

## Scientific Museum.

### The Barometer Outdone.

A correspondent of the "Philadelphia North American" gives an interesting description of an ingenious instrument, contrived by Dr. Merryweather of Yorkshire, Eng., the great working principle of which is founded on the sensitiveness of leeches to the changes of the weather. It is well known that leeches confined in a bottle partly filled with water, are accustomed, previous to a storm, to rouse from their sluggishness and exhibit signs of extraordinary perturbation. They will swim in all directions, and rising one after another to the top of the water, commence climbing the side of the bottle.—Availing himself of this time-honored custom among leeches, Dr. Merryweather arranged a number of bottles on a stand, each containing a leech and a metallic tube of a particular form, covered with shellac varnish, so that no metal could come in contact with the animal.—When a change in the weather was about to take place, the leeches would crawl into this metallic tube, and in so doing displace a small piece of whalebone which was arranged so as to partially close the opening. To this whalebone was attached a wire, which, passing upward through the mouth of the bottle, connected with the hammer of a bell, so that whenever the leeches were influenced by the electro-magnetic state of the atmosphere to ascend the tube, notice of the fact would be promptly transmitted to the ears of their master.

But it is not absolutely necessary that every one should have such a finished apparatus as that of Dr. Merryweather. On board of vessels it would only be necessary to keep a few leeches in a bottle, placed in some prominent place where the lookout could occasionally examine their movements, and the necessary warning be conveyed in ample time.

Dr. Merryweather seems to have tested his invention fairly. For an entire year (1850) he wrote to the president of the Philosophical Society of Whitby, accounts of the storm indications of his leeches; and in no instance did they prove incorrect. If these results are verified by other observations, a leech barometer may be deemed an indispensable appendage to every ship and every household.

### The Niger and its Tributaries.

At a recent meeting of the Royal Geographical Society, London, a letter was read by Mr. Gregor Laird, stating that the screw steamer destined for the exploration of the Niger and Chadda rivers would be ready in March next, and would probably leave the mouth of the main branch of the Niger on her expedition up the river, about the first of July. She will be accompanied by three metallic sectional boats, fifty feet long, and eight feet beam, each manned by natives, so that in the event of any serious accident to the steamer, the adventurers may take to the boats. The party will comprise but ten or twelve Europeans, and these will all be men of education and resources.—The steamer's and boat's crews will consist of negroes, to the number of eighty or ninety. It is supposed that the steamer, which will be propelled by a screw, will attain a speed of ten knots, and leaving the coast with thirty days coal will reach the head of the navigable waters of the Chadda, without being obliged to stop for additional fuel.

### Bronze for the Sheathing of Ships.

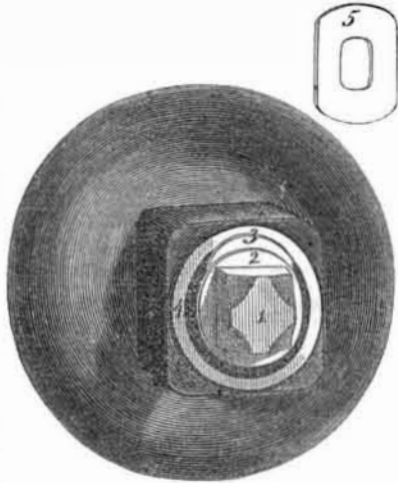
M. Robierre, a chemist, at Nantes, who has studied the subject for years, has arrived, by experiments, at the following conclusion: that by diminishing the proportion of tin, the oxidizable metal is less uniform in its distribution through the plates, and there is a consequent inequality of alteration under the influence of seawater. His recent researches show that sheathing of bronze is preferable, as regards durability and solidity, to copper or brass. The abnormal alterations which have been observed are due to defective manufacture. The presence of arsenic does not occasion alteration in this alloy, as happens for red copper. Bronze that will do good service contains in general 4.5 to 5.5 per cent. of tin; that with less, alters

unequally. The introduction of a little zinc into these alloys of copper and tin, improves the product by favoring the diffusion of the positive constituent of the metallic mass.

