we distill the Ronchamp coal; consequently, the union of the gas with the carbon is more intimate than in the Creuzot coal; consequently, also, at the moment when this more intimate union was effected, a greater amount of heat was set free and lost. The greater the proportion of volatile matter the less is the heating power.

Let us compare the two coals from the "Nord" (Anzin and Denain) with the two coals of Duttweiler and Sultzbach, of the Saarbrück basin. In elementary composition they differ but little.

Coals from the "Nord"		Coals from Saarbrück.	
C.....	83.94@84.47	C.....	83.82@83.35
H.....	4.43@ 4.21	H.....	4.60@ 5.17
O.....	11 63@11.32	O.....	11.58@11 48
While the proximate analysis gives :			
Vol. matter.....	29.5@22.8		36.5@35.6
Coke.....	70.5@77 2		63 5@64.4
	100. 100.		100. 100.

That is to say, the coals of the "Nord" are ordinary caking coals, that of Anzin being almost a short-flaming coal, while the two coals from Saarbrück are long-flaming caking coals. Now the heating powers are respectively:

For Denain.	Anzin.	Duttweiler.	Sultzbach.
9050	9257	8724	8603 calorics.

We have here, then, for very similar elementary compositions, differences of heating power varying from 300 to 600 calorics, differences which increase and diminish proportionately with the coke.

Continuing still further the examination of this table, we perceive that, for the other coals, the heating power varies directly with the proportion of fixed carbon. Thus the coal from

Von der Heydt gives.....	60.4	of coke, and yields	8462 calorics.
That from Friedrichsthal.....	58.5	.....	8457 ,,
,, Montceau.....	59.0	.....	8325 ,,
,, Louisenthal....	60.6	.....	8215 ,,

There are here, nevertheless, some anomalies.

Louisenthal and le Montceau (Saône et Loire) for example, develop less heat than the Friedrichsthal, though they leave more coke; and Louisenthal gives 247 calorics less than Von der Heydt, though the proportions of coke are almost identical. This is probably due to the fact that in the volatile matter itself the three elements are not always combined in the same manner.

It is nevertheless true that the heating power decreases in a general manner with the proportion of coke, and that the proximate analysis can thus give approximately the heating power; we should state, however, that the proportion of coke decreases more rapidly than the heating power. In comparing the extremes, we find

$$\text{For the ratio of the heating powers } \frac{9622}{8215} = 1.17$$

$$\text{For the proportions of coke } \frac{80.4}{59.0} = 1.36$$

With this reservation it is true that a proximate analysis furnishes us with a more correct estimation of the essential properties of coals (the heating power, coking power, and ashes) than does the elementary analysis, and as it requires much less time and skill, it is preferable from an industrial point of view. I will add, that in following up the study of different kinds of coals, I will draw attention to the contrasts which the elementary and proximate analyses offer in many instances.

TO BE CONTINUED.

Analysis of Furnace Gases.—Description of the Orsat Apparatus.*

BY PROF. T. EGLESTON, E. M.

All industrial establishments whose operations depend upon chemical reactions use gases. In the simplest case the oxygen of the atmosphere, heated or not, as the case may be, is used, and in other cases, gases which are produced by special apparatus of more or less complex composition. The manufacturer depends, for the success of his operations, entirely upon having these gases arrive at the right time, in the proper proportions, at the required temperature. It often requires but a slight variation in their composition to make a given process a success or a failure. In most cases the gas used is formed from fuel, and according as variations in its composition are produced by alterations in the manner of charging the grate, not only different, but often directly opposite, results are obtained.

The great industrial question of the present time, and one upon which the prosperity of the world depends, is how to get the greatest amount of useful effect from fuel, whether the caloric is used directly or is transformed into horse-power. In almost all industrial pursuits this translates itself into the question of how to construct a fireplace and its adjuncts in such a way that the heat of the flame and of the products of combustion shall be made to produce a maximum effect. Unfortunately, until very recently, except by comparison, there was no means of ascertaining whether the loss of useful effect was 80, 40, or 20 per cent. of the total amount of fuel employed. It seems now strange that there should have been furnaces so constructed as to produce 20 per cent. of carbonic acid in the fireplace, but this has been proved by analysis to have been true. It does seem incredible that, notwithstanding the immense number and variety of furnaces used for different processes, and the great difference in kind, quality, and quantity of fuels consumed, there should formerly have been used for them all the same stereotyped fireplace, varied only in its dimensions of height, length, and breadth. It is true that, with a good fireman, excellent effects may be, and have been, produced, but the manufacture is here, as in many other cases, dependent on the intelligence of the workman, a very uncertain reliance for capital to rest upon. The workman, unless he receives a prime for fuel saved, or is fined for excessive use of it, may be said to have no interest in the matter. It gives him much less trouble to charge a great excess of fuel on his grate, and leave it until it is time, in his judgment, to repeat the operation, than to charge it at such intervals, which are made independent of his judgment, as will insure the maximum useful effect of the fuel. To carry on any furnace successfully, it should be so arranged as to admit of varying at will both the quality and the quantity of heat to be produced at a given time. The temperature and the chemical composition of the gases are not independent of each other; they both depend on draft to regulate them, which generally means a damper on the top of the chimney, thus giving access to the very agents which may change the whole working, and which have had, until now, no other control than the eye of a workman. Nor can we hope for any other, until we shall have become so familiar with the analyses of the gases, that we may be able to modify the dimensions of the furnace according to the indications which they furnish.

In all metallurgical operations, the action of the fuel is entirely that of the gas produced from it. When reduction is to be effected, it is by the action of oxide of carbon, and when oxidation is to be produced, it is by the action of oxygen in excess, introduced with the products of combustion. When simple fusion is to be effected, it is by a neutral mixture. It may be said that all furnaces can be divided into two classes, oxydizing or roasting, and reducing furnaces. The numerous varieties of fusion furnaces are simply an intermediate variety, in which the action is neutral. In all cases of reduction, it should be the object to have the gases contain a minimum of carbonic acid at their entry into the laboratory of the furnace, and a maximum at their entrance into the chimney. Any part of it existing *before*, is formed at a loss of all the fuel which produces it. The quantity of gas required to produce these reactions is generally large. Coal burning on a grate requires for its combustion, on the supposition that half of the air has been perfectly utilized, a volume equal to twenty-five times the weight of the coal. In a blast furnace, the weight of the air absolutely necessary is six times the amount of cast iron produced. It is clear that the only way to understand the working of such furnaces is to seek by analysis the composition of the products of combustion which produce the reactions. In those classes of furnaces, where the fuel comes into direct contact with the material to be treated, gas cannot always be used, but, in such cases as reverberatory furnaces, where the fuel must first be transformed into gas in the fireplace, before it can be used in the laboratory of the furnace, the system of transforming fuel into gas before it reaches the furnace, and then using it with the proper supply of air, is theoretically, as well as practically, the best method. It may not always be economical in small operations to use such furnaces, on account of the great expense of their construction, but it can hardly be considered hazardous to say that the time will come when that will be the general method of using fuels. The very great practical advantage of their use is, that the labor of the workman is reduced to a simple manipulation of dampers, provided only that the composition of the gases can be at any moment controlled by an analysis.

It would seem that an agent used in such large quantities would long ago have received the most careful study from those using it in such enormous masses. That it has not received it up to this time, when industries of every kind are receiving such important aid from science, is owing in part to the fact that we have all been imbued with the idea that analytical study of gases is exceedingly difficult; that the operations are long, tedious, and exceedingly complicated, because they involve corrections for the hygrometric condition of the gas, thermometrical and barometrical observations, to determine the corrections of volume; because they require delicate and expensive apparatus, which could only be handled with safety by an expert, who can use eudiometers and manage mercury baths, and spend hours, if not days and weeks, in the completion of a single analysis. This is true when ultimate analyses are to be made upon which to found new theories or establish old ones. But in industrial language, when we speak of the analysis of gases, we do not mean the determination of their elementary composition, but only the percentages of the different gases, which may be found in any given mixture. The number of gases used in manufacturing operations is exceedingly small, and their *industrial* action depends, for the most part, on some one being in excess. The question of importance is, not the atomic composition of the gases, but generally, how much carbonic acid there is in certain parts of a furnace; whether it is produced before or after the action of the gases on the material to be acted upon, and thus to determine whether the fuel burning on the fire grate is being burned to waste, is producing a proper effect, or a deleterious action. When the fuel does not burn properly, there is a triple loss of labor, fuel, and material, and this loss a knowledge of the composition of the gases would, to a great extent, prevent. Reduced even to this simple expression, the analysis of the gases used in industrial pursuits has been considered too difficult to be effected anywhere but in the laboratory. It is undoubtedly true, that the BUNSEN, DOYERE, and REGNAULT methods could not, except in very rare cases, be introduced into industrial establishments for current commercial use, where the analyses, if made at all, must be rapidly executed, in order to give the key to what is going on, so that operations in course of execution can be modified or left unaltered, according to the indications furnished by the analyses.

The apparatus which M. ORSAT, of Paris, France, has invented, is destined to make a change in this respect, for it fulfills all the conditions which are necessary for its industrial use. It is not expensive, is easily put together, is stoutly built, so that any workman of moderate intelligence can manipulate it with rapidity, and obtain results of more than sufficient accuracy for commercial purposes.

It has for a long time been very desirable to have such an apparatus, because none of those which are well known fulfill the requisite conditions of simplicity of construction and celerity of action, and consequently the practice of making gas analyses, in industrial establishments, has been confined to the manufacture of certain chemicals, or special manufactures of recent date, where it has been taken for granted from the outset that the gases must be analyzed.

(TO BE CONTINUED.)

*A Paper read before the American Institute of Mining Engineers.

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

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CONTENTS FOR THIS WEEK.

OUR readers will miss from the head of our columns the name of Mr. JOHN A. CHURCH, who has been for so long associated with us in the editorial management of the JOURNAL. The ability and skill which Mr. CHURCH has displayed in the discharge of his duties are sufficiently evidenced by the result; and to these must be added personal qualities which have rendered the intercourse of his associates with him uniformly agreeable. It is with regret that we part from him as a co-laborer; we will not speak of losing a friend, since the severance of official relations leaves our personal relations untouched. Meanwhile, we are happy to assure our readers that we expect to retain Mr. CHURCH as a contributor to the JOURNAL, and to favor them in time to come with professional contributions from his pen, not less valuable and interesting than those which have made him so well known already to the engineers and metallurgists of the country.

Iron Workers' and Colliers' Wages in England and America.

THE Doctor who tells a hypochondriac that his ills exist only in imagination generally performs a duty as thankless as it is necessary, and so, in exposing the absurdity of some of the battle cries with which we have so often moved the popular sympathy to provide a sinking fund for ignorance and incapacity in the manufacture of iron, we know full well we are not performing a popular task.

We are so impressed with the unequalled greatness of our natural resources, the intelligence and skill of our mechanics, and with the clear business shrewdness of our coal and iron masters, that we have no doubt whatever of eventual success in our competition with European countries. Still, we have always had these same natural advantages, and these same intelligent mechanics; why is it, then, that England still keeps ahead of us, notwithstanding our wonderful growth? Not many years ago our iron masters were ready to say, "Let us have protection till our business has grown and developed itself to the extent of a million or two million tons a year, and we will then be able to hold our own against the world;" but here we find ourselves far beyond the limit set, and yet we know that, though England now pays, in general, nearly as high, and in some cases even higher, wages than we do, we are still at a disadvantage, and the unthinking still echo the cry of wolf, wolf, and ask protection against "the pauper labor of England" with the same arguments or assertions made more than twenty years ago, as though the conditions of labor and knowledge had undergone no change since then.

We do not propose to discuss the question of protection or free trade, nor do we intend to advocate the latter, for, till our national finances are in a much better condition than they are to-day, we must continue to raise a large amount of money from import duties; but we do intend to expose the absurdity of some of the grounds on which we ask for protection, for we believe in so doing we will lead our intelligent iron masters to look for, and apply, the only remedy that can bring a permanent prosperity, the only true protection against competition namely, superior skill and knowledge in our business, and economy in its management.

No one questions the fact that to cheap coal and iron, England, in a measure, owes her marvellous greatness, her proud title of "workshop of the world;" and none can doubt that, could we produce these "mainsprings of civilization" as cheaply as she does, it would develop an enormous increase in domestic consumption, and, from our geographical position, would open an immense foreign trade.

It has long been the fashion in this country to attribute the high prices of our iron manufactures exclusively to higher wages paid our labor, and this has been harped on in a thousand tones by those whose interest it was to have it believed, and by their unthinking followers. Unquestionably, not very many years ago, there was a considerable difference in the rate of wages paid in England and this country, but facility of intercourse is rapidly equalizing wages throughout the world. How is it possible, in fact, that there should long continue to be any material difference when, to-day, it costs but $10 to $12 to go from Liverpool to New York? In reality, during the past two years, many classes of labor have been paid as high, and even higher, wages there than here, as the return of thousands of our miners and iron workers to England sufficiently proves.

