

## Scientific Museum.

### Scientific Memoranda.

#### MAGNETIC ENGINE.

The Baltimore American states that a Mr. J. H. Tatum, of that city, has invented a new and wonderful Electro-Magnetic Engine constructed as follows:—It consists simply of a wheel, four feet in diameter and weighing about 500 pounds. It differs in its construction from an ordinary fly-wheel in each of its arms being provided at the outer end with a heavy wedge-like block of iron; sixteen of which, placed at the regular distances, occupy the periphery of the wheel. It is to these armatures, as they are styled, that Mr. Tatum applies the electro-magnetic current, and by attraction and repulsion obtains a power which propels the wheel.

[The principle of this engine is old.

#### HOUSE BUILDING IN PARIS.

This branch of industry is under the supervision of a special bureau at the prefecture. Before a proprietor can build, he must hand in a detailed plan of the structure, setting forth not only the relative position of the apartments, but the thickness of the walls, the nature of the material to be used, the number of stories, the slope of the roof and, in short all the particulars about it.

When the plan is approved, he is permitted to commence. As the work progresses, it is frequently visited by the officers attached to the bureau, who see that the plan is strictly adhered to, that the proprietor does not encroach on the street or his neighbor, and that the materials are good. The two great objects of the police requirements seem to be to secure the putting up of houses solidly built and not liable to take fire. For instance, every foundation wall must be of stone, and at least sixty centimetres, (one foot and eleven inches) thick. The thickness is preserved in all the outer walls, but, in some partition ones, may be diminished for stories above the second. Frame houses are unknown.

A common material for walls is cement, mixed with stones and pebbles; the cement, if well made, becomes hard as rock and is very durable. But to make assurance doubly sure, a solid frame work of seasoned timber, the joints well secured by broad iron bands, is first put up, and the cement is built upon this skeleton. One result of these judicious precautions is, that the Paris houses are remarkable for solidity. One hears of no workmen crushed by the falling in of a nine inch wall; one sees no houses with sides bulging out like those of an over stuffed band-box, or cracked from top to bottom and the halves ready to fall in opposite directions.

Great pains are also taken to guard against fire. The joists near the fire-places must be well sheeted with iron, and the houses roofed with some fire-proof material, such as metal, earthenware tiles, or a composition of asphaltum.

#### NEW SPECIES OF COTTON.

The Savannah Republican says, "Colonel Greene whose highly-cultivated plantation is on the island opposite this city, has left on our round table, where they can be seen by the public, three branches taken from the cotton stalks now growing on his ground. The seed from which the cotton was grown were sent about two years since to the late Captain Swiney, of this city, by whom they were given to Colonel Greene, with a view to ascertain, by planting them, the qualities of the species; but Colonel G. did not learn the name of the cotton, nor from whence the seed came. This was the second growth from the seed, the first planting having given him only a few stalks, from which he saved the seed which he planted this year. The stalks now standing measure about five feet in height. The limbs are from twelve to fourteen inches in length, and are covered with bolls, some of which have opened, yielding a short staple cotton of remarkable fineness. The greatest peculiarity of the plant is the large number of bolls which it bears, as many as 130 having been counted on a single stalk, and ten bolls on a limb only that number of inches in length. The boll opens free-

ly, and the cotton adheres well to the boll, which renders it less liable to be beaten out by the weather than ordinary cotton. The limbs from which the stem of the boll shoots, not at the joints or forks as in other cotton, being short, the plant can be more closely cultivated than any other."

#### PYROLIGNEOUS ACID.

Mr. John H. Turnbull, late of Scotland, has purchased a large tract of land in Broome Co., N. Y., with a good water-power on it, for the purpose of making pyroligneous acid. This acid is much used in dyeing and in calico printing, and we believe there are only one or two such establishments in America—one we think, near Pittsfield, Mass.

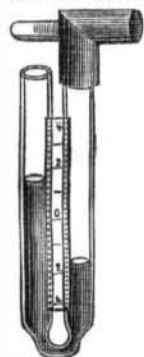
#### AUSTRALIA—A NEW DYE.

