



NEW YORK, SEPTEMBER 2, 1848.

**Be Intelligent.**

True learning does not consist in a profound knowledge of the dead languages, or an acquaintance merely with old authors. The linguist is a learned man in his way, but there are others as well learned as he, who know no other language but their mother tongue.— Knowledge alone constitutes true learning, and there is not a department of science that cannot be explored by any man who can read the English language. We have frequently heard workmen complain that they were not able to acquire certain kinds of knowledge and become acquainted with certain branches of science. There is no excuse for a man who can read and who has time to study. The great evil which workmen have to contend against, is a natural antipathy to severe reflection. It has often appeared to us, that the faculty of examining—turning over and over a subject in the mind and viewing it in all its phases, was not to be acquired, but inherent. We have frequently thought this, from observing a general disinclination in men of all classes, to profound investigation. But as severe physical toil without anything to render it joyous, is detested, so is mental toil if there is no nectar to sweeten the cup of the mental laborer.

As it is one of the express objects of the Scientific American to spread abroad useful information in a popular form, we have endeavored to convey sound knowledge to the minds, especially of our mechanics and workmen, in such a manner as would incite them to love knowledge for its own sake. In this respect, we have been somewhat successful, as many flattering letters testify—this is "like the gale of spring" to our feelings, and we take this opportunity again to urge upon our young subscribers, and old too, the great benefit, yea and the sweet emotions that are consequent upon mastering some useful piece of information, in comparison with time wasted or mispent. How sweet it is to rise in the morning after having become acquainted with something useful that we have read the night before, in comparison with dosing over, or upon the effects of some leaden headed plot in the last new novel. We do not say that those subjects which are named *scientific* are alone worthy of study, far from it.— History, political economy, passing events and religious knowledge are of the utmost consequence. But we would especially urge upon our mechanics to read and study works that are practical and sound, and to talk with one another about their contents, and discuss their merits. What is called a dry subject becomes an interesting one when we enter into its merits with a warmth of feeling and a desire to master it.

There is no man but likes to be esteemed intelligent, and would desire to be well informed. Now, just let any man lay out the subjects, whatever they may be, that he desires to become acquainted with, and then let him read, study and talk with others about them, and for a certainty he will not fail in his reward. He must, however, have perseverance, he must not lay aside his studies for darkness and difficulties, but he must "press onwards to the mark for the prize." Every step that he takes in a forward direction is an advance towards the end of his journey.

**Balloon Warfare.**

An English aeronaut named Coxwell is demonstrating a novel system of aerial warfare at Elberfeld, Prussia. On the 17th of July he ascended, in company with a German gentleman, and, when the balloon had attained a considerable altitude he descended from the car to the ærostatic battery, and commenced a sham bombardment of the town beneath him. This performance in mid air at once amazed and amused the spectators, whilst a party of scientific gentlemen decided that the ingeni-

ous plans of Mr. Coxwell might prove available for immensely useful purposes in actual warfare.

It may perhaps be but little known to many now living, that Napoleon frightened the inhabitants of Great Britain by threatening to invade that country by means of balloons.— He said that from the great improvements made in balloons, he would soon be able to cross the Channel with his army in divisions, horse, foot and artillery. Thousands in Britain believed it, and many an old woman saw a French invader in a distant sea gull. We have seen an old poem written by a rural bard named Walker, who ridiculed the common fears in a humorous manner, by representing the people flying in all quarters on the appearance of the van of Napoleon's balloon army, which turned out to be a flock of crows.

It may not perhaps be generally known, however, that Dr. Anderson while in France, during the old Revolution and when all French publications were prohibited from entering Germany, used to send messages away in balloons, when the wind was favorable, which were often picked up by the peasants to the great mortification of the authorities and frontier guards.