The following statement of wages now paid, or against which the workmen are now striking in England, is given by a special correspondent of the *American Manufacturer*, of Pittsburgh; for convenience of comparison we have put these prices in American currency, counting gold at 112.

"The offer of the Gospel Oak Iron Company of Tipton, of wages to individual workmen did not burden them with any payments either as to works or any other charges, or for the labor of assistants. Sheet rollers were offered £1 per day, shearers 15s., and furnacemen 13s. 6d.

The rank and file of the ironworkers throughout the great South Stoffordshire district are paid upon a scale, of which the following—politely supplied me by the Chairman of the Ironmasters' Association—is a copy:

	Per ton of 2240 lb. s.	d.	$ c.
Puddling	11	6	3.20
Hammering	1	6	.42
Rolling	1	2	.32
Rolling and heating			
Sheets (singles)	15	0	4.17
" (doubles)	20	0	5.45
" (trables)	25	0	6.81
Hoops	10	0	2.78
Bars	7	6	2.08

WAGES THAT ARE BEING REJECTED BY BRITISH COLLIERS.

The following is the colliers' scale of wages in the Cannock-Chase district at the reduction against which the men are now striking:

Holers, 7s., $1.95, per stint of 14 feet 3 inches by 3 feet 6 inches.
Roadmen, in pit, 5s. to 5s. 6d., $1.40, per day of eight hours.
Onsetters, 4s. 6d. to 5s. 6d., $1.35, per day of eight hours.
Coal-getters, 5s. 3d., $1.40, per day of eight hours.
Coal loaders in pit, 4s. 6d. to 4s. 9d., $1.30, per day of eight hours.
Banksmen, 3s. 4d. to 4s., $1.00, per day of eight hours.
Off-takers, 4s. 6d. to 5s. 6d., $1.35, per day of eight hours.
Allowance coal, 4 cwt. per week to each married man, which would amount to, say, 10 cents per day additional.

Whatever may be the amount of wages ultimately accepted by the colliers in Staffordshire and Worcestershire, they will resume upon better terms than those which signalized the termination of the strike in 1842, or that in 1864. At the close of the former the men went to work at 3s. a day of 11 hours, and at the close of the latter at 4s. 6d. per day.

Since 1871, as Mr. John W. Sparrow, an ironmaster of considerable position in the Wolverhampton district, has shown in his case, work for which 7½d. a yard was paid, now costs in wages to the stone miners 1s. 6d. per yard, or an increase of 150 per cent. "Every pikeman (Mr. Sparrow assures us) closes his two days' work in six hours, gets for it 7s. 6d. ($2.08), or, just 2½ times as much per yard or per hour of work, as he did in 1871." "And the facts (this authority adds) are pretty much the same in respect of colliers in my employ; they get a little less than 2½ times as much per hour or per measurement as they did three years ago."

Let me give you the wages upon which 10 per cent. reduction is proposed to be made. They will be found to be embraced in the second of the following two columns. The first column shows the wages paid three years ago. A comparison of the two demonstrates that during the interval wages have increased to an amount averaging not less than 100 per cent. Here are the wages of nine classes of pit operatives:

	1871—per day. s.	d.	1874—per day. s.	d.	$ c.
Enginemen	3	1	6	6	1.81
Banksmen	3		5		1.35
Second Bankmen	2	10	4	8	1.28
Laborers	2	10	4		1.10
Gearmen	3	2	7		1.95
Hitchers	3		6	6	1.81
Day men (repairers)	3	9	7	8½	2.13
Trammers	2	10½	7		1.95
Gutters	3	9	9	1	2.52

In November, 1873, the following rates of wages were established at one of the large Philadelphia works, the rate being based on 3¼ cents:

Small and large mills.		Puddle mill.		
Roughers	$2 34	Puddlers	$5 75	per ton.
Stockers	1 58	Rollers	2 34	per day
Catchers	1 27 to 2 20	Rollers	2 11	"
Straighteners	0 70 to 1 70	Catchers and Squeezers	1 79	"
Heater for skelp mill	4 01	Helpers	1 00	"
Dockers	1 47	Hookups	1 90	"
Laborers	1 50	Dragouts	1 70	"

Four tons make a day's work on the skelp mill, the heater working one furnace.

All the hands get mill time except the dockers, who work by the day. Puddlers' helpers, as usual, one-third, and in some Mills 10c. per heat extra from the office.

A day's work on the small and hand mills is from 3 to 4 tons, according to the size of the iron.

The Puddlers' Contract from July, 1873, to July, 1874, reads as follows: "When Common Refined Bar Iron is selling for $100 per ton, the puddlers and boilers to receive $7 25. Rising or falling, 25c. per ton for every $5 advance or decline on Iron." A reduction of these wages is now under advisement.

At many of our mines in Jersey and Pennsylvania we are paying $1 10 per day for miners, in other places $1 40; on the Lehigh, furnace keepers receive $2, helpers $1 90, fillers $1 80 per day; at the bituminous mines of Western Pennsylvania, miners receive 60 to 90 cents per ton of 2,000 lb.; laborers in the mines, $2 per day; outside labor, $1 50. These wages are but little above those paid in Great Britain; and if we consider the buying power of money in the two countries, our men are frequently not as well off as "the pauper labor of England." If, then, the greater cost of our pig iron, at least, is not due to higher wages, to what is it due?

Our ores are more abundant, more easily mined, and richer than those of Great Britain; our coal beds are thicker, and easier worked; our mines not so deep or expensive; our coal lands do not cost a tithe as much; yet, with wages scarcely, if at all, higher, our iron costs us 30 per cent. more to make than does theirs. When our iron works were in their infancy, and had but small capitals, so that we were unable to put up improvements with all the modern appliances for securing economy, we could point to the large capital invested in works in England as a reason for their greater economy of work. Now, however, that is changed. Our furnace companies are organized with enormous capitals, and we should be at no disadvantage in this respect. It is true, of course, that money being worth more here than there, the interest account will be greater; but that is by no means the most important item in the cost of our iron.

The fact is, we want to get rich too quick, and the profits we require on our investments of labor and capital are excessive in every item making up the cost of iron.

If a man buys an ore bank for $5,000, he immediately puts it in a company at $50,000. We start our furnace company with a capital of $500,000, and the organizers or promoters of the company receive $100,000 for getting it up; and the land, the materials used, and machinery, are all levied on in the same way, to pay a "commission" to some one connected with "the ring." So that the actual market value of the property is frequently not over one-half the money paid for it. When it comes to the running of the works, the working capital is insufficient, money has to be raised on the iron as it is made, and high interest is naturally demanded from a concern organized on fraud, the very basis of financial risk.

The management is possibly given to some totally inexperienced and incompetent relative or friend of the president, or leading director, who, aware of the way in which his employers have made money out of the company, thinks it but a small matter to get his ten to thirty per cent. commission on everything that has to be purchased for the works. He and his employers are probably interested in the "Store" in which fifty to seventy-five per cent. of the pay roll is invested in supplies by the men. The goods are sold at the highest prices, and the company collects the store-money on the pay sheet. Of course, high wages must be paid the men, when they are charged the highest price for all they consume; and so the thing goes on, the subordinates squeezing out, to the extent of their opportunities, some perquisite which necessarily eventually comes out of the company and goes on the ton of iron.

When the selling price of iron stands at the figures we have been accustomed to during the past few years, the company can still make money, though of course, it cannot fulfill the promises of its enthusiastic promoters; but when prices come down to a point where well located and well managed works can make a fair profit on their iron, these others fill the newspapers of the country and the halls of Congress with loud, and frequently well founded predictions of financial ruin, and call for a further increase of what we have named the sinking fund for ignorance and incapacity. Now this is no fancy sketch. We know whereof we speak; nor is this manner of doing business confined to a few iron works, but an array of coal companies, gold and silver mines, and railroad companies, having more or less of this kind of history, group themselves before our mind's eye. Far be it from us to say or insinuate that the above sketch is of universal or even general application, for we have works as honestly and intelligently managed as those in any part of the world, but these are taxed by their dishonest neighbors; the standard of wages has to be the same throughout the district, and the company paying the maximum rate regulates this.

These, however, are but items in a grand total; we shall consider other points on a future occasion.

CORRESPONDENCE.

Bolivian Mining.

HONDA, June 11, 1874.

TO THE EDITOR: Sir—You will please excuse my long silence, but from sickness I could not write sooner.

The mineral deposit of Columbia, where we have prospected, is clearly divided into two classes. The mines bordering on the River Saldaña are all rich and easily worked. The gold is very fine, and all the stones and pebbles are rounded, showing a formation on the sandstone bed rock which resembles the "Drift" of the Northern States of America. On this river, or in this region, there are no mines working at present. The "Guiapa and San Nicholas Mines" are owned by a New York company, and at the present moment four Americans are here on their way to open the property.

The mines of the other class are in the foot hills of the Central Andes, but a few hours' ride from here, and are being worked by hydraulics. Their names are

"Mal Paso"	Capital $150,000.	London	Company working. Paying well.
"La Rica"	" 75,000.	German	" "
"Malabar"	" 250,000.	London	" "

These mines have slate bed rock—surface of ground covered with heavy timber. The mines owned, but at present not worked, are many. The best and cheapest are "Palenyue," "Los Tres Conoes," and the placers of "Parrochia." They all are adjoining, and can use the water of the river Gauli, which is sufficient for a hundred sixteen-inch hydraulics. Mr. TOOMBS, an experienced miner, leaves here soon for New York. He has established one hydraulic and goes to the United States for more. My next will treat of the routes, laws, and expenses.

Yours, MINER.

"Over-Blowing" a Blast Furnace.

PITTSBURGH, July 10, 1874.

TO THE EDITOR: SIR—The effect of increasing or decreasing the amount of air blown in a furnace was incidentally discussed at one of the *outside* meetings of the Institute in the smoking room of a palace-car, on the Lightning Express, on its way to St. Louis. It was intended to introduce the subject at a regular session, but there was not time. According to your article in the JOURNAL of July 4th, over-blowing, up to a certain point, must necessarily increase the heat, and no cooling can take place until all the fuel in the hearth has been burnt into carbonic acid, and this would be followed by a chill.

Now this may be so, yet we have the fact that in practice we constantly get the *effect* of cooling or heating by increasing or decreasing the blast. For instance, a furnace is taking regularly 7 lb. of blast, and making a strictly gray forge iron. In furnace parlance, she begins to "work hot," the slag becomes much grayer, the iron runs into foundry, and experience has shown us that if some change is not made, the iron will shortly become silvery.

Experience has further taught us that, by increasing the blast, we can prevent this, and we accordingly blow 8, 8½, and even 9 lb., and in a very short time a decided change takes place, both in the character of the iron and the slag, the latter assuming its normal condition for forge iron. On the other hand, the furnace changes from a gray cinder to a dark or black cinder, with mottled or white iron. As soon as this tendency develops, we slack the blast down to 5, 4, or 3 lb., as the case may require, until the cinder changes, to be followed by gray iron. The writer has had under his own observation a furnace producing from 240 to 280 tons a week, running for many months on the same burden, and without any interruption, making uniformly gray iron, and regulated *entirely* by the blast. The engineers have become so accustomed to their work that, night or day, with or without the presence of the founder or superintendent, they regulate the blast by the cinder. Now it may be said that this is "rule of thumb," yet it is a rule that produces the best possible results, with the least possible trouble. If it is theoretically impossible for increased or decreased blast to produce these effects, what is it that causes these marked changes in the working of a furnace, under the conditions stated?

It is an interesting question for both practical and scientific men.

IRONMASTER.

Zinc in Missouri.

WE take the following interesting account of the zinc ores, and manufacture in Missouri from the St. Louis *Railway Gazette* of July 10:

The ores which are the objects of treatment at the Carondelet zinc works, are incidental products of the lead mining operations along the line of the Iron Mountain and Atlantic and Pacific railroads, coming chiefly from the counties of Washington and Jefferson in the former, and Newton and Jasper in the latter section. They consist almost entirely of the hydrous silicate or calamine, with variable, but always small amounts of blende, and occasionally with a little Smithsonite. The blende ores are carefully separated at the mines of Newton and Jasper, and find a good market for consumption at La Salle, Illinois. The southeastern ores from along the Iron Mountain railroad invariably contain a much larger proportion of carbonate than do those from the other section. The prices paid for the Newton and Jasper ores at their place of extraction, range between $5 and $13, and $7 and $11 per ton, respectively, for the silicates and blende, the prices between these limits being governed by the royalties paid by the miners and by the shipping facilities.

Mr. PACK'S analyses indicate that the southwestern ores are remarkably free from antimony, and that they contain scarcely appreciable quantities of arsenic.

The southeastern ores show both arsenic and antimony, which may be accounted for by the possible presence of more blende in admixture with the silicate.