At a great fair held in Hobart Town, a number of new and valuable wool dyes were exhibited, especially the fixed black dye from the bark of the Eno, which was procurable in abundance at \$17 per ton, well adapted for tweed manufactures. Arrangements were in contemplation to introduce the Alpaca goat in the colony, which animal it was thought would thrive in districts where sheep cannot exist.

#### THE LARGEST STEAMBOAT YET.

A monster steamer, four hundred feet in length has been contracted for at Cincinnati to run as a regular ten-day packet between Louisville and New Orleans. She will cost four hundred and twenty thousand dollars, and will be the most splendid craft afloat at the West.

Wind Measurer.



This simple instrument, a siphon tube carrying a little water, was first applied by Dr. Lind to measure the force of the wind—one end of the siphon being bent horizontally so as to face the gale. The two limbs of the tube were each about 9 in. long and 4-10 in dia., and they were connected at their lower extremities by a smaller tube 1-10th of an inch in diameter, for the purpose of retarding the quick oscillations of the fluid by irregular blasts of wind. A scale of inches is placed between the two limbs, the zero corresponding to the level of the fluid in both tubes when subjected to equal pressures. In the figure, the two levels being each 1/2 inch from zero, their difference is equal to 3 inches. It was found by this instrument, that the difference of pressures on the windward and leeward sides of any object, even in the greatest gales, bears but a very small proportion to the whole pressure: for, while the latter is capable of supporting from 29 to 30 inches of mercury, or from 32 to 34 feet of water, the column of water supported in the wind-gauge never exceeds a few inches. While the average pressure of the air in all directions, therefore, amounts to 14 1/2 or 15 lbs. on a square inch, or above 2,000 lbs. on a square foot, the difference of this pressure in different directions, produced by wind, never exceeds 15 or 20 lbs. on the square foot, even in the greatest storms of our climate.

As this difference of pressures bears a simple relation to the velocity of the wind, the latter is easily calculated from it; and in this manner the following table has been constructed, to show the velocity and the pressure on a square foot of surface corresponding to different heights of water supported in the gauge, and to different familiar designations of the intensity of wind:

Gentle breeze . . .	3·25	0·01	0·83oz.
Pleasant breeze . . .	6·5	0·04	3·33 "
High wind . . .	16·25	0·25	1 lb. 5 "
Storm or gale . . .	32·5	1	5 lbs. 3 "
Great storm . . .	56·25	3	15 lbs. 9 "

Hurricane . . . 79·61 6 31 lbs. 3 "  
Tremendous hurricane 97·5 9 46lbs. 12 "  
Hence it appears that the pressure increases as the square of the wind's velocity, as will be seen by comparing either of the two latter columns of the table with the second.

#### To Our Young Men.

The following are some extracts taken from the speech recently made by Mr. MacGregor, M. P., at the annual opening of the Glasgow Athenaeum for the winter lectures. We are indebted to the Glasgow Daily Mail for it, and we sincerely desire the attention of our young men to the sentiments contained therein.

Mr. MacGregor said, he would desire to impress upon them the cultivation of such as had a bearing on the business of life as not of less value than the positive sciences. They might thus come to progress like the Royal Institution in London, or at some time perhaps they might obtain the same degree of fame as had attended the Institute of France, which had quite as humble an origin. The advantage that might accrue from the study of the experimental sciences had been largely illustrated by the wonder which had recently been developed in connection with chemistry, electricity and magnetism. With regard to what he had said of the education which they should pursue, he hoped he would not be understood as depreciating the study of the classics. He himself took very great delight in his moments of recreation, in going over the classic writers either of Greece or Rome; but at the same time he found that many of the most distinguished men had been those who had educated themselves in the practical business of the world. Instances that might attest the truth of this were numerous. Take that of Franklin. He was destitute of those advantages in early life which would have enabled him to become acquainted with ancient literature—he knew but that of his own country and France; for by dint of perseverance he acquired a knowledge of that language when he was sent as ambassador to that country, yet by the activity of a determined mind he, the poor printer's boy, became one of the most distinguished men of his time, the ambassador to the first court in Europe, and in a principal degree the liberator of his own country and the friend of freedom throughout the world. His great discovery was made with the commonest materials. With a brown paper kite, a bolt of iron, and a common key, he had, in the woods of Boulogne, drawn down electricity from the heavens. Such, he repeated, was an illustration of the effects of applying a great mind firmly to a set purpose. He wished them to cultivate such a spirit. Let them not despair of attaining any part which was accessible to ability and determination, in whatever situation they might be placed, or of securing the esteem of their fellow-citizens, and those distinctions which they can confer. Let them live a virtuous life, and do the best they can, and they would not fail of success.