### Greaves' Nut Protector.

The annexed engraving is an illustration of a Nut Protector, invented by James Greaves, of Utica, N. Y., the object of which is to prevent the nuts from coming off the skeins of wagons.

1 is the bolt fastening the skein to the axle; 2 is a round washer, and 3 a washer of peculiar shape seen at 5; 4 is the nut.



After the bolt and nut have been screwed to their places, the washer, 3, is shoved up as represented in the cut, and the bolt, 1, screwed tight. This washer thus projecting prevents the nut from unscrewing and working off the axle. This plan will be readily understood without further description, is simple and cheap and we should think if properly carried out it might be efficient.

Any further information can be obtained of the inventor as above.

### Agriculture by Steam.

The general application of steam to mechanical purposes has in a certain sense revolutionized the world. While nearly all the branches of labor and the arts have been benefitted by it, it is a singular fact that the powers of steam have never hitherto been practically applied to lighten the labors and ensure the success of the agriculturalist. The prospects are, however, that this deficiency will soon be removed. It is said that Mr. Romaine, of Peterborough, Upper Canada, has invented a steam plow, for which a patent has been granted in England, and which is said to be far superior to anything of the kind ever before constructed or conceived. It comprises a stout car, drawn by horses, containing a steam engine of ten horse power, with tubular boiler, on the principle of the locomotive engine, and connecting by means of a crank and rods with a large cylinder, suspended behind and supported by two smaller wheels, so as to be independent of the unequal motion of the horses. This cylinder is six feet in length and three in diameter, and is armed with projecting iron prongs which are so arranged in spiral position that upon the revolving of the cylinder they turn up and effectually pulverise the earth to any required depth. The cylinder is partly enclosed at the back by a box, against which the earth is thrown, and on the top is a seed roller, with tubes through which the seed is deposited in rows, and a roller following after leaves all smooth and complete.

The weight of the entire apparatus is about a ton and a half; but the labor of the horse is rendered comparatively light by that of the steam engine, which indeed leaves little for the horses to do but to guide the direction. It is believed that this machine, with the aid of a man and boy, would plow, sow and roll ten acres of land in a day. The first cost of the apparatus would be considerable; but the steam engine may be applied to thrashing and various other farm purposes, so that it would in the end materially lessen expenses.—[Boston Journal.

[We believe, that many years must pass away before steam power can be used economically in the field for plowing, in our country. It is a question of profit and loss, and the balance must be struck in favor of horses for field work. Excepting upon smooth roads, such as

railroads, it is not possible to use movable steam engines economically. Just think of drawing a steam plow weighing 1½ tons over a rough field for ten hours every day; the idea is not very encouraging. A steam engine can only propel itself by rolling or pushing its wheels forward; this certainly, is no easy task on soft lands. Plows should be made light, strong, and as sharp as possible in the cutting parts: many farmers make sad blunders, by using dull colters, and blunt plow points.—Every pound added to the weight of a plow, increases the labor of the horses; therefore, the lighter a plow is so that it can retain its position in the soil, so much the better for man and beast.

### Beverage Preparations.

**PARAGUAY TEA.**—A decoction of the leaves of "Ilex Paraguayensis" is used in South America as a beverage, in place of tea and coffee, and hence its vulgar name of "Paraguay tea." According to Stenhouse and Rochleder (Ann. der Chem. und Pharm. lvi.) its crystalline principle is identical with caffeine, and its acid gives the same reactions as coffee-tannic acid.

**CHICORY COFFEE.**—This article, originally manufactured in Holland, a century since, was first made in France in 1801, by Orban and Giraud. Since then, it has become an important object of commerce. It is used alone, or mixed with coffee, to which it imparts a bitter taste, and at the same time, it is said, modifying its stimulant action. It is frequently adulterated with coffee-grounds, brick-dust, earthy matters, roasted acorns, corn, haricots, and peas. Of these fraudulent mixtures, those containing starch may be detected by means of iodine-water. The coffee-grounds are recognized by throwing a pinch of the suspected chicory, previously dried, over a water-bath, upon the surface of water; the chicory absorbs water and sinks, the coffee-grounds floats.

