Scientific Memoranda.

STAINING HORN FOR COMBS, &C., BLACK.—The following is from the "Polytechnic Journal," (Paris) by Prof. R. Wagner:—Comb-makers are in the habit of staining the lighter colored and spotted combs black, in order to make them resemble those made from the buffalo horn. Hitherto a sort of magma, composed of milk of lime, washing soda, and red lead, has been used for this purpose. When the whole mass of the comb is to be dyed it is laid in this mixture; but when it is to be merely spotted black in imitation of tortoise-shell, it is rubbed upon the parts to be stained. After removal from the dyeing liquor, they are washed with water, to which a little vinegar is sometimes added, dried, and then polished. By this treatment the combs assume a fine black color. This process is founded upon the decomposition of a small portion of the horn substance, and the formation of sulphurets of sodium, with part of the sulphur which exists in combination with the organic matter of the horn. This sulphuret of sodium is decomposed as fast as formed by a portion of the oxyd of lead dissolved by the lime water, or by the soda, and black sulphuret of lead is formed, which stains the comb. This process gives, in general, very satisfactory results, and recommends itself by its great cheapness. It is, however, attended with two great disadvantages, one of which is, that the action of the lime upon the comb causes it to warp, especially the teeth; the other and more important is, that if the combs are kept in a damp place, especially if shipped on board vessels, the sulphuret of lead gradually oxydizes, and produces sulphate of lead, which gives rise to white spots or stains, and destroys the appearance of the article. In order to remedy these defects, Professer Wagner proposes to use a salt of mercury. But as oxyd of mercury does not appear to combine with lime, it cannot be used in the same way as oxyd of lead. The process he recommends is to dissolve 4 oz. of mercury in 4 oz. of concentrated nitric acid, and to dilute the mixture with 16 oz. of water; in this solution the combs are to be steeped for a night. The solution is then to be poured off, the combs washed with a little water, which may be added to the solution poured off, and then repeatedly washed with fresh water, until it ceases to re-act with acid. By this treatment the combs assume a reddish tint, or a fine brown, if the mercurial solution be used in a concentrated state, and might therefore be employed directly to produce imitation tortoise-shell. The combs thus stained red are to be introduced into a solution composed of ½ oz. of sulphuret of potassium (of the apothecaries) in 2 lbs. of water, and allowed to remain in it from one to two hours. The blackened combs are first washed with water, then with water to which a little vinegar has been added, and finally with pure water, and polished. Although the staining thus produced is exceedingly perfect and durable, it does not penetrate very deeply, and care must therefore be taken in the polishing. From the exceedingly small quantity of the solution of nitrate of mercury which suffices to stain the red horn, it does not cost more to use it than the mixture of lime, soda, aud lead.

MAKING HORN A RED COLOR.—The following is from the "Polytechnisches Centralblatt," by Prof. A. Lindner, (German):—The process employed in France to stain horn in imitation of tortoise-shell, by which a fiery red color is produced, which is exceedingly agreeable by transmitted light, is quite different from the old method with lime, soda, and red lead. The horn is first prepared by soaking in dilute nitric acid, consisting of one part of acid and three of water, at a temperature of from 88° to 100° Fahr. It is then treated with a mixture consisting of 1 part of fresh burnt lime, 2 parts of carbonate of soda, and 1 part of white lead, for not more than from 10 to 15 minutes, in order that the spots should only assume a yellowish brown tint and not a dark brown. The pieces of horn are now washed with water, and wiped from adhering moisture with a cloth, and introduced into a cold bath consisting of a decoction of Brazil wood, marking 10° of Baume's hydrometer, and one part of caustic soda, marked 20°. As soon as the color is properly developed it is to be removed and washed with water, and carefully pressed between cloths, and laid aside from 12 to 16 hours, and then polished. The decoction of dyewood may be made by boiling 1 pound of the Brazil wood in two to three quarts of water, and the caustic soda may be obtained from any soap-boiler, or it may be produced by heating a solution or carbonate of soda to the boiling point, and adding slacked lime in powder, until a drop of the liquid, on being filtered, does not effervesce, and setting it aside carefully covered until the sediment has deposited. If a little oxyd of zinc be added to the white lead employed as a mordant, blueish-red shades will be obtained, while salts of tin give fine scarlet tints. Archil may be used instead of the dye-woods, and still finer tints may be produced with cochineal. The characteristic feature of this process is the use of the caustic soda in the dye-bath; and this fact accounts for Prof. Wagner not having been able to succeed in staining horn with any vegetable or animal dyeing material.