The ores delivered at the works are submitted to a kiln calcination, after which they are crushed. Samples of the crushed product were collected at the establishment of the Missouri zinc company, and of the Martindale, and were analyzed with the following results:

	I.	II.	III. Dried at 103° C.	IV.
Silicic acid	10.280	10.210	29.447	44.97
Zinc oxide	75.240	75.360	70.039	43.20
Ferric oxide and alumina	1.909	2.120	.527	6.25
Manganese oxide	1.634	1.650	.....	.39
Lime	4.340	4.430	.285	1.26
Magnesia	3.390	3.250	.084	2.60
Arsenious acid	trace.	trace.	.540	.....
Antimony oxide	.280	.289	trace.	.....
Oxides, lead and copper	trace.	trace.	trace	.....
Sulphur	.....	.....	.349	trace.
Carbonic acid	3.090	3.520	trace.	.31
Hygroscopic Water	.075	.075	.....	.....
	100.238	100,904	101.271	99.28
Metallic zinc	60.387	60.483	56.213	34.672

Both I. and II. are the calcined ores of the Missouri zinc company's works, No. III. being the calcined ore of the Martindale works, and IV. the calcined calamine ores of the Lehigh works, Bethlehem, Pa. The first named establishment uses the mixed ores from the two sections of the State; the second employs the Granby, or southwestern ores almost exclusively. No. IV. (the Saucon Valley, Penn., ore) shows a remarkable freedom from injurious impurities, but is not so high in the yield of metal as the Missouri ores.

The Illinois coal fields supply an excellent quality of coal to these works, reaching them after a short rail carriage and a ferriage over the Mississippi river. The coal is screened—the lump material being employed for heating, and the fine coal, or slack, for reducing purposes. The slack coal used at the Martindale works gave the annexed result on approximate analysis:

	I.	II.	Mean.
Moisture	5.172	4.351	4.762
Volatile matters	26.896	27.057	26.977
Fixed carbon	51.322	52.621	51.971
Ash	16.610	15.971	16.295
	100.000	100.000	100.000

The slack and crushed ores are mixed in the proportion of one of the first to two of the latter, the mixture being made as thorough as possible. The charge for each retort is about forty pounds weight of this mixture, the retorts being of about the usual size, and the method of treatment that known as the Belgian.

The clay used in the manufacture of the distilling vessels and receivers comes from the Cheltenham locality, twelve miles from Carondelet. It has a high reputation for refractory qualities, and stands the wear of the process quite well—a retort lasting on an average through twenty-eight charges.

The clay has the following composition:

	I.	II. Dried at 102° C.
Silicic acid	39.157	56.137
Sand	13.972	
Alumina	30.499	32.515
Ferric oxide	1.981	1.020
Magnesia	1.349	not est.
Lime	1.168	1.603
Soda	trace.	not est.
Potassa	trace.	
Carbonic acid	trace.	
Combined water	9.948	10.570
Moisture	1.806	
	99.880	

No. I. is a full analysis of a specimen directly from the locality, and No. II. an incomplete analysis of a sample obtained at the zinc works.

For the manufacture of the distilling and condensing vessels the clay is tempered by mixing one-half its weight with chamotte from old retorts.

The joint capacity of the two works at Carondelet amounts to upwards of eleven hundred retorts, divided as follows: eight furnaces (containing from 80 to 88 retorts each) at the Martindale works, and six (of 74 retorts each) at the Missouri works. The upper rows in all cases are used for the treatment of the zinc dust, and the lower row is of empty retorts (or so-called cannons) to break the heat, so that about 900 retorts represent the full working capacity for the treatment of ore, equivalent to 24,000 pounds per charge, or 48,000 pounds per day. There is a somewhat empirical ratio established between the three raw materials (coal, ore, and clay) used in the zinc process which is usually given as 50 : 35 : 15. On this basis, the treatment of 48,000 pounds of ore would represent the consumption of 68,500 pounds of coal, and 20,600 pounds of clay. The entire adaptability of Carondelet to a zinc manufacturing locality is thus assured by the vicinity of coal fields and of the clay deposits, and the probability of the point losing its pre-eminence in this respect by the establishment of works near the ore deposits is reduced to a minimum.

The estimated loss of zinc in the process is about twelve per cent giving for a net yield from the 48,000 pounds of ore, 24,500 pounds of zinc.

The spelters produced at the two establishments differ materially. That from the Missouri works is decidedly more white in color, is hard and exceedingly sonorous; that from the Martindale establishment offers no physical features different from the ordinary commercial zincs. Extraordinary care has been taken in this laboratory in analyzing these products, reference being had only to the impurities in order that larger quantities could be operated upon. The analyses were carried out by Mr. PACK, according to a scheme furnished by myself, the details of which would be out of place in this connection. The mean results reached are placed side by side for this comparison. No. I. is the Missouri Company's spelter, No. II. that made at Martindale's works:

	I.	II.
Sulphur	.0035	.0741
Silica	.1346	.1374
Carbon	.1775	.0006
Iron	.7173	.2863
Lead	.0701	.0061
Copper	.1123	.0018
Arsenic	.0603	.0590
Antimony	.0249	none
Zinc (by difference)	98.6995	99.4347
	100.0000	100.0000

Notes.

Sutro Tunnel.—The entire length of the Sutro Tunnel is now 6521 feet. The main header is in a distance of 6180 feet; the east drift from shaft No. 2, 170 feet, and the west drift 170 feet.

The North Adams (Mass.) Marble Dust Company have orders for marble dust which it will take to October to fill. The dust is used in mortar and plastering, and finds a very ready market.

The Metal Trade of St. Louis.—The receipts at St. Louis, from all sources, for the six months ending June 30, 1874, were, in tons of 2000 lb.,

	Tons.		Tons.
Pig iron	29,876	Bituminous coal (only partial	
Iron ore	102,300	receipts	363,630
Pigs of lead (217,276)	8148	Railroad bars	7603
Zinc ore (Granby 6760 tons, Minersville, 710, other points 510)			7980
Iron and Steel 279,503 bundles and pieces.			

The Reynoldsville Coal of the Red Bank Region is being mined, though not yet very extensively, as it has to be hauled in wagons from the mines to the railroad. Inclines are now being built that will permit these mines to ship very largely. The coal is of the same excellent quality as that from the Red Bank mines, and one of the beds is in some places as much as thirteen feet in thickness. The Central Land and Mining Company, Messrs. SHARP and DOTY, and other parties are developing this field. The market for the coals is Northern New York and Canada.

COAL TRADE REVIEW.

Import Duty on Coal.

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

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

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

NEW YORK, July 18, 1874.

The Production of Anthracite Coal for the week ending July 11, 1874, was as follows:

Ton of 2240 lb.	WEEK. Tons.	YEAR* Tons.
Wyoming Region.		
Delaware and Hudson Canal Co	26,471	1,296,783
Delaware, Lackawanna and Western R.R	32,366	1,344,723
Pennsylvania Coal Co	28,968	647,221
Lehigh Valley R.R.	16,055	527,090
Pennsylvania and New York R.R	622	34,248
Central Railroad of New Jersey	25,426	737,113
	129,908	4,587,178
Lehigh Region.		
Lehigh Valley R.R	53,407	1,634,083
Central Railroad of New Jersey	17,418	535,075
†Danville, Hazleton & W. B. R.R.	644	15,190
	71,469	1,184,348
Schuylkill Region		
Philadelphia and Reading R.R	9,467	2,426,736
Shamokin and Lykens Valley	17,780	393,884
	27,247	2,820,620
Sullivan Region.		
Sullivan and Erie R.R	1,456	17,380
Total of all the regions	230,080	9,609,526

* Year beginning Jan. 1.

† From the Penn. R.R. Co.'s report, July 7.

The Production of Bituminous Coal for the week ending July 11th, was as follows:

Ton of 2000 lb.	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Cumberland and Pennsylvania R.R	40,700	1,102,492
Cumberland Branch R.R	11,202	127,915
Barclay Region, Pa.		
Barclay R.R	2,376	155,870
Broad Top Region, Pa.		
Huntingdon & Broad Top R.R	3,447	124,155
For the week ending July 7.		
Clearfield, Region, Pa.		
Snow Shoe	884	34,610
Tyrone and Clearfield	9,792	307,859
Allegheny Region, Pa.		
Pennsylvania R.R	2,822	118,772
Pittsburgh Region, Pa.		
West Penn. R.R	2,335	102,823
Southwest Penn. R.R	20	4,300
Penn. and Westmoreland gas coal, Pa. R.R.	22,126	465,406
Pennsylvania R.R	6,928	216,012
Kanawha Region, W. Va.		
Chesapeake and Ohio R.R	2,705	79,695
Pictou Region, Nova Scotia.		
Coal mined for the week ending July 11, 1874.		
DESTINATION.	WEEK.	YEAR.
United States	4,299	16,080
West Indies	....	2,707
Canada	5,736	32,226
Other provinces	2,993	22,198
	13,028	74,111
Block House Region, Nova Scotia. Coal mined for the week ending July 4:		
DESTINATION.	WEEK.	YEAR.
Provinces	53	1,676
United States	241	1,436
	294	3,112

Coal Traffic of St. Louis Railroads.

The *St. Louis RR. Gazette* gives the following as the receipts of Coal at St. Louis, for the past 6 months, as compared with the corresponding period of 1873:

	1874.	1873.
Belleville and Southern Illinois RR	126,048	399,837
Ohio and Mississippi RR	72,768	204,735
Illinois and St. Louis "	72,885	181,430
St. Louis, Vand., Terre Haut and Ind. RR.	50,000	143,888
St. Louis and Southeastern RR	46,280	126,239
Cairo and St. Louis (narrow gauge) RR.	14,702	....
Ind. and St. Louis RR	9,670	....
Toledo, Wabash and Western RR	1,054	....
Chicago and Alton RR	4,216	....
Iron Mt. RR. (semi-Anthracite from Ark.)	675	....
Rockford, Rock Island and St. Louis RR.	1,470	..
By Illinois River	1,320	....
" Ohio and Cumberland River	12,515	..

Production of Bituminous Coal and Coke.

Tons of 2,000 lb.	1873.	Jan.	Feb.	March.	April.	May.	June.	Year.
					1874.			
South and North Alabama Railroad.								
Warrior Region, Ala.								
South and N rth Alabama Railroad	..	..	..	..	..	..	..	..
Coosa Region, Ala.								
Pittsburgh Region.								
Keeling & Co	197,600	{ ..	1,890	1,790	2,170	1,370	2,553	9,773
Weitengel & Gormley		{	320	210	270	380		
Saw Mill Run Railroad	159,057	12,337	1,102	483	2,159	1,977		
Castle Shannon Railroad	125,103	1,420	1,175	1,934	1,216	5,936		
Cleveland and Pittsburgh Railroad.	74,331	14,981	9,342	7,934	9,523	9,735		
*Pittsburgh, Cincinnati and St. Louis RR	585,059	14,611	11,760	997	1,041	1,973		
*Erie and Pittsburgh Railroad	399,780	16,441	16,630	13,883	11,402	9,173		
*Pittsburgh, Fort Wayne and Chicago RR	253,990	18,100	11,760	13,680	15,073	1,041		
Monongahela Nav. Co., Coal	..	355,251	351,584	376,056	379,491	213,435	64,414	1,744,931
" " Coke	..	1,170	5,730	13,020	11,640	6,795	6,720	45,075

* Coke is included in these reports.

The Production of Coke on the line of the Pennsylvania Railway and branches, as per report for the week ending July 7:

Ton of 2000 lb.

	Week. Tons.	Year. Tons.
Tyrone and Clearfield	..	329
Allegheny Region, Penn. R.R.	..	93
West Penn. R.R.	178	28,925
Southwest Penn. R.R.	6,756	200,708
Gas Coal, Penn. R.R.	530	20,410
Pittsburgh Coal, Penn. R.R.	432	39,178

Our table of production gives for the week 230,080 tons as against 328,049 tons for the previous week, and 354,959 tons for the corresponding week last year. The total production for the year is 9,609,526 tons, as against 9,651,261 tons for the corresponding period of 1873. These figures show a decrease for the week of 114,105 tons, and an increase for the year of 41,735 tons. The figures of last year we take from the Pottsville *Miners' Journal*.

The receipts at Port Richmond were 000 tons; shipments, 28,000 tons; and balance on hand 105 000.

The receipts at Greenwich, Philadelphia, were: bituminous 2738 tons, and gas coals 10,537 tons; shipments: bituminous 3438 tons, and gas coals 10,497 tons; balance on hand: bituminous 1088 tons, and gas coals 858 tons.

The receipts of anthracite coal at Coal Port for the week were 7115 tons, and shipments 7029 tons; at South Amboy the receipts were 11,010, and shipments 12,117. At both ports, since January 1st, the receipts were 503,583 tons, and shipments 470,513 tons, showing an accumulation of stock this year of 33,070 tons.

The production of Cumberland coal from January 1st to July 4th, inclusive, was 1,093,578 tons of 2240 lb., as compared with 1,188,272 tons for the corresponding period last year. The production for the week was 46,341 tons, as compared with 58,558 tons for the corresponding week in 1873. This shows a decrease of 12,217 tons for the week, and for the year of 89,694 tons.