#### One of the Comparative Advantages of Coke as Fuel.

Two similar stoves were heated, by M. Debat, one by wood the other by coke, and the temperature of the exterior taken at some distance from the fire. The temperature of the flues was at first 9° c., and the mean temperature, at the end of six hours, was, by the wood, 13° c., by the coke 16° c.; so that the increase by the wood was 4°, by the coke 6°. These effects were produced by seventy-three kilogrammes (163 pounds) of wood, worth three francs and a half, and twenty-four kilogrammes (53 pounds) of coke, worth one franc eighty cents.

During the progress of this experiment another stove had been heated for several hours with wood, and the temperature had not risen above 13°. The use of coke very quickly raised it to 15° or 16°. Hence it is concluded, and with reason, that coke is much preferable for these purposes to wood, but where the stove is small, the mixture of a little wood with the coke is recommended to facilitate the combustion.

The Gulf Stream takes two years and ten months to perform its circuit of 13,118 miles,

#### LITERARY NOTICES.

"THE NEW YORKER" is the title of a new daily paper, just commenced in this city by our old and highly esteemed friends, Messrs. Carlos D. Stuart & R. C. Webster: it is the design of the publishers to render it emphatically a reliable newspaper for the people—admitting nothing into its columns, either by way of advertisement or editorials, that can be offensive to the most refined taste. The editorial department is under the charge of Mr. Stuart, whose name as a poet and finished writer is well known to the country, and we trust that the publishers will meet with encouragement commensurate with their merits and industry. The paper is issued daily from the Office, No. 100 Nassau street, and sold for one cent.

JOHNSTON'S LECTURES ON AGRICULTURE.—Our readers will remember that Prof. Johnston, of Edinburgh, was invited by the New York State Agricultural Society to deliver the Annual Address last year; this he performed at Syracuse, after which he delivered lectures, in various parts of our country, on this all-important subject. These lectures, with accompanying notes, have been published by C. M. Saxton, No. 123 Fulton street, this city. These lectures are thoroughly practical—they go over the whole field and are clear and plain; the price in paper cover is 50 cents.

GRAHAM'S AMERICAN MAGAZINE, November number, contains a beautiful mezzotint of "The Highland Chase," and "The Angel's Whisper." It has an elegant colored fashion plate and a fine combination of original articles. This magazine is deservedly popular.

PETERSON'S LADIES' NATIONAL, for November, contains five full page engravings—one of which, "Early at Kissing," is most touching: The contributions are excellent. Messrs. Dewitt & Davenport are agents for the above magazines.

Messrs. Geo. Dexter & Bro., 43 Ann street, have for sale "Arthur's Home Gazette," the "Waverly Magazine," "Boston Museum," "American Courier," and, in fact, we can scarcely mention a newspaper, calculated for general circulation, which cannot be had of these enterprising Agents—always ready, prompt and faithful, they have won the confidence of the entire publishing community.

THE POWER OF BEAUTY.—John S. Taylor, 143 Nassau street, has just issued another little work, by J. T. Headley, which contains some beautiful plates, of beautiful ladies, to say the least. We have not investigated the Power of Beauty, but from a familiarity with the author's writings, we have no hesitation in pronouncing the book worth all that is asked for it—50 cents.

The above work is in mailable form, and orders are solicited for it, and also for "Letters from the Backwoods,"—being a series of letters from the backwoods of this State, by the same author; pamphlet form, price 25 cents.



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10 copies for 6 mos., \$3 15 copies for 12 mos., \$22  
10 " 12 " \$15 20 " 12 " \$28  
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#### PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—now in press, to be ready about the 1st of October. It will be one of the most complete works upon the subject ever issued, and will contain about ninety engravings.