The mode of preparing chicory coffee is, to collect the plant in the spring, and to strip and wash the roots. These roots are then divided into longitudinal strips, which are in turn still further reduced in size by being cut transversely, and dried in a heated chamber. The drying is facilitated by frequent stirring, and the root thus prepared takes the name of cosettes.—After roasting in cylinders, 2 per cent. of butter is added and the machine rotated several times, in order to give lustre and the appearance of coffee to the chicory. Grinding between cylinders, sieving, and coloring complete the operation.

We do not know whether chicory is raised and prepared in any part of our country for home consumption, but we know that a great deal of it is imported from England—for the purpose of mixing it with ground coffee. It is scarcely possible to obtain ground coffee in New York without some admixture of chicory; those who wish to obtain it pure, must buy the beans and grind them for themselves. But those who use chicory with coffee prefer it to pure coffee, and we do not know but they are right in their preference—"The proof of the pudding is the eating of it."

### Bread Equal to Pound Cake.

In Captain Mayne Reid's interesting book called "Young Voyagers," he speaks of the seeds found in a certain species of pines, and used by the Indians for food, and says:—

"Several species found in the mountains of North Mexico, and through those desert regions where hardly any other vegetation exists, have edible seeds upon which whole tribes of Indians subsist for many months in the year. The Spanish Americans call them pinon trees, but there are several species of them in different districts. The Indians parch the seeds, and sometimes pound them into a coarse meal, from which they bake a very palatable bread. This bread is often rendered more savory by mixing the meal with dried prairie crickets, a species of coleopterous insects—that is, insects with a crustaceous or shell-like covering over their wings—which are common in the desert wilds where these Indians dwell. Some prairie travellers have pronounced this singular mixture equal to the best pound cake.

### Hardening Cast Steel for Cutting.

Kieser, of Issy, in Switzerland, prepares admirably hardened razors, penknives, &c., from English cast-steel by plunging the blades, at a dark cherry-red heat, into a bath made of 14 parts, by measure of yellow resin in fine powder, 2 parts fish oil, and 1 part hot melted tallow; they are then allowed to cool perfectly, and without wiping them, are reheated to a low red-heat, and immersed in water in the usual way of tempering such articles. The edge of the blade treated in this manner is said to be very fine, and the hardening more uniformly done than by any other process.—[London Artisan.

### Shipbuilding in Sunderland, Eng., and New York.

The following figures show the number of ships built at Sunderland and New York during the past year:—Sunderland: Ships, 153; tonnage, 68,735. New York: Ships, 88; tonnage, 46,479. The excess of vessels built at Sunderland over its transatlantic rival being 65 vessels, and 22,256 tons shipping, actually more than the entire ships built on the Wear in 1843.

[The above, is from one of our foreign exchanges. We had no idea that Sunderland was so extensively engaged in shipbuilding.

### LITERARY NOTICES.

**NEW WORK ON MEDICINE.**—Lampert, Blakeman & Law, of this city, have recently published a new volume upon the Domestic Practice of Medicine, from the pen of Dr. Freleigh, which is designed as a text-book for the student, and is simplified and arranged for domestic use. It is not to be supposed that many families are likely to acquire so much knowledge or experience, as to be able with safety to attempt to grapple with acute and formidable diseases; but it seems to us that any intelligent family may learn how to treat judiciously all diseases and complaints of a milder character, and acquire such a knowledge of the laws of health as will be of inestimable advantage to them through life. Commanding, as Dr. Freleigh's work does, the commendations of leading men in both medical school and familiar as he is with the theory and practice of both, it may be safely asserted that it is among the most valuable contributions which have been recently made to medical science. It is a 12mo. of over 500 pages, and is designed for the Homeopathic Practice.

**PHILOSOPHY OF FRENCH PRONUNCIATION.**—Is the title of a book issued by Newman & Ivison, 178 Fulton street, from the pen of G. H. Talbot, Prof. of French, Boston, Mass. We have not had the time to give this book the thorough examination we could wish, but from the high standing of its author we doubt not it is a valuable work.

"Frank Leslie's Gazette of Fashions," for March, has been received. Sold by booksellers generally. It is a very popular work with the ladies. Price 25 cents.

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