The Delaware and Hudson Canal Company has in stock, at Rondout, 35,000 tons; at Honesdale, 370,000 tons, and at Weehawken 15,000 tons.

Anthracite.—There is a complete stagnation in the Anthracite coal trade, evidence of which is given in the fact that the Associated Companies, at a meeting held on Wednesday, resolved to continue during the month of August the present decreased out-put of fifty per cent. off of the ten million basis, and to confine the shipments to tide water, to 50 per cent. of the production. During this month there is nothing regulating the disposition of the production, and all of it may be shipped to tide water if the companies see proper. The companies further resolved to advance the prices 15c. per ton, all around, for the month of August, in accordance with the regular programme. It is quite evident, as we have heretofore remarked, that the programme for this year will be carried out as closely as is ever expected in such cases, and those who may have withheld orders, under the belief that it would prove a failure, will find that they have made a mistake. In fact, if the combination should terminate, it would only result in a decline in prices to be brought about by competition, with but small, if any, increase in sales, so that the companies must see the advantages of standing firm. The general business of the country is in such a state, that an ordinary reduction in prices would do but little to stimulate trade. An evidence of this is to be found in the fact, that dealers and consumers have not been purchasing to any great extent during the prevailing low rates of freight, which have made coal, delivered to eastern ports, cheaper than at any time during this year. Our information, taken in the whole, would lead us to suppose that there was but little coal required, the markets, as a rule, being well supplied or contracted for. Although we can find no one to predict what will be the future of trade for the balance of the year, yet the outlook is by no means encouraging.

The Philadelphia & Reading Railroad Company will not resume work until the 1st of August, instead of Monday, as was expected.

As we predicted last week, there has been a reaction in freights, the rates to Boston being $1 15@$1 25, as compared with $1, last week. They continue quite nominal, and a matter of negotiation. A large number of vessels have gone home empty, and tied up, awaiting rates that will show some profit to the owners. Freights are quoted from Philadelphia to Boston at $1 30, and to this city, discharged, 95c.

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

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
Wyoming Coals.						
*Lackawanna and Scranton at E'port & Hoboken	4 95	5 05	5 15	5 30	5 80	4 75
†Pittston at Newburgh	4 80	4 80	4 90	5 00	5 55	4 65
Wilkesbarre at Port Johnston	4 95	5 05	5 15	5 30	5 80	4 75
Newport and Plymouth	....	....	5 15	5 30	5 90	4 75
Susquehanna Coal Co. at Amboy	4 95	5 05	5 15	5 30	5 90	4 75
Kingston at Hoboken	4 95	5 05	5 15	5 30	5 80	4 75
Lehigh Coals.						
Old Company at Port Johnston	5 90	....	5 85	5 85	6 00	4 75
Old Company's Room Run	5 40	....	5 40	5 40	5 75	4 75
Sugar Loaf at Port Johnston	5 90	....	5 85	5 85	5 85	4 90
Lehigh Coal Exchange	5 75	....	5 70	5 70	5 85	4 90
Honey Brook at Elizabethport	5 75	....	5 70	5 70	5 85	4 90
Spring Mt. C. Co. at Hoboken	5 75	5 75	5 70	5 70	5 85	4 90
Beaver Meadow at South Amboy	5 75	....	5 70	5 70	5 85	4 90
McNeal at Port Johnston	5 75	5 75	5 70	5 70	5 85	4 90
Schuylkill Coals at Port Richmond.						
Schuylkill white ash	4 45	4 55	4 65	4 80	5 30	3 85
Schuylkill red ash	...	....	4 80	4 90	5 35	4 10
Shamokin white and red ash	....	....	5 00	5 40	5 30	4 00
N. Franklin	....	....	5 25	5 25	5 30	4 10
Lorberry	....	....	5 60	5 60	5 60	4 20
Lykens Valley	....	....	....	6 25	6 25	4 80

* f. o. b. in New York Harbor.

† These prices are for registered contracts. Buyers not having contracts will be charged 15 cents per ton more than above prices.

	Per ton.
Freight from Hoboken and Wehawken to New York	40c.
" " Elizabethport & Port Johnston, to New York	45c.
" " South Amboy to New York	50c.
" " Newburgh to New York	05c.
" " Port Richmond, "Phila." to N. Y. alongside	95c.
" " Rondout to New York by boat or barges of the D. & H. Canal Co. "delivered"	50c.

Retail Prices.

per 2000 lb. are as follows:

	Grate and Egg.	Stove.	Chestnut.
Pittston coal, in yard	$5 90	$6 10	$5 20
Delaware & Hudson, delivered	6 85	7 10	6 35
Scranton, in yard	7 00	7 25	6 55
Wilkes-Barre, delivered	6 85	7 10	6 35
Lehigh & Locust Mountain,	7 25	7 75	6 75
Schuylkill Red Ash	8 00		

Programme Prices of Schuylkill, Lackawanna, Wilkes-Barre and Lehigh Coals at the New York Shipping Ports.

1874.		Lump.	Steamer.	Grate or broken.	Egg.	Stove.	Chestnut.
March	Wilkes-Barre, Lackawanna, and Schuylkill.	4 55	4 65	4 75	4 90	5 35	4 35
April		4 60	4 70	4 80	4 95	5 40	4 40
May		4 70	4 80	4 90	5 05	5 50	4 50
June		4 80	4 90	5 00	5 15	5 60	4 60
July		5 10	5 20	5 30	5 45	5 90	4 75
August		5 25	5 35	5 45	5 60	6 05	4 90
September		5 40	5 50	5 60	5 75	6 20	5 05
October		5 55	5 65	5 75	5 90	6 35	5 20
November		4 70	4 80	4 90	5 05	5 50	4 60
Average, 1874		4 99	5 09	5 19	5 34	5 79	4 79
Season contracts		4 80	4 90	5 00	5 15	5 60	4 70
Scranton Sale, June 24		5 05	5 15	5 25	5 40	5 85	4 95
March	Lehigh Coal Exchange.	4 55	4 65	4 75	4 90	5 35	4 35
April		4 60	4 70	4 80	4 95	5 40	4 40
May		4 70	4 80	4 90	5 05	5 50	4 50
June		4 80	4 90	5 00	5 15	5 60	4 60
July		5 10	5 20	5 30	5 45	5 90	4 75
August		5 25	5 35	5 45	5 60	6 05	4 90
September		5 40	5 50	5 60	5 75	6 20	5 05
October		5 55	5 65	5 75	5 90	6 35	5 20
November		4 70	4 80	4 90	5 05	5 50	4 60
Average, 1874		4 99	5 09	5 19	5 34	5 79	4 79
Season contracts		4 80	4 90	5 00	5 15	5 60	4 70
Scranton Sale, June 24		5 05	5 15	5 25	5 40	5 85	4 95
March	Wilkes-Barre, Lackawanna, and Schuylkill.	4 65	4 75	4 85	5 00	5 45	4 45
April		4 70	4 80	4 90	5 05	5 50	4 50
May		4 80	4 90	5 00	5 15	5 60	4 60
June		4 90	5 00	5 10	5 25	5 70	4 70
July		5 20	5 30	5 40	5 55	6 00	4 85
August		5 35	5 45	5 55	5 70	6 15	5 00
September		5 50	5 60	5 70	5 85	6 30	5 15
October		5 65	5 75	5 85	6 00	6 45	5 30
November		4 80	4 90	5 00	5 15	5 60	4 70
Average, 1874		5 09	5 19	5 29	5 44	5 89	4 89
Season contracts		4 90	5 00	5 10	5 25	5 70	4 80
Scranton Sale, June 24		5 15	5 25	5 35	5 50	5 95	5 05
March	Lehigh Coal Exchange.	4 75	4 85	4 95	5 10	5 55	4 55
April		4 80	4 90	5 00	5 15	5 60	4 60
May		4 90	5 00	5 10	5 25	5 70	4 70
June		5 00	5 10	5 20	5 35	5 80	4 80
July		5 30	5 40	5 50	5 65	6 10	4 95
August		5 45	5 55	5 65	5 80	6 25	5 10
September		5 60	5 70	5 80	5 95	6 40	5 25
October		5 75	5 85	5 95	6 10	6 55	5 40
November		5 00	5 10	5 20	5 35	5 80	4 80
Average, 1874		5 19	5 29	5 39	5 54	5 99	4 99
Season contracts		5 00	5 10	5 20	5 35	5 80	4 90
Scranton Sale, June 24		5 25	5 35	5 45	5 60	6 05	5 15
March	Wilkes-Barre, Lackawanna, and Schuylkill.	4 75	4 85	4 95	5 10	5 55	4 55
April		4 80	4 90	5 00	5 15	5 60	4 60
May		4 90	5 00	5 10	5 25	5 70	4 70
June		5 00	5 10	5 20	5 35	5 80	4 80
July		5 30	5 40	5 50	5 65	6 10	4 95
August		5 45	5 55	5 65	5 80	6 25	5 10
September		5 60	5 70	5 80	5 95	6 40	5 25
October		5 75	5 85	5 95	6 10	6 55	5 40
November		5 00	5 10	5 20	5 35	5 80	4 80
Average, 1874		5 19	5 29	5 39	5 54	5 99	4 99
Season contracts		5 00	5 10	5 20	5 35	5 80	4 90
Scranton Sale, June 24		5 25	5 35	5 45	5 60	6 05	5 15
March	Lehigh Coal Exchange.	4 75	4 85	4 95	5 10	5 55	4 55
April		4 80	4 90	5 00	5 15	5 60	4 60
May		4 90	5 00	5 10	5 25	5 70	4 70
June		5 00	5 10	5 20	5 35	5 80	4 80
July		5 30	5 40	5 50	5 65	6 10	4 95
August		5 45	5 55	5 65	5 80	6 25	5 10
September		5 60	5 70	5 80	5 95	6 40	5 25
October		5 75	5 85	5 95	6 10	6 55	5 40
November		5 00	5 10	5 20	5 35	5 80	4 80
Average, 1874		5 19	5 29	5 39	5 54	5 99	4 99
Season contracts		5 00	5 10	5 20	5 35	5 80	4 90
Scranton Sale, June 24		5 25	5 35	5 45	5 60	6 05	5 15

Bituminous.—The same dullness characterizing the anthracite trade is found in bituminous. New orders do but little towards disposing of the production, which is being almost totally shipped on account of contracts made early in the season. Those who were successful in securing contracts for the bulk of their production, especially if they were at a figure delivered, as was the case with the majority, will secure handsome profits, owing to the constant decline in freights since most of the contracts were made. Prices are not openly quoted lower, but there are pretty well founded rumors that there have been confidential quotations made during the week on Cumberland coal at figures considerably under the market.

The strike on the Cumberland and Pennsylvania R.R. was of only four days' duration, and ended in a victory for the workmen. Had the railroad company been able to make the reduction they would have saved about $65 per day. It would take considerable time, at the saving of that amount per day, to make up the loss which has resulted from the strike to the mining companies and themselves. The mining companies have lost money by having to pay demurrages, and from other causes arising when shipments are stopped, and work is held in a state of suspense. They further claim that they lost orders which might have been accepted and shipped under the low rates of freight that were prevailing from the shipping ports. It is rumored that some of the companies contemplate making a claim against the railway company for damages sustained.

Freights at Georgetown and Baltimore rule lower than last week. Vessels are in great abundance, and can be secured at very low rates. We learn of charters at $1 40 to Boston; also of a charter made in Boston where the vessel was to go to Baltimore under Ballast, and return with coal at $1 50. The rates continue a matter of negotiation, it being impossible to give quotations.

In foreign and gas coals there is nothing doing. Our latest advices by mail show that English, Welsh and Scotch coals have a downward tendency, which, with the prevailing freights which are so low that vessels come here under ballast rather than accept coal, permits some coal to be laid down at a very low figure. The strikes in England are all tending towards a speedy termination by the men submitting to the reduction of wages proposed by the masters. Six or eight casks of artificial fuel, made from Welsh anthracite coal dust, have arrived at this port, consigned to the Philadelphia and Reading Coal and Iron Company. It was sent here for trial, with the hope that if it proved satisfactory, the patent might be disposed of and applied to utilizing the coal waste of this country.

In our last we noted the reduction in price of Pictou coal caused by the break in the combination. The competition thus created has caused a further decline, and we now quote those coals at $2 50 f. o. b. at Pictou. The markets have been pretty fully supplied, and we hear of no new transactions at the reduced rates.

About 450 feet of the Pennsylvania Coal Company's docks at Weehawken were destroyed by fire last week. No coal was burnt, nor will it disturb their business, as the docks were enlarged for shipping during the winter. They caught fire from the Erie oil tanks.

