NEW YORK, MAY 26, 1849.

Pleasures Connected with the Pursuit of Science.

There is no station in life however lowly, but has its sweets, and there is no station in life however high, but has its sorrows. In no instance can sorrow be traced to the pursuit of science. Whatever pleasure it may bring—one thing is certainly true, it brings no sorrows. On the contrary, it a source of enjoyment to every man who has a taste to pursue it, be that man an humble tradesman or a wealthy merchant. It is a common opinion that no man is scientific unless he is master of all the abstract knowledge relating to astronomy, mathematics, chemistry, geology, and is somewhat versed in Latin and Greek. But where can we find a man so thoroughly endowed with scientific knowledge. There are many men who have a partial knowledge of these sciences, and we are among the number of those who do not believe in the old adage, "a little knowledge does more harm than good." That man is scientific who is master of his trade—understands all its principles and practices, or is master of his profession, be it teacher of languages or mathematics.—So much for practical scientific attainments. And now what shall we say regarding more knowledge than merely comes the within scope of a man's business and profession. We have every thing to say that is favorable. The more knowledge a man possesses, he is more likely to be a better citizen and member of society. Ignorance degrades, knowledge elevates.

How much pleasure would a shoemaker derive from being acquainted with the principles of the steam engine, or the mysteries of chemistry. He could not turn to the right or to the left in the course of a short walk, without having his mind attracted to something interesting and useful, and calculated to draw his mind from the drudgeries of his own occupation, which, we regret to say, often excites our sympathies, as we believe shoemakers are not so well paid for their labor as they should be. And with regard to chemical science, it would teach many of them to labor in better ventillated apartments, than they in general do. How much pleasure would a tailor, or any other tradesman enjoy, if he possessed some knowledge of geology—it makes no matter how little it may be at first, it is of so attractive and pleasureable a nature, that "the little leaven would soon leaven the whole lump." If he takes a walk into the fields, he is delighted not only with the perspective beauties of nature but with its wonders too. The mute rocks speak to him in a well known tongue, and the pebbles by the river side chaunt to him the song of mountain rill, and cataract. He may lift up a grain of the carburet of iron, and his mental eye sees it in the pencil of the artist sketching the outlines of some immortal work of art. He may lift from beneath his feet a crystal of the magnetic oxide of iron, and his mental eye may figure it transformed into the pen of the statesman, or author; or into the sword of the warrior, or the husbandman's ploughshare of peace. He may lift up a blackish brown powder from beneath his feet, and to others it would be as an idle tale, but his mental eye can trace the chromate of iron adorning in orange or gold colors, the turban of the Tartar or the scarf of the fair. Did space permit, we might here branch out into a most interesting and instructive field, but it is as well perhaps that we cannot do so at present, and we believe that it is far better to present objects to make others think, than to deal with subjects in such a manner as to prevent them from thinking.

Would some of our correspondents who have fairly tested the economical capabilities of the condensing, and non-condensing engine, furnish us with the result—the per centage of difference.

Anthracite Coal in Locomotive Engines.

George W. Whistler, Jr. C. E. has made a valuable report on the use of anthracite coal in locomotive engines on the Reading, Pa. Railroad. The Report is a very valuable one in many respects, as it institutes a comparison between the expense of working anthracite coal, and wood burning locomotives; and also brings into notice the workings of a condensing locomotive, which settles the question respecting their utility as locomotives, and bears us out in the opposite theoretical views we expressed a short time ago to a somewhat eminent engineer, viz. that "we believed a condensing locomotive entirely unfit for practical purposes."

The engine Novelty was built with 8 driving wheels 46 inches in diameter, boiler on a separate carriage behind the engine connected with flexible steam pipes, (ball and slip joints) weight of engine 21.5 tons, diameter of cylinder 18 inches, length of stroke 20 inches, area of fire grate 36 feet, fire surface 1085 feet. Placed upon the engine was a cylinder of boiler iron 42 inches in diameter and 18 feet long, having connexion with the water tank immediately behind the boiler. The cylinder of the boiler was for the purpose of giving adhesion (?) to the engine and to act as a condenser for the exhaust steam to heat the water from the tank before it passed into the boiler. The combustion of the coal was promoted by a fan blast.