The Constitution of Nature—A Sublime Conclusion.

Chemists usually suppose that all the various forms of matter are reducible to fifty-three or four elementary and homogeneous substances, and all bodies, hitherto analyzed have been found to consist of two or more of these elements.

But recent experiments would lead us to conclude that those substances, until now deemed simple and elementary—as iron, gold, sulphur, iodine, potassium, and the like, are in fact made up of four component parts, which the genius of man has not yet been able to dissever.

The celebrated Braconnet has raised plants by means of distilled water (i. e. hydrogen and oxygen) alone.

These vegetables throve, and passed through all the usual gradations of growth to perfect maturity. He then proceeded to gather and examine their entire produce—the roots, stems, leaves, pods, and fruit. These were all accurately weighed, and then submitted to distillation, and other means employed for close inspection and analysis.

He thus succeeded in obtaining from these vegetables all the materials peculiar to each individual species, precisely in the same manner as if it had been cultivated in its own natural soil: viz., the various earths, the alkalies, acids, metals, carbon, sulphur, phosphorus, nitrogen, hydrogen, and the like bodies, which have hitherto received the name of "elements."

The result is wonderful, and it brings us to the conclusion which he has given in these remarkable words:

"Oxygen, hydrogen, and nitrogen, with the assistance of the solar light, appear to be the only elementary substances employed in the constitution of the whole universe, and Nature, in her simple progress, works the most infinitely diversified effects by the slightest modification of the means which she employs."—[Worcester Transcript.

[Where did our cotemporary get the above piece of scientific information? First it says, that Braconnet raised plants "by hydrogen and oxygen alone," and then in the last sentence we are told that "oxygen, hydrogen, and nitrogen," appear to be the only elementary substances required for raising plants. Here we are first told that two elementary substances alone are necessary to raise plants, and again we are told that three elementary substances are necessary. This method of reasoning may be very easy, but it is very incorrect. The reduction of all the elementary substances into one or two—a branch of the old alchemists' rigmarole of turning iron and other substances into gold—has long been a hobby with some people, but the number of elementary substances are continually on the increase. From the above, we should judge that the plants spoken of were grown in the air, which contains carbonic acid, and oftentimes metals, and many of the elementary substances in a state of gas.

Viviparous Fish.

This species of fish, which bring forth their young without depositing eggs, were considered remarkable natural wonders one year ago, but they are now, it seems, becoming some what numerous in various quarters. The first were discovered on the coast of California about a year ago. One species has since been said to have been taken in the Canadian waters, and a United States officer avers that the sting-ray of the Carolina coast is viviparous.—Professor F. S. Holmes substantiates this, and says that the Devil Fish also bears its young alive. A singular discovery connected with this subject is thus described by the Charleston "Mercury:"

"A discovery of very great interest has recently been made by Mr. Henry W. Ravenel, a young naturalist, who has lately won an honored name in the department of botany.—In a limestone spring, in St. John's, Berkely, he has discovered a species of viviparous scale fish—the first that has been authenticated as existing in fresh water. His specimens are now in possession of Prof. Holmes, from whom we may expect before long a scientific description of this very interesting species. The largest of these specimens may be 1½ inches long, and it is as delicate as the silver fish. At the season of breeding the breast becomes greatly extended, and on opening it, there is found adhering near to the spine, a sack full of embryo fishes, which exhibit unmistakable proofs of the development of animal form and life."