Cargo Prices of Bituminous Coal.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn, at Greenwich, Phila	$6 25	$7 65
" " at S. Amboy	7 00	....
Red Bank Cannel Pa., at Phil	8 50	9 50
" " at S. Amboy	9 00	....
" Orrel, "	7 00	7 65
" " at Phil	6 25	....
Youghiogheny, Waverly Co, at Baltimore	6 00	7 65
Despard, West Va. "	5 50	7 40
Murphy Run, W. Va. at Baltimore	5 50	7 40
Fairmount, W. Va "	5 50	7 40
Newburgh Orrel, Md. "	5 50	7 40
[illegible] Cannel, W. Va., at Richmond	11 00	12 00
" [illegible]	5 50	7 50
Peytona Cannel, " "	....	12 50
Sterling " Ohio	....	11 00
Straitsville, " Lyonsdale Cannel	....	11 50
At Sundusky, O	3 90	....

FOREIGN GAS COALS.

	Sterling.	Am. cur'cy.
Newcastle, at Newcastle-on-Tyne	@12/6d	7 50@ 8 00
Liverpool House, Orrel at Liverpool	29/	13 00
Ince Hall Cannel "	52/	18 00
" Gas, Cannel "	40/	15 00
Scotch Gas, Cannel at Glasgow	28/	9 50
	Gold.	
Block House, at Cow Bay, N.S.	2 25	6 00
Caledonia, at Port Caledonia	1 87½	5 50
Glace Bay, at Glace Bay	2 00	5 75
Lingan, at Lingan Bay	2 25	6 25
Sydney, International and Reserve mines, at Sydney	2 25	5 75
Pictou, Albion and Vale mines, at Pictou	2 50	6 50

STEAM AND HOUSE COALS.

Broad Top, at the mine, $1 25; at Port Richmond, Phil	4 75@5 00	6 00@6 25
Cumberland, at Georgetown and Alexandria, Va	4 30@4 40	6 50@6 75
Clearfield, Derby, "Kitaning and Sterling," at the mines, $1 25; at Greenwich, Phil	4 75@5 00	6 25
James River, carbonite, at Richmond, Va	6 75	9 00
" bituminous, "	4 00	6 25

Retail Prices in New York.

Per ton of 2000 lb.

Liverpool House Orrel	$20 00@22 00
Liverpool House Cannel	....@25 00
American Block	16 00@ ....
Straitsville Cannel	16 00@ ....
Carbonite	12 00@ ....

Line Prices for July, 1874.

Wholesale—Per ton of 2240 lb.

Specially reported by the Riverside Coal Co., Wilkes-Barre, Pa.

AT	Lump and Broken.	Egg.	Stove.	Chestnut.	Pea.
L. & B. Junction, Pa., for line of P. & N. Y. R. R.	2 95	2 95	3 20	3 20	
Mauch Chunk, Lehigh coal	3 50	3 50	3 75	3 25	
" Wilkes-B. coal	3 50	3 50	3 75	3 25	
Buffalo, N. Y., f. o. b., per 2000 lb	6 25	6 25	6 70	6 20	
Buffalo, N.Y. afloat, per 2000	5 75	5 75	6 20	5 75	
Rochester, " " " "	5 50	5 50	5 95	5 45	
Weedsport " " " "	5 20	5 20	5 65	5 15	
Syracuse, " " " "	4 80	4 80	5 25	4 75	
Ithaca, N. Y., f. o. b. and afloat, per 2000 lb	4 65	4 65	5 10	4 60	
Charlotte, N.Y. f.o.b. 2000 lb	5 75	5 75	6 20	5 70	
Auburn, " afloat "	5 10	5 10	5 55	5 05	
Elmira, " " "	4 45	4 45	4 85	4 60	
Oswego, " " "	5 25	5 25	5 70	5 20	
Oswego, " retail delivered per 2000 lb	7 00	7 00	7 45	6 95	

Baltimore, Md.

July 15, 1874.

Reported by our special correspondents.

We note receipts last week of about 33,000 tons at Locust Point; of this, 3,000 was gas coal. The strike on the Cumberland and Pennsylvania RR. is over, and shipments by Canal are active.

Freight low and but few vessels seeking orders. Boston and Portland, $1 50; Sound ports $1 50, and New York $1 30.

We still find trade dull and prices nominally the same.

WHOLESALE PRICES PER 2240 lb.

ANTHRACITE.

	afloat.	at depot.
Wilkes-Barre, "Lee," or "Diamond,"		
Lump, steamboat or broken	$5 05@$5 10	$5 60
Egg	5 45	5 90
Stove	5 57	5 90
Pittston and Plymouth.		
Lump, steamboat, and broken	....	5 35
Egg and stove	....	5 65
"Boston" (free burning,) all sizes	5 45	5 65
Shamokin, red or white ash, all sizes	5 45@5 60	5 50@5 60
Lykens Valley, red ash, all sizes	5 50	5 80

From wharf or yard, wholesale, 50@75c. additional.
By retail, all kinds and sizes, $7@8 00.

BITUMINOUS.

George's Creek and Cumberland f. o. b. at Locust Point for cargoes 4 60@4 85
West Va. Gas Coal f. o. b. at Locust Point 5 50@...
Kanawha Cannel, coarse 13 00@....
Tyrone 7 25@....
Bitchie Mineral of West Virginia 1 00@....

Boston.

July 15, 1874.

Reported by our Special Correspondent.

The market is very quiet, and without change.

Receipts of coal at Boston for week ending June 26:

	Tons.	Total for Year.
Domestic	30.294	354,183
Foreign	291	9,776

CARGO PRICES TO TRADE.

Lingan coal	$6 37	Westmoreland	8 50
Caledonia	6 00	WarelyCo.Youghiogheny	8 50
Picton	$6 75@ 7 00	Cannelton Cannel	14 00
Block House	6 25	Cumberland	6 45@ 7 00
Red Bank Cannel	11 00	Anthracite	5 50@ 7 50

Burlington, Iowa.

July 14, 1874.

Specially reported by Messrs. WIGHTMAN & CUMMINGS wholesale and retail dealers and shippers of coal.

Per ton of 2000 lb.

Lehigh Lump	$16 00	Illinois Smithy	$6 00
" prepared	13 00	" Steam	3 75
Blosburg Smithy	13 00	Connellsville Coke	13 00
Pittsburgh "	10 00	Illinois "	10 00

Buffalo, N. Y.

Reported by our Special Correspondent.

July 15, 1874.

Per ton of 2000 lb.

Youghiogheny Gas Coal	$5 50	Connellsville coke	$6 50
Briar Hill	5 25	Stirling Cannel	6 75
Fairmount and Red Bank	4 25	Red Bank "	5 75
" Nut	3 50	Stirling Gas Coal	....
" Slack	2 75	Beaver "	....
Catfish Lump	4 25	Cameron	3 75
" Nut	3 75	St. Mary's	3 75

Briar Hill coal, and Stirling and Red Bank cannels, at $8; all other coals $1 per ton above wholesale prices.

Anthracite f. o. b. vessel. Retail prices $1 per ton additional, delivered.

Grate	6 25	Stove	6 70
Egg	6 25	Chestnut	6 20

Chicago, Ill.

July 14, 1874.

Specially reported by Messrs. RENO & LITTLE, Coal Merchants.

No change in prices of coal.

Retail prices per ton of 2000 lb. delivered to buyer.

Lehigh Lump	$10 50	Walnut Hill (W. Va.)	6 50@ ....
Lehigh prepared	10 00	Midway (West Va.)	6 50@ ....
Lackawanna, Wilkes-Barre and Pittston, Grate, egg, and chest	8 50	Cannel	8 00@ 9 00
Stove or range	9 00	Blossburg	8 50
BITUMINOUS.		Indiana Block	6 50
Briar Hill and Erie	7 50@	Hocking " Brooks"	6 50
		Wilmington and Illinois	5 00

Cincinnati, O.

July 14, 1874.

Specially reported by Messrs. A. BUCHANAN & CO., wholesale and retail dealers in coal and coke.

The price of coal has advanced within the last week, and dealers are now asking:

Per ton of 2000 lb.

	Bush.	Tons.
Youghiogheny, or Pittsburgh, afloat	12 c.	$3 12
Pomeroy coal	8 c.	2 08
Cannel coal	18 c.	4 68
Semi Cannel	10 c.	2 60

The following are retail prices delivered:

Youghiogheny	16 c.@	$4 16@$
Pomeroy	12 c.@	3 12@
Cannel	24 c.@	6 24@ 6 72
Kanawha Semi Cannel	14 .	3 64
Anthracite	—	11 00
Foundry coke	12c.	
Soft coke	8c 100.	

Cleveland, O.

July 14, 1874.

Reported by our Special Correspondent.

Prices same as last reported. Business exceedingly dull. Shipments, via Lake, last week, were the lightest for several years. The mining troubles in the Straitsville region not yet settled, notwithstanding reports to the contrary. Freights on coal, via Lake, very low. Charters have been made at 40 cents per ton here to Milwaukee, and same to downtown dock, Chicago. "Free to vessel."

Per ton of 2000 lb.

Youghiogheny, l'p, f.o.b.	$4 65	Straitsville	$3 50
Youghiogheny, nut	3 60	Columbiana	3 75
Briar Hill, (Church Hill)	4 45	Strip Vein	4 00
" " (Brookfield)	4 30	Mountain Blossburg (blacksmith)	6 00
Massilon, according to quality	$3 60 to 3 85	Darlington and Sterling Cannel	4 60
Hocking Valley	3 75		

Council Bluffs, Iowa.

Reported by our Special Correspondent.

Per ton of 2000 lb.

ON TRACK.

Blossburg (blacksmith)	$14 00	Wyoming	13 00
Anthracite	14 00	Missouri	6 00
Iowa	4 50	Kansas	6 00

RETAIL.

Blossburg	$16 00	Wyoming	$15 00
Anthracite	16 00	Missouri	8 00
Iowa	6 50	Kansas	8 00

Detroit, Mich.

July 14, 1874.

Specially reported by Messrs. ROBINSON & KEYS, dealers in all kinds of coal.

We have but little improvement to note over last report. Receipts have fallen off materially within the last few days. Stocks are held firm at prices last named.

Per ton of 2000 lb.

Lehigh Lump, per ton	$10 50	Blossburg	8 50
Lehigh " prep. sizes	9 50	Briar Hill	7 50
Wilkes-Barre, Grate and Egg	8 50	Willow Bank	7 00
Wilkes-Barre, Stove and Nut	9 00	Erie	7 50
		Massillon	7 00

Denver, Col.

RETAIL PRICES.

Per ton of 2000 lb.

Canon	$6 50	Boulder Valley	$4 75
Marshall	5 50	Eulner	5 50
Murphy	5 50	Black Diamond	5 50
Baker	5 00		

Erie, Pa.

July 15, 1874.

Reported by our Special Correspondent.

Wholesale, per ton of 2,000 lb.

Anthracite f.o.b. vessels.

Lump	$6 60	Stove	$6 65
Grate	6 10	Chestnut	6 05
Egg	6 10		

Bituminous f.o.b.

Briar Hill	$4 40	Beaver	$4 25

Retail, per ton of 2,000 lb.

Anthracite.

Lehigh, chestnut	$8 50@$9 00		
" prepared	8 75@ 9 25		
Lykens Valley, stove	9 50@10 00		
Lykens Valley, chestnut	8 00@ 8 50		
Schuylkill and Wilkesbarre	7 50@ 8 00		
Blossburg (Smithing)	7 50@ 8 00		

Bituminous.

Chenango Valley (Ormsby), lump	$6 00		
Mahoning Valley (Briar Hill), "	5 00		
Nut, all kinds	4 00		
No. 1 slack	3 06		
Bituminous, by car loads to factories	5 35		

Indianapolis, Ind.

July 13, 1874.

Specially reported by Messrs. H. MCCOY & CO.

No change in this market to report, for the week.

We quote at wholesale prices on board cars in the city:

Per ton of 2000 lb.

BITUMINOUS.

Best Block coal	$2 80	Indianna cannel	6 50
Best Highland	2 25	Hocking Valley	3 00
Block Nut	1 65	Youghiogheny	5 03
Highland "	1 65	Gas coke, per bushel	12c
Block slack	1 15	Blossburg (smithing) "	27
Peytona cannel	8 50	Piedmont " "	30

ANTHRACITE (Lackawanna).

Grate	$9 25	Chestnut	9 30
Egg	9 25	Stove	9 55

Louisville, Ky.

July 14, 1874.

Specially Reported by Messrs. BYRNE & SPEED.

The coal market here is unsettled at present, some of the dealers selling 2c. per bushel higher than others, though it is likely that the price will be steady at the higher figure in a few days.

The price of Pittsburgh in the river is firm at 11½c. per bushel.

Orders come in a little more freely, on account of the partial advance.

The following are our retail prices:

Pittsburgh, per load of 1900 lb	$3 50
Pomeroy	2 75
Buckeye Cannel	5 50
Peytona Cannel	6 00
Nut and Slack	2 75
Kentucky lump, per load	2 75
" nut, "	2 25
" Slack "	1 30
City-made Coke, per bushel	12c
Kentucky on cars at wholesale per bush.	8½c
Anthracite, per ton	$10 to $10 50

San Francisco.