**New Atmospheric Railway.**

Many failures have been experienced in the operation of atmospheric railways, even in those which promised much. Whether atmospheric railways will supersede steam propulsion or not, is not the only consideration which should engage attention in respect to any mode of travel. Safety, economy, ease and pleasure, are things to be considered and valued, as much as speed, especially when it has noise and danger as attendants. We therefore will be glad to see a successful atmospheric railway, and from what a late London Mining Journal says, we may yet expect it. The Journal says that it saw a model atmospheric line lately patented by Messrs. Harlow and Young that operated beautifully. The model had a four inch tube 160 feet long, with a gradient at each end of 1 in 100, and a turntable at each extremity, giving the means of starting from each end alternately on the vacuum being obtained, and thus doing away with the necessity and trouble of pushing the carriage every time to the starting point of the tube. The tube is cast with a longitudinal opening, similar to Clegg's; but instead of a flap valve, the action is precisely similar to the slide valve of a steam engine.

The sides of the opening are so cast, that one side presents a horizontal groove, and the other a tabular face, both planed perfectly true; on this tabular face the slide valve rests, when forced out of the coulter, consisting of bars of iron, in a full size working tube, proposed to be four or five feet in length; at each end of these bars a semicircular opening is turned through about half their thickness, forming, when two abut against each other, a circular slot, in which is placed a disc of iron, ground perfectly true with the under surface of the bars, and thus presenting a sort of ruled joint, without any fixed axis, and forming collectively a loose chain which slides over the opening, and renders it perfectly airtight. To each of these bars or links is placed a steel spring, in the shape of a carriage spring consisting, however, of only one plate, and merely sufficient power to press the valve into its place, after the passage of the coulter; the whole is covered by a top plate, to keep out grit, wet snow, &c., with the exception of a small space to allow the coulter to pass, which is not much thicker than a saw blade, and which connects the leading carriage with the piston, in the usual manner.

It will be seen by this description, that the entire apparatus is formed of metal, requires the presence of no destructible material, such as leather, &c., and only sufficient lubrication to ease the friction in the sliding motion, and prevent the heating of the coulter in its passage along the edge of the tube and valve.— The construction of this railway tube is certainly, void of any complexity, and the model worked with great facility and correctness.— There was little lateral or transverse oscillation in the carriage, which was capable of carrying six persons. It had been inspected by many scientific men and eminent engineers,

who expressed their approbation, considering it based on sound mechanical principles, and that the more it is worked the closer the faces of the valve and tube will wear, and, consequently, so much more perfect the vacuum become.

It is easy to perceive by the above description, that it will never supersede the locomotive generally, but we have no doubt but it would be excellent for wooden railroads.

**For the Scientific American, Incrustations on Steam Boilers.**

For all the many *professed* ways that have been discovered to prevent incrustations especially in tubular boilers, we believe, from the practical evidence of more than one, that mahogany dust and muriatic acid, which were *once* to be the panacea for all incrustations whatever, have utterly failed to confer a single anticipated benefit. There are so many salts, according to the different kinds of water, deposited in the boiler that it is impossible to find out a universal anti-encrustant. In this respect our engineers are more unfortunate than our physicians who find no difficulty in procuring a universal specific for every physical evil which can be removed by some faithful detergent.

An old plan to prevent incrustations in English boilers, was the introduction of potatoes, at about two parts in weight to the 100 of water, the action of which was explained by Payen to be a preventive by the potatoes being converted by the boiling water into a thin starch or gluten which retained the precipitates finely suspended (as gum arabic suspends pigments in water colors,) and allows them to be removed with it, by occasionally emptying the boiler.

Indian meal has been generally used for the same purpose in America, and we approve of its use sparingly, although it tends to priming in soft or middling hard water, yet the priming has some effect in removing incrustations as we have noticed in a few instances. The Indian meal, or sweet potatoes (which have also been used,) are good for newly rivetted boilers in stopping small leaks by gradually depositing and hardening therein. In some waters which deposit stone crust in boilers, the Indian meal is the best thing so far as we are yet acquainted, to remove it. It is at least equal to more expensive substances which have been recommended, and altogether superior to exhausted dye stuffs for which a patent was secured three years ago. High pressure engines seldom need any remedy for incrustation—none if a current can be induced at the bottom of the boiler by mechanical means. Montgomery's boiler was to effect this, and some have spoken highly of its merits, while some have not spoken so favorably.