With respect to this engine Mr. Whistler says, "I was so fortunate as to see it for several successive days under admitted favorable circumstances, and though it made good time over the road, I could but agree in the opinion generally entertained and expressed of its entire *impracticability*." This engine although provided with a condenser and having twice the area of grate of Ross Winans' Baltimore engines, consumed nearly half as much more fuel doing the same work. A large per centage of steam was required to drive the fan blast, and the fire place was too large—there is a right and a wrong size in every thing both for beauty and working. It is an evidence how much is lost in this case by not employing a chemical blower (exhaust steam) in place of transmitting the same power to work fan blast.

BALTIMORE ANTHRACITE COAL ENGINE.

Boiler diameter 42 inches, length of tubes 14 feet, diameter of do 2 feet 8 inches, area of grate 18 feet, 957 feet fire surface, being 110 less than the Novelty's, diameter of driving wheel 46 inches, diameter of cylinders 16.5 inches, length of stroke 20 inches; the draft was regulated by the variable exhaust in the smoke jack; the steam was cut off at the half stroke. This class of engines were built by Ross Winans of Baltimore, and while the condensing locomotive (Novelty,) consumed 10,7 tons of coal per round trip between Richmond and Pottsville, the non-condensing locomotive only consumed 9.4 tons of coal to do the same work.

WOOD LOCOMOTIVE.

Eight drawing wheels 46 inches in diameter, cylinders 15.5 inches in diameter and stroke 20 inches. The area of grate 12 feet and heating surface 875 feet.

The wood consumed per round trip was 14. 37 cords. The cost of wood at $4 per cord would be $57,48 per trip, for coal to the non condensing locomotive $25,85 per trip, and for the non-condensing one $29,42 per trip.—Mr. M. W. Baldwin of Philadelphia, is the builder of the wood locomotives mentioned, and Ross Winans, of Baltimore, the non-condensing coal engines. The expense for repairs in the coal burning engines, however, is more than in the wood burning engines. The fire boxes, grates and other things are sooner destroyed. The whole expense over and above the wood burning engines for one year, Mr. Whistler thinks might be reduced to $375,50. But allowing the expense to be double this amount and calculating the price of fuel as stated above, if one engine would make 100 round trips in the year, the saving in fuel for the coal engine would be near $3000—thus, wood engine each trip $57,48—coal $25,85.—Excess wood $31,63X100 round trips per annum $3,163. Deduct extra repairs $375,50—in favor of coal engine $2,787 50. We have struck the difference in expence between these two classes of engines as presented in the details of the report, and will close this article with Mr. Whistler's conclusive words: "When the difficulties attending the use of anthracite coal locomotive engines are considered in connection with the entire want of experience with this fuel on a scale adequate to the necessities of the Reading Railroad, it will not be too much to say that the Baltimore engines have been entirely successful as coal burners—the term is but comparative and assigns no limit to the success which I believe will follow well directed efforts to improve such details as passing experience will show to be necessary to insure greater economy of fuel, or greater durability of parts."

The Bridge of Pesth.

This splendid Suspension Bridge—the grandest and greatest in the whole world, and a short description of which we presented to our readers on page 261 this vol. Scientific American, has been destroyed by the Austrian army on its retreat before the victorious Hungarians. In our account (on the page referred to) of this grand structure, it is stated that it was first opened to an army of retreating Hungarians pursued by the imperial army of Austria. The then defeated Huns, rebels though they have been called, had too much respect for the bridge as a work of art to lay a destroying hand upon its stately and graceful proportions, to cover their retreat. Not so with the *legitimate* soldiers called the lawful rulers, as the latest news from Europe informs us, for no sooner had the imperial troops been driven over the Danube, than they turned into ruins this work of Hungarian pride to cover their retreat. Nothing it seems is either too sacred or sublime to arrest the destroying propensities of Austria's minions. Liberty and Art must fall before the scowl and interest of despots. Well, we gave ourselves but little trouble or thought about this war before, but for this wanton destruction of the Bridge of Pesth, by the Austrians. We hope that the Huns, will vanquish both them and their allies the serf army of Russians, which has been called upon to assist the Austrians.

Ohio Mechanics Institute.

The Tenth Annual Exhibition of this Institution will be held in the city of Cincinnati, on the 5th of next September. The exhibition rooms will be open on the 1st of August. The design of the exhibition is to excite among workmen a generous emulation and thereby improve the quality and increase the variety of our manufactures and bring into notice worthy improvements in the arts.