From the *Commercial Herald*, July 2.

Imports of coal from January 1st to June 16th:

	Tons.		Tons.
Anthracite	3,016	Vancouver Island	26,309
Australian	34,306	Bellingham Bay	8,610
Coos Bay	26,711	Rocky Mountain	313
Cumberland	4,895	Seattle	1,465
English	1,705	Mt. Diablo (5 mos)	71,227

Within the week the steamers Eastport and Empire are at hand, with 864 tons from the Eastport mine, which, being of a superior quality, was readily secured by the trade at $10. Imports from the Colonies and elsewhere have recently been light; the near-by cargoes have mostly been sold to arrive, either to the Gas Company or to the Pacific Mail Company, leaving that on sale to be held at very full figures, though for arrivals sixty days hence some abatement in the rates would be accepted. Lehigh is jobbing from yards in bulk at $23, and in bags at $27 per ton. Cumberland is quite plentiful, the trade prices of which are in bulk $19 50; $21 50 in sacks, and $22 50 in casks. The coast mines are producing steadily and increasing in quantity, especially the Bellingham Bay and Coos Bay, the former selling at $8 50. The Eastport and other Coos Bay mines are furnishing free supplies at $10. The California Mt. Diablo mines, Black Diamond and others, continue to produce largely of steam coals, finding ready sale at $6 25 @$8 25 per ton for coarse and fine.

New Orleans, La.

July 11, 1874.

Specially reported by Messrs. P. & R. DEVERGES, Wholesale and Retail Dealers in Pittsburgh, Anthracite and Cannel coal.

The market is dull, with very little demand.

Pittsburgh coal, retail, per bbl	65c.
" wholesale	40c.
" per hhd	$6 00
" to steamboats, per box	50c.
" to manufacturers, per bbl	50c.@60
Anthracite, retail, per ton	$12 50
" wholesale per ton	$ 9 00
Spadra (Arkansas) coal, retail, per bbl	75c.
Mt. Carbon, wholesale, per bbl	45c.
" " retail per bbl	65c.

Pittsburgh, Pa.

July 14, 1874.

Reported by our Special Correspondent.

Business in railroad mines continues dull. Heavy rains have raised the river to coal boat stage, but as river mines have been generally shipped for some time past, there is but little coal loaded for lower markets. Prices remain unchanged.

Per ton of 2000 lb. and Bushel of 76 lb.

	per ton.		per ton
Youghiogheny coal	$2 15	Pittsburgh retail delivered per bushel	9½c@11½c
" coke	2 75	Anthracite all sizes	$7 00
Connellsville coal	2 25	" retail deliverd.	7 50
" coke	3 25		
Pittsburgh coal	$2 00		

St. Louis, Mo.

July 11, 1874.

Specially Reported by the COLLINSVILLE COAL AND MINING COMPANY.

ANTHRACITE.

Per ton of 2000 lb.

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

BITUMINOUS.

Per ton of 2000 lb.

	E. St. Louis.	City delivery
Washington Indiana—smithing	$4 00	$4 87
O'Fallon, Ills	2 00	3 00
Collinsville and Belleville, Ills	1 75	2 75
Indiana Cannel	6 00	7 00
Missouri Cannel	....	5 00

Retail, 25c. per ton additional.

Toledo, Ohio.

Per ton of 2000 lb.

Scranton, all sizes	$7 50@$8 00	Briar Hill	5 85
Lehigh Lump	10-00	Bituminous	4 50@6 50
Blossburg	@ 8 00		

Halifax, N. S.

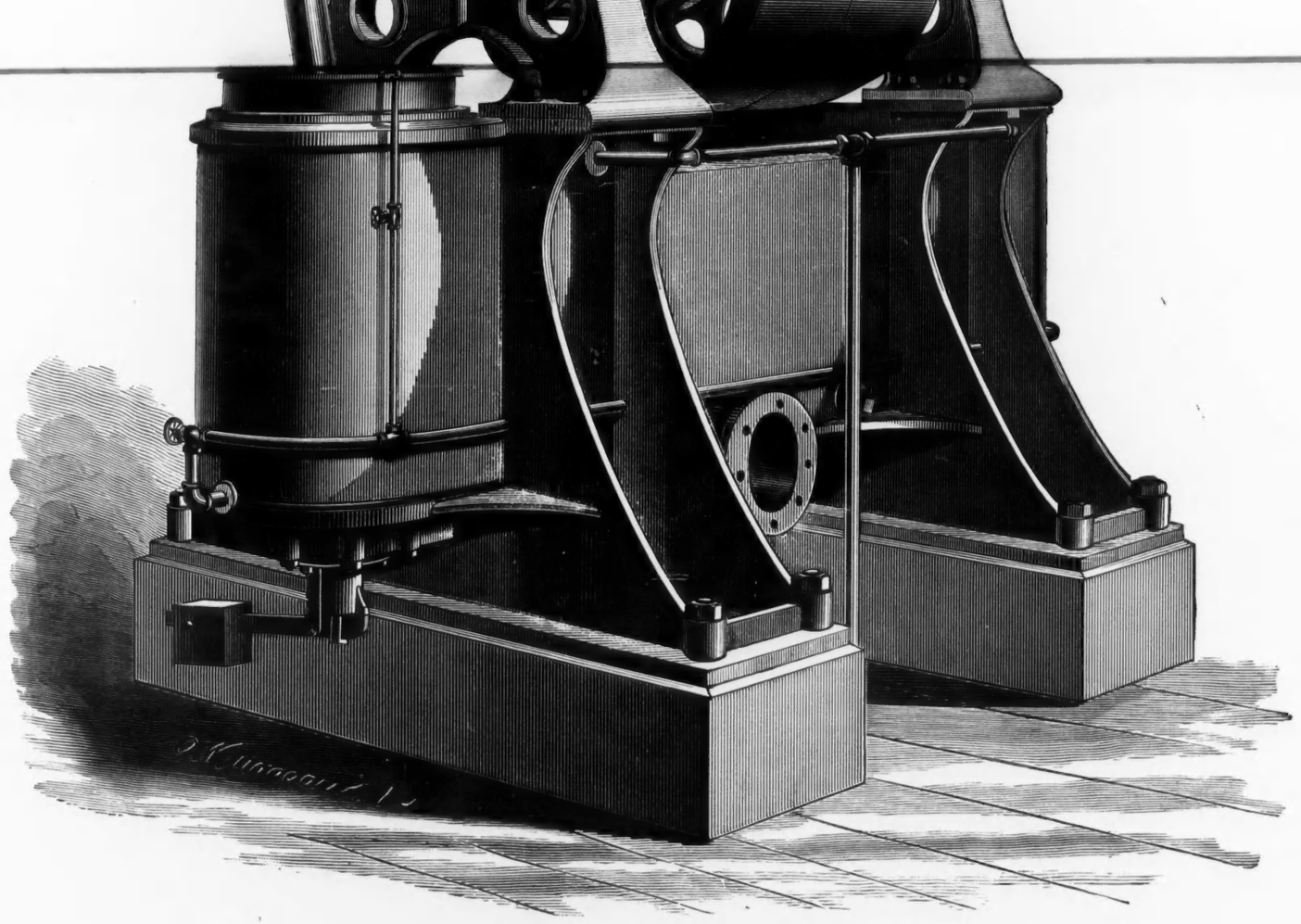
July 13, 1874.

Reported by our Special Correspondent.

The prices of coal range as follows:

Prices per ton of 2240 lb. in gold.

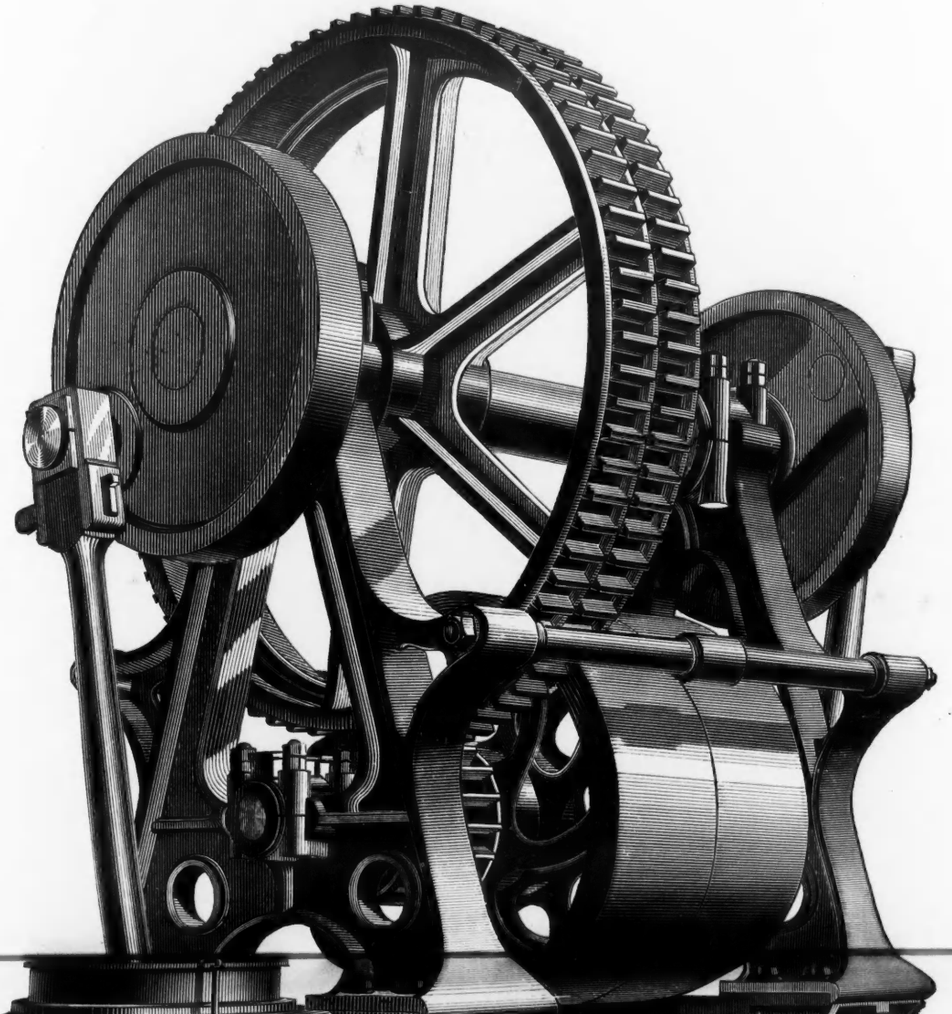
Sydney (old mines)	$5 25	Little Glace Bay	4 50
Gowrie	4 50	Blockhouse	4 50
Victoria	4 50	Albion (at Railroad)	5 00



IMPROVED AIR COMPRESSOR.

DESIGNED BY REYNOLDS & FISH, 23 PARK ROW, N. Y

MANUFACTURED BY THE DELAMATER IRON WORKS.



Montreal.

July 13, 1874.

Reported by our Special Correspondent.

Per ton of 2,240 lb.

Scotch Steam	$6 25@6 50	Cape Breton Steam	$5@5 50
Pictou "	6 00@6 25	Newcastle Smiths	8@8 25

Anthracite at retail, 2,000 lb., delivered :

Egg	$8 00	Nut	$8 00
Stove	8 50		

Toronto, Ont.

Prices in gold, per ton of 2000 lb.

Scranton, all sizes	$7 50	Bituminous	7 50
Lehigh prepared	8 50	Blossburg	7 00
" Lump	9 00		

Towing.

No change in the above, full rates may be found in our issue of June 27th.

Freights to River and Sound Ports.

The above freights remain in the same unsettled condition as noted in our last. We prefer, under the circumstances, to omit quotations altogether.

Coal Freights from the Anthracite Mines to the Principal Markets.

The above freights remain unchanged as compared with our last issue, to which we refer.

Freights on Bituminous Coals from the Mines to Tide Water Shipping Ports.

From the Mines to Cumberland and State Line (say an average of 20 miles) the charge is 3 cents per ton of 2240 lb. per mile.

From State Line to Amboy, (346 miles) $4 00 per ton of 2000 lb. On coal shipped beyond that point there is a drawback of 50 cents per net ton.

From Cumberland to Baltimore, (178 miles) $2 58 per ton of 2240 lb., or $2 30 per net ton, and 4 cents per gross ton for use of cars.

From Cumberland to George'own, (152 miles) by canal, $1 76 per ton of 2240 lb. *To Alexandria, Va.*, 11 cents per ton more.

From the Mines to Piedmont, (from 4 to 10 miles) 5 cents per ton of 2240 lb. per mile on distances less than 5 miles, and 4 cents per ton per mile on distances not over 10 miles.

From Piedmont to Baltimore, (206 miles) $2 97 per ton of 2240 lb., or $2 65 on net ton.