I have no doubt from what I have seen for myself, that the best and most economical plan for removing and preventing thick incrustations, is to have a draw-off pipe as low as possible and frequently draw off a few pails when the water is at its highest level under a good pressure. And it is also a good plan to introduce, say once in two weeks, a few pounds of Indian meal on a Saturday morning and draw off the water in the boiler in the evening. This latter plan I know is excellent and certainly not expensive, nor very troublesome.

R. BARTHOLOMEW.

New York, August 30, 1848.

**Letters for Europe.**

We have to caution persons against sending letters to Europe by way of Halifax, expecting thereby to save postage. Strict orders have been given to postmasters to prevent this way of eluding the recent stringent law regarding letters to England. The letters must be post paid in full here, and people coming from England should never carry sealed letters to friends or for friends in this country. Strict search is now made for these things at this and other ports—more strict even than at Liverpool on the other side and every one who has been to Europe knows that to be bad enough, sometimes at least.

**New York Revenue.**

From the commencement of navigation this year until the 14th ult. the amount of revenue received on the Canals of this State was \$1,452,013, being \$526,872 less than was received during the same period last year.

**The Carrot.**

Messrs. Munn & Co.

GENTLEMEN:—I notice in the last Scientific American your remarks on the Carrot, its useful, wholesome and beneficial uses, but as a profitable investment the half has not been told, and that is an important item to the grower.

The manufacturers with us have tested thoroughly the Woad made from the tops of the Carrot alone in the last year, and pronounce it fully equal if not superior to any imported or American woad, thus opening a channel for the profitable consumption of the whole plant. In our vicinity some considerable experiments have been made in its culture and the result is as follows to the acre:—

800 bushels Bottoms, at 20 cts. : : \$160  
3000 lbs. Tops, making 3000 lbs. Woad,  
at 5 cts. : : : : : 150

Making in all, : \$310

We use annually 6000 lbs. of woad, and you may judge as well as I can the whole amount used in the United States.

Yours, respectfully,

H. N. BARROW, Practical Dyer.

Broad Brook, Conn., August 15, 1848.

[This is a new field for agriculturists to cultivate, and we are happy to see that the above information comes from a practical dyer—one who is able to judge correctly and express sound opinions upon the subject.—Ed.]

**Worcester Mechanics' Fair.**

The first exhibition of the Worcester County Mechanics Association is to be held on the 26th of this month, in Worcester, Mass. The object of the Association, which is a very excellent one, is to incite a spirit of noble emulation among the mechanics around Worcester and the old Commonwealth. The Association was established in 1841. It has a good library, and an annual course of lectures on the Arts and Sciences.

Silver medals and diplomas will be awarded for works of merit, and contributions of all kinds of works of art and mechanism are solicited. The superintendent is P. W. Taft, who will have care over all articles sent to the exhibition. Persons having large articles to send, are requested to let the superintendent know the size of the same twenty days before the opening of the Fair.

We like to see such exhibitions, and are heartily glad to see the Worcester mechanics exhibiting such a spirit. There can be no doubt but they will have an excellent Fair, and much good will result from it.

**Another Spoke Machine.**

G & A. Odiorne, of No. 5 Congress Square, Boston, makes spoke machines. One for turning 4 at once they say costs \$150.

**Unprecedented Demand for Old Papers.**

At the commencement of the present volume of the Scientific American we had nearly one thousand complete sets of the preceding volume on hand. Since that time we have had 500 copies of those sets bound, and the balance have been ordered by mail and sent in sheets. We are now obliged to inform our patrons that we are unable any longer to furnish complete sets in sheets, and that we have but fifty more copies left, which are bound. The price of the remaining fifty copies which are left will be hereafter \$3 per copy (neatly bound,) or we can furnish a few more copies in sheets, minus Nos. 1, 10, 16, 17 and 46, at \$2 per set. All the numbers of the third volume can be had yet, at the subscription price.

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