We believe that this Institute is in a very flourishing condition—we wish that we could say as much for the New York Mechanics Institute, but we hope to see it yet standing as it should do "the first in the land." And here let us give a few words of advice. We hope the Institute will take rooms somewhere farther up in the city, in order to suit the convenience of our mechanics, who mostly reside above Canal st. We also hope that our mechanics will come forward in great numbers and join it so as to provide for two regular courses of lectures every winter, viz. Natural Philosophy—Chemistry, and Practical Mechanics.

American Fireproof Safes.

At a fire in Sheffield, England, which destroyed a large establishment, one of Herring's Salamander Safes containing a portion of the books, and as it happened the most valuable, was taken from the ruins safe and sound, while two others of English patent and manufacture were so burned that all their contents were destroyed. The Yankees can go a little further through fire and water than any other "live" people.

Spontaneous Combustion.

The Bucket Factory at Marietta, says the Columbia (Pa.,) Spy, narrowly escaped destruction a short time ago, by shavings becoming saturated with oil from a leaky barrel, and taking fire. The superintendent, to test this, poured over them some oil, and in 1½ hours, the contents and the bucket itself were in a blaze. This fact should be remembered, and carefully guarded against; especially by cabinet makers, chair makers, &c.

White's Patent Hydro-carbon Gas.

As we have seen different articles in various papers respecting this light, we publish the following account of it taken from a lecture delivered by the inventor himself in Manchester, England, and which will correct some erroneous statements which have been circulated regarding the manner of producing it. The gas is made from decomposed water and the way this is done, is by permitting a regular thin sheet of water to fall upon a mass of iron and charcoal contained in a retort heated to redness, by which the water was instantly decomposed. The oxygen of the water combines with the charcoal, forming oxide of carbon, and also with the iron forming protoxide of iron. Hydrogen is given off with the oxide of carbon, but they would of themselves give no light without some other body. The gas which thus arises, is then passed through a second retort where it combines with bicarburet of hydrogen obtained from the decomposition of resin, which thereby forms a pure hydro-carbon gas, free from sulphur or ammonia, and contains no carbonic acid, all of which is found more or less in coal gas. It is conducted direct to the gasometer for consumption.

From a series of experiments conducted for a number of years, it was ascertained that 45 lbs. of resin or fat and 25 lbs. of water would produce in this way 1000 cubic feet of gas, and the fuel according to the price of our coal here would not cost more than 25 cents.

We have often spoken of gas as a good caloric generator to be used for the purposes of domestic cookery in warm weather. Gas derived from the decomposition of water alone without the use of any resin gas, would be excellent for this purpose, for although this gas only produces a blue flame, yet it gives out a great heat and is very pure for cooking purposes. The time may come when we shall use gas for this purpose as well as for domestic illumination. The former idea is less chimerical than than the latter was considered to be, when it was first proposed.

Southern Cotton Mills.

The manufacturers in our Southern States have a special object in view in the employment of factory operatives, viz. to raise the character of what are called the *poor white people* in the South. We believe that in different parts of North and South Carolina and Georgia, there exists a race called the Crackers, Sandhillers, &c. who are said to be descended of the Scottish Highlanders. They are represented as being very poor, and very ignorant, but very acute in making bargains and possessing the peculiar sharpness of the *Gael Albanaich*. They are poor because they consider manual labor degrading and being poor they are also ignorant. They will not work in company with the colored race, but have given good evidence of being industrious and willing to work in factories at mechanical occupations by themselves. This is the class that a number of Southern manufacturers intend to, and do now, employ in their factories. At Graniteville in South Carolina, not far from Charleston, under the able superintendence of Mr. Gregg, a little manufacturing village has lately been built up, where the families of the Crackers, as they are called, reclaimed from their idle lives in the woods, are settled, and white labor only is employed, and the result so far we believe is encouraging.

Prize for a Rotary Engine.

The Society for the encouragemt of National Industry at Paris, have awarded a prize of $10,000, for an improvement in steam engines by which a rotary motion is produced, directly without a crank. We should like to have a sight of it.

Our London Patrons.

We are happy in being able to inform our English patrons that such arrangements have been completed with the London Patent Office that the Scientific American may hereafter be found there. Messrs. Barlow & Payne are agents at 89 Chancery Lane, and will receive remittances on account of the Scientific American from those who may desire to subscribe.

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