From any point in the Kanawha Valley to the James River wharves below Richmond (say 350 miles) by C. and O. R. R., including terminal charges, per ton of 2000 lb., for Cannel coal, $5 35. Subject to rebate on large quantities.

Do., do., for Semi Cannel or Splint, $3 65.

From Irwin to W. Phila. (say 332 miles) per P. R. R. Penn. Westmoreland gas coal, per ton of 2000 lb. $5 00

From Osceola to W. Phila. (say 248 miles) per T. & C. R.R. bituminous coal of 2000 lb. 3 55

From Fairmount and Carkesburg to Baltimore (say 300 miles) via B. & O. R. R. including loading, per 2000 lb. 5 20

On through coal after deducting drawback 4 15

From Richmond, Va., to New York, 392 miles per 2000 lb. 2 10

" " " Boston about 650 " " 3 00

" " " Philadelphia 292 miles " 1 75

From the Mines to Richmond via James River and Kanawha Canal, 15 miles 52

REVIEW OF THE BRITISH COAL AND IRON TRADES.

The following is a review of our exchanges bearing date to June 27th :

England.—The strike of the ironstone miners in the North of England is finally settled by the men going to work at the reduction originally proposed, *i.e.*, 2d. per ton, or 12½ per cent., and they agree to the suggestion of the masters that any future variation in wages should be fixed by open arbitration. Although the strike is settled, yet it has given no improvement to business, which is very dull, and the indications are that the depression will continue for several months. The prices of both iron and coal are tending downward. There is a Russian order for about 200,000 tons of rails in the market, which, when given out, will probably be placed with several large firms and extend over several months. There is a steady inquiry for household coals, and as stocking for London commences next month, there is no prospect of this grade of coal being reduced in price this summer.

Notices have been given out in Yorkshire of a reduction of 12½ per cent. There is some feeling of opposition shown, but nothing definite will be known until the 8th of July, when the notices expire. The Bessemer works of this district continue well employed in the manufacture of rails, tires, axles, etc. It is understood that the South Yorkshire Miners' Association will have to pay £30,000 towards the purchase of the Shirland Colliery in addition to the £11,000 deposited in the first instance.

In the Wigan and Tyldesley districts, there is a very good coal business doing, and prices are quite firm. There is a fair demand at Liverpool for the better sorts of fuel, with comparatively limited supplies. Of the commoner sorts there is an abundance, consequently prices for the latter have declined.

In the South Staffordshire district the iron trade is very quiet. The demand for coal is somewhat restricted, and the supplies are by no means scarce. The prospects of an early termination of the miners' strike are more encouraging. It is now becoming clear to the miners that not only will they be compelled to go in on the masters' terms, but that the condition of trade has been so aggravated by the strike, that a further reduction than that proposed will have to be submitted to before trade can be restored to anything like a sound and healthy state.

In the Forest of Dean district, there is an improvement noticeable in the coal trade, while the iron business continues very depressed.

At Darlington, middling quality of coke is offered at 17/@18/ per ton ; unscreened coal, 8/@9/ 3d. ; screened ditto, 10/@ 11/ ; gas coal, 11/ 6d.@12/. At the Earl of DUDLEY'S collieries, best coals are quoted at 18/ 6d.@20/ 6d. ; furnace coals, 15/ 9d. @16/ ; steam coal, 14/ ; engine slack, 5/ 9d.@7/ 6d. The Cannock Chase Railway Colliery Company are asking £2 per ton of 2,352 lb. for gas coal yielding 15,600 ft. In London prices range from 23/@25/.

In the North of England, No. 3 pig iron has declined to 65/@ 70/ ; No. 4 forge, 57/ 6d.@60/, net cash. Rails are quoted at £8 10/, but £9 is the general quotation for ordinary sections. At Wolverhampton, common cinder pigs are quoted £3 10/@ £4 ; all-mine pigs, £5 12/ 6d. for ordinary, and £6 10/ for best brands.

Wales.—There are numerous works standing idle owing to the dispute between the masters and men, although some of the larger works have been fairly employed, and considerable work has been turned out. Rails are quoted as low as £7 15/, and there is a better inquiry. Owing to the uncertainty as to the future actions of the workmen, there is a disinclination to accept or place orders, which is doing much to add to the quietness in trade. For certain kinds of coal there is a good demand, but the supplies, as a rule, are up to the demand, and should the men resume work in full there would be an accumulation of stock, which would probably result in a decline of prices, and a further reduction of wages.

Scotland.—There has been less speculation in the warrant market, this week, in consequence of the heavy drop that took place in prices during the previous week. The small business that was done ranged from 95/@97/. A small number of transactions were effected at from 98/ to 99/ 9d. The following were the shipments of pig iron from Scotch ports :

SHIPMENTS.

Week ending 21st June, 1873	12,287 tons.
" " 20th June, 1874	5,475 "
Decrease	6,812 tons.
Total Decrease since 25th December 1873	128,074 "

IMPORTS OF MIDDLESBRO' PIG-IRON INTO GRANGEMOUTH.

Week ending 20th June, 1874	2,360 tons.
" " 21st June, 1873	730 "
Increase	1,630 tons
Total increase for 1874	30,586 "

There is a steady increase in the stock of pigs and the warrants have fallen into few hands. The demand is very limited. The strike of the ironstone miners shows signs of approaching termination. During the last week the 40 per cent. reduction has been submitted to by the miners of the Monkland Iron Company, the Lesmahagow and Nitshill Coal Company, and Messrs. RUSSEL & Co., Cambuslang, and it is expected that many others will speedily follow their example. Many of the miners are dissatisfied with the Union pay ; this shows an inclination to better themselves by submitting to the masters' terms. The following are the quotations of makers' brands of pig iron : Gartsherrie, No, 1, 107/ 6d. ; Coltness, 110/ ; Summerlee, 105/ ; Langloan, 107/ 6d. ; Govan, 97/ ; Calder, 105 ; Shotts, 105 ; Monkland, 98/ ; Clyde, 97/ ; Eglinton, 96/ ; Dalmellington, 96/ ; Glengarnock, 100/ ; Carron, 95 ; Kinniel, 95/.

With the exception of certain qualities of steam coal, there is but little doing in the coal business. Best steam coal can now be obtained f. o. b. at 15/@16/ 6d. per ton, and house coal (Wishaw) at 11/ ; Ayreshire, 10/ ; and splint 8/ per ton. The ironmasters' colliers are crowding the coalmasters' pits, and the consequence is that coal will soon be a drug in the market. The tyes and sidings about the pits and railway stations are crowded with loaded wagons awaiting purchasers.

IRON MARKET REVIEW.

New York.

July 17, 1874.

The iron trade continues without change. The transactions which we can authenticate, do but little to give life to business. There are more cash offers for rails in the market, this week, but they are mostly on Canadian account, and, probably, somewhat exaggerated. There is a report of a large sale on Canadian account, but we think the quantity entirely too large, and the sale rather premature. Prices, all around, continue to show a weakness, and regular quotations are, as a rule, capable of being shaded. We are unable, as yet, to see any thing indicating a good fall trade.

American Pig.—There is but a very small consumptive demand, consumers only purchasing for immediate necessities. We note a lot of 500 tons, sold to a dealer, on private terms. That there is no speculation, is an evidence that iron at the present quotations is not considered a bargain. We are informed by dealers that the general impression is, that the bottom has been reached. If such be the case, the lack of business would indicate that there is a further impression that we are to remain there. We quote No. 1 foundry at $30@$32 ; No. 2, $28@$30 ; and gray forge, $26@$28.

Scotch Pig.—There is but little iron being placed on consumptive account, the sales in a total not being worthy of note. We note the sale of 500 tons Scotch pig iron to a dealer in connection with an equal amount of American mentioned above. Quotations may be given as follows : Summerlee, $36 Carnbroe, $34 ; Eglinton, $33 ; Coltness, $39@$40 ; Glengarnock, $36. From a private telegram we get the following Glasgow quotations, which show an advance from our latest mail advices : Coltness, 105/ ; Langloan, 102 / ; Summerlee, 100/ ; Glengarnock, 92/ ; Carnbroe, 86/ ; Eglinton, 84/. By mail we learn that the strike of the Glasgow quay laborers has ended by the men submitting to the masters' terms. We also learn that colliery after colliery is starting work, the men submitting to the 40 per cent. reduction. In the present state of trade the ironmasters show no inclination to blow in their furnaces until they have seen the end of the strike. The number of furnaces in blast were 50 less than at the corresponding time last year. The stock in store is constantly increasing. There is no legitimate cause why iron should stand so high in price ; the market has been entirely controlled by speculators.

Iron Rails.—There are more desirable inquiries this week, but hardly of sufficient importance to give much strength to prices. We note the sale of about 2,000 tons by the Bethlehem Iron Company on private terms. Beyond this we were unable to learn of any sales fully consummated. We quote American at the works at $60 dollars, currency, and foreign at $47@$50, gold, here.

Bessemer Rails.—There have been no transactions. American at mills nominally at $97 50, currency, and foreign here, $90, gold.

Old Rails.—There is nothing doing, and but small inquiry. Quotations can only be considered nominal. Notices have been issued in Wales of further reductions of wages ranging from 15 to 30 per cent., which, if secured, will permit rails to be sold at a figure likely to bring about an increased business. This has given more strength to old rails in the English market.

Scrap Iron.—We note the sale of 300 tons No. 1 wrought to an Eastern mill on private terms, and continue to quote No. 1 wrought, at $36 and scrap at $22@$28.

Spiegeleisen.—In the absence of transactions, we quote nominally at $55, gold.

Boston.

July 11, 1874.

The market continues to rule very dull, while constantly new temptations are held out to cash buyers to invest in a lot stored elsewhere, but held in weak hands. The lot of 500 tons offered in this market two weeks ago, then noted, has been secured by a New Hampshire founder at a mere trifle over $32, laid down at his door. We note this case as but a sample. The consumption of iron hereabouts has been, and and is likely to be until September, almost nothing. There is no call for house castings, no inquiry for large machine mouldings, a very quiet time, comparatively, with the stovemakers, all of which emphasizes the quietness in iron.

We quote yard lots of American Pig Iron at $36@$40 per ton, including No. 2 extra at $34@$36, and No. 1 at $37@$40. We quote Eglinton at $38@$40. Coltness Gartsherrie at $45@$46, Charcoal at $45@$55.—*Commercial Bulletin.*

Cleveland

July 14, 1874.

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

Our pig iron market is showing some signs of improvement. There is an increasing inquiry for iron, although prices have not materially advanced. We quote as follows :

No. 1, Anthracite Foundry	$33 00@34 00	4 mos
No. 2, " "	31 50@32 50	4 mos
No. 1, Bituminous "	33 00@34 00	4 mos
No. 2, " "	31 00@32 00	4 mos
No. 1, Grey Forge Bituminous	27 00@28 50	4 mos
No. 2, Close Grey	26 00@27 00	4 mos
No. 1, Massilon Black Band	36 00@37 00	4 mos
No. B-r " "	34 50@35 50	4 mos
No. 2 " "	33 00@34 00	4 mos
No. 1, Lake Superior Charcoal	39 00@40 00	4 mos
No. 2, " "	37 00@39 00	4 mos
No. 3, " "	41 00@43 00	4 mos
Nos 4, 5, 6, " "	43 00@46 00	4 mos
American Scotch	33 50@34 00	4 mos

Chicago

July 7, 1874.

Specially reported by Messrs. ROGERS & Co., dealers in Scotch and American pig iron.

Below we quote our market prices for pig iron and rails.

No. 1 Coltness	$46 00@ ....
No. 1 Gartsherrie	45 00@ ....
No. 1 Summerlee	44 00@ ....
No. 1 Glengarnock	42 00@ ....
No. 1 Eglinton	38 00@ ....
Warner's "American Scotch"	38 00@ ....
Massilon No. 1 Foundry	37 00@ ....
No. 1 Grand Tower Mo. ores (Bituminous)	35 00@ ....
No. 2, " " "	32 00@ ....
No. 1 Mill	30 00@ ....
Union "A" 1 (Anthracite)	34 00@ ....
Union "B" 1 (Anthracite)	32 00@ ....
No. 1 Lake Superior (charcoal)	38 00@ ....
No. 2 Lake Superior "	36 00@ ....
No. 3 Lake Superior "	42 00@ ....
No. 4 Lake Superior "	45 00@ ....
Bessemer Steel Rails	95 00@97 50
New Iron Rails	58 00@60 00
Old Rails	32 50@ ....

Cincinnati.

July 14, 1874.

Specially reported by Messrs. TRAHER & AUBERT, commission merchants for the sale of pig iron, blooms, ore, etc.

Below we give you closing quotations of our pig iron market.

CHARCOAL.

Hanging Rock, No. 1, Foundry	$33 00@34 00	4 mos
" No. 2, "	30 00@32 00	4 mos
" Mill	27 00@29 00	4 mos
Tennessee No 1, Foundry	30 00@32 00	4 mos
Tennessee. No. 2 "	28 00@29 00	4 mos
" Mill	27 00@29 00	4 mos
Missouri, No. 1, Foundry	34 99@35 00	4 mos

STONE COAL.

Ohio No. 1, Foundry	31 00@32 00	4 mos
" No. 2, "	29 00@30 00	4 mos
Ohio Mill	27 00@28 00	4 mos
Missouri, No. 1, Foundry	31 00@32 00	4 mos
" No. 2, "	29 00@30 00	4 mos
" Mill	27 00@28 00	4 mos

CAR-WHEEL.

Hanging Rock, C. B	50 00@55 00	4 mos
Tennessee "	45 00@48 00	4 mos
Missouri "	45 00@48 00	4 mos
Alabama "	45 00@48 00	4 mos

BLOOMS.

Charcoal	85 00@ 95 00	cash

SCRAP IRON.

Cast	— 80@ 90	cash
Wrought	1 25@ 1 40	cash
Rails	65@ 68	cash

Indianapolis, Ind.

July 13, 1874.

Specially reported by NELSON KINGMAN, broker and dealer in pig iron, etc.

Prices remain without change since my last report, with greater firmness in galvanized, and black sheet, and bar iron generally.

New Rails at mill	$64 00@66 00	
Old Rails "	33 00@34 00	
Hanging Rock Charcoal Pig No. 1 foundry	35 50@36 50	4 mos
" " " " " 2 "	33 50@34 00	4 mos
" " " " Mill	30 00@32 00	4 mos

STONE COAL.

Indiana No. 1 Foundry pig Planet furn'e	32 00@34 00	4 mos
" 2 " " "	31 00@32 00	4 mos
" 1 Forge " "	29 00@ ...	4 mos
" 2 " " "	27 00@ ...	4 mos
Ohio No. 1 Foundry pig	35 00@36 00	4 mos
" 2 "	33 00@34 00	4 mos
" 1 mill	29 00@30 00	4 mos
Merchant Bar, card rates	52 00@54 00	3 mos
1st quality C. H. No. 1 Boiler Plates, per lb	6½c.	3 mos
1st " Com Sheet, for No. 24, W.G. "	4¾c.	3 mos
1st " Charcoal Sheet " " "	6½c.	3 mos
Best Bloom Galvanized Shee', discount	20 per cent	cash
2d quality " " "	30 "	cash

f. o. b in Indianapolis.

Louisville.

July 14, 1874.

Specially reported by GEORGE H. HULL, Esq.

Prices are steady, but the market is dull, and sales are confined to small lots for immediate use.

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

HOT BLAST—CHARCOAL.

No. 1 foundry, from Hanging Rock ores	$33 00@35 00
No. 2 " " "	30 00@32 00
No. 1, forge, " "	27 00@28 00
No. 1, foundry, " Tennessee "	32 00@34 00
No. 2 " " "	28 00@30 00
No. 1, forge, " "	26 00@27 00
No. 1, foundry, " Alabama "	32 00@34 00
No. 1 " " Iron Mountain "	34 00@36 00

HOT BLAST—STONECOAL.

No. 1, foundry, from Missouri ores	33 00@34 00
No. 2, " "	28 00@30 00
No. 1, forge " "	26 00@27 00

COLD BLAST—CHARCOAL.

Car Wheel from Hanging Rock ores	50 00@54 00
" " Tennessee "	48 00@50 00
" " Alabama "	50 00@52 00
" " Georgia "	50 00@52 00
" " Missouri "	48 00@50 00
" " Kentucky "	50 00@52 00

San Francisco.

From the *Commercial Herald*, July 2.

Imports for the week include 340 tons Scotch Pig Iron, per City of York from Liverpool. Oregon Pig Iron is held at $45; Scotch do. at $40@$42 50; common $36@38.

Pittsburgh.

July 14, 1874.

Specially reported by A. H. CHILDS, Esq., commission merchant for the sale of pig iron, blooms, ore, &c.:

The pig iron market is quiet, and prices remain steady.

The metal market has been very quiet since last report, but the opinion seems to be general that the lowest point has been reached. Gray forge iron remains firm at $27 4 mos., and holders finally are refusing to contract for future deliveries at this figure.

No. 1 Foundry, anthracite or bituminous	$30 00@31 00	4 mos
No. 2, " "	28 00@29 00	4 mos
Gray forge " "	27 00@27 50	4 mos
White and motled " "	24 00@26 00	4 mos

The Pittsburgh *Commercial* reports the following sales for week ending July 3, 1874:

IRON MADE FROM LAKE SUPERIOR ORES, SMELTED BY BITUMINOUS COAL.

300 tons gray forge	$27 00	4 mos
200 " " "	25 00	cash.
200 " " " R. S.	27 50	4 mos
200 " white and mottled	25 00	4 mos
200 " cold short	25 00	4 mos
100 " gray forge	27 00	4 mos
100 " " " choice	28 00	4 mos
100 " No. 1 foundry	28 00	cash.
100 " gray forge	26 50	4 mos
100 " gray forge	27 25	4 mos
70 " a mixed lot	24 00	cash.

CONNELLSVILLE COKE.

100 tons gray forge neutral	$26 00	cash.
20 " No. 2 foundry	28 00	4 mos
10 " No. 1 foundry	31 00	4 mos

ANTHRACITE.

110 tons gray forge	$26 00	4 mos
100 " " "	27 00	4 mos

CHARCOAL.

100 tons No. 3 Missouri, C. B	$45 00	4 mos
100 " No. 2 Lake Superior	38 00	4 mos

St. Louis, Mo.

July 10, 1874.

The *Railway Register* reports as follows:—There is no material change to note in the market at this point, and the transactions are not worthy of especial mention. Bar iron remains dull @ $29 00 with slight demand. Pig iron remains at our usual quotations, but the market is more healthy and a better feeling prevails. Railroad iron has considerable inquiry, and it now looks as if a fair business would be transacted this fall.

The Vulcan Iron Works Company have stopped their rolling mill for a rest during the hot weather. They are running but one furnace. The South St. Louis Iron Company are only running one stack. The Missouri Furnace Company's last stack went out of blast last week. The Iron Mountain Iron Company's furnace commenced last Sunday to run on cold blast charcoal pig for car wheel and malleable use.

IRON ORE.

About 20 000 tons of Iron Mountain ore are at the river dump awaiting transportation. Six barges left early in the week loaded for the Ohio river, with 1,900 tons of ore. Shipments of Iron Mountain ore from January 1st to July 1st amount to 100,000 tons, over 40,000 of which was mined and on hand at the beginning of 1874. The total receipts from the mines of the State since January 1st at St. Louis are 102,300 tons of ore, a little over 40,000 tons coming from Dent and Crawford Counties, and the banks along the Atlantic and Pacific railroad, and 60,000 from Iron Mountain. The demand is light and shipments falling off.

No. 1 foundry, Stone Coal, Mo	$32 00@$34 00	
No. 2 foundry, " "	29 00@ 31 00	
Mill " "	26 00@ 28 00	
No. 1 foundry charcoal, Mo	33 00@ 35 00	
No. 2 " " "	30 00@ 32 00	
White and mottled charcoal. Mo	35 00@ 36 00	
Tennessee charcoal No. 1 foundry	33 00@ 35 00	
Alabama " " "	33 00@ 35 00	
Scotch, according to brand	43 00@ 45 00	
Massillon	38 00@ 40 00	
American Scotch	43 00	
Hanging Rock	35 00	
Missouri cold blast charcoal	49 00@ 51 00	
Tennessee, " " "	48 00@ 50 00	
Kentucky, " " "	56 00@ 58 00	
Alabama & Georgia, cold bast charcoal	58 00@ 50 60	
Missouri charcoal blooms	85 00@ 90 00	

RAILS.

50 to 60 lb. inclusive	65 00@68 00

MISSOURI IRON ORES.

Iron Mountain, per ton	$8 00
Benton Creek, "	7 50
Surface ores, "	8 00
Red and brown hematites, per ton	5 00@6 50
Pilot Knob, per ton	5 50
Maramac	6 50

METALS.

NEW YORK, July 18, 1874.

Gold Coin.—During the week past gold has ranged from 1 9¼ to 110, and closed yesterday at 109¾.

Bullion.—Fine silver bar is quoted at $1 26½@1 27⅛, gold, per ounce, and fine gold bar at ⅛ per cent. discount to par ($20 67, gold, per ounce). The decline in silver is accounted for by the supply being in excess of the demand, and a decrease in its value in Europe.

Copper.—Copper has been the center of attraction in the metal market during the past week. The sales in this market have amounted to about 1,000,000 lb. at from 23c.@23¾c., mostly at 23¼c.@23½c. The leading feature of the week was the withdrawal of 5,000,000 lb. from this market for export to England and the Continent at 17c., gold. The purchasers guaranteed that none of this lot should be returned upon this market, but there is a belief that in a very short time we will see some of it again, as restrictions cannot be placed on purchasers several transactions removed, and as American manufactured goods can be returned to this country free of duty, it will be a fine opportunity for the "bears" to work upon the market. There has been, and is, considerable outside copper upon the market, which has made prices very weak, and there is every indication that 22c. may be reached before another week has passed. The news of the shipment of this lot of copper had a depressing effect upon the London market, as by telegram we learn that yesterday the market was weak with no confidence, and that Chili bars were quoted at £76; ordinary, £82; and best selected, £84. The consumptive demand here is light. The principal holders are asking 24c. but we know of a large quantity of outside copper offered at 23c. this day, too large to have been offered as a "bear" experiment.

Tin.—There is nothing doing except in a jobbing way. Straits is held at 23¼c.@23½c.; L. & F., 21½c.@21¾c.; English Refined, 22¾c.@22½c.; and Banca nominal at 25¼c. By cable, from London, under date of yesterday, we learn that Straits was quoted at £96@£97, as compared with £99 at the date of our last report. In tin plates there has been considerable business transacted, the sales amounting to several thousand boxes, for August delivery, on private terms. The inquiries continue quite abundant. Although the strike in England is at an end, yet the labor has been so much directed to other occupations that it will be impossible to produce anything like the quantity previously manufactured. Charcoal tins are quoted at $10 25@$10 50 per box; charcoal ternes, $9 25@$9 50; coke tins, $8 12½@$8 25; coke ternes, $7 75@$8 25.

Lead.—The sales during the week aggregate about 150 tons. The stock in this market is very light, with indications that the production of bullion in the West will be small. The anticipated Government sale still hangs over the market, having its depressing influence. American is being quoted at $5 70. Foreign is nominal.

Spelter.—The market is quiet. We continue to quote Foreign at 6⅝c@6¾c., gold, and Domestic at 6⅞c.@7c., currency.

Zinc.—Sheet zinc is quiet at 8¼c., gold, for Foreign and Domestic.

Antimony.—There has been considerable doing at 11¾c.@12c., gold.

Manganese.—The quotations are as follows: Manganite, Ga. and Va., 3c.; N. B., 3½c.; Pyrolusite, N.B., 85 per cent., 5c., and German Manganite, 6½c. There is considerable inquiry.

Quicksilver.—The demand is still ahead of the supply, and prices as heretofore reported are: in this city $1 42 per lb., and in San Francisco $1 35, both gold. In London £19 15/ per flask, (76½ lb.) The production of the Quicksilver Mining Company for the month of June was 661 flasks, as compared with 729 flasks for the previous month, and 910 flasks for the corresponding month last year. The production for the first six months of the year was 4225 flasks, as compared with 6442 flasks for the same period in 1873. These figures show a decrease for the month of 68 flasks as compared with May, and 249 flasks as compared with June of last year. The decrease for the first six months, as compared with 1873, was 2217 flasks.

San Francisco Stock Market.

BY TELEGRAPH.

NEW YORK, July 16, 1874.

Our advices from the San Francisco Stock Board are dated the 14th inst. Imperial remains as quoted in our last, with which exception the list has materially declined.

A dividend of $1 per share has been declared by the Eureka Consolidated Mining Company, payable on the 6th inst. A dividend of $3 per share has also been declared by the Crown Point Mining Co., payable on the 11th inst. The report is as follows:

Savage	82	Imperial	8
Crown Point	76	Raymond & Ely	15
Yellow Jacket	85	Meadow Valley	7
Kentuck	14	Eureka V. G. Bid asked	8
Chollar Potosi	63	Ophir	—
Gould & Curry	20	Hale & Norcross	—
Belcher	75		

Boston Stock Market.

BOSTON, July 16, 1874.

The following are the prices bid for Copper Stocks at the opening of the Stock Board. The market is very inactive and transactions limited. Five shares of Calumet and Hecla sold yesterday at $135 per share, that being the only sale during the day.

Allouez	—	Pewabic	—
Calumet and Hecla Co.	133	Phœnix	14
Copper Falls	13	Quincy	31
Central	—	Ridge	—
Franklin	—	Rockland	1
Mesnard	—	St. Clair	—
National	—	Star	—
Petherick	—		