To Render Wood Incombustible.

A very excellent way to render wood incombustible, is to soak it in a strong solution of alum and the sulphate of copper. About one pound of alum and one of the sulphate of copper should be sufficient for 100 gallons of water. These substances are dissolved in a small quantity of hot water, then mixed with the water in the vessel in which the wood is to be steeped. The timber to be rendered fire-proof can be kept under the liquor by stones, or any other mode of sinking it. All that is required is a water tight vessel, of sufficient dimensions to hold enough of liquor to cover the timber, which should be allowed to steep for about four or five days. After this, it is taken out, and suffered to dry thoroughly before being used. Various substances have been prepared for this purpose, but in answer to a correspondent we present the above as being equal to any that we are acquainted with.

Steam Fire Engines.

A short time since a communication appeared in the Philadelphia "Courier," in which it was stated, that "Cincinnati had two steam fire-engines—the *first* ever built." C. F. Hall corrects this statement in the "Gazette," and says:—"Proud as we Cincinnatians are of our steam fire engines, far be it from us to usurp laurels that belong to others.

In 1832, twenty-two years ago, several steam fire-engines were built by Messrs. Braithwaite & Co., London, who have the merit of having first manufactured these engines. A Prussian paper of 1832, (Dec. 2d,) gave the following account of one of them.

'This steam fire-engine, which can be drawn by two horses, and in consequence of the peculiar construction of the steam boiler, can be brought into action in the course of thirteen (13) minutes. Its effects are extraordinary and its utility has been exemplified at several large fires in London, among which may be mentioned the Argyll rooms, in Regent street, the English opera house, Strand, and lastly the celebrated brewery of Messrs. Barclay, Perkins, & Co.'"

Of the Cincinnati steam fire-engines however, he asserts, they are "the best known since the Deluge," and gives great praise to their inventors, Abel Shawk and A. B. Latta. He also mentions the steam fire-engine by Captain Ericsson, of this city, which is illustrated in "Ewbank's Hydraulics."

Cheap Substitute for Coffee.

Liebig (the illustrious German chemist) says that asparagus contains, in common with tea and coffee, a principle which he calls "taurine," and which he considers essential to the health of those who do not take strong exercise. Taking the hint from Baron Liebig, a writer in the London Gardener's Chronicle was led to test asparagus as a substitute for coffee. He says: "The young shoots I first prepared were not agreeable, having an alkaline taste. I then tried the ripe seeds, and these, roasted and ground, make a full flavored coffee, not easily distinguished from fine Mocha. The seeds are easily freed from the berries by drying them in a cool oven, and then rubbing them on a sieve." In good soils, asparagus yields seeds abundantly; and if they are charged with "taurine," and identical with seeds of the coffee plant, asparagus coffee may be grown in the United States at less than half the cost per pound of the article now so largely imported.

An Inventor Injured by His Own Invention.

The Paris correspondent of the New York "Times," says:

"An inventor, who considered himself on the point of final success, has just fallen a victim to his own machine. This was a steam vehicle, running upon the ordinary post roads of France. M. Leroy was traveling in it towards the English Channel, where he was to ship it to London for exhibition. While descending the hill, the engine struck an obstacle, tipped over, and poured the contents of the boiler on to M. Leroy, who was too badly scalded to hope for recovery. He had spent ten years and all his money in perfecting his invention."

[He was a very foolish inventor to throw away his money on such an invention. To reproduce steam carriages for common roads, after the invention of railroads and locomotives, is like going to mill with corn in a bag, having a stone in one end to balance the grain in the other.

The Calcium Light.

Professor Grant, of New York, who has been experimenting in the Calcium Light, for light-houses, says the difficulties which induced Allan Stephenson, engineer of the Northern Board of English Lighthouses, to pronounce the desired introduction of the oxhydrogen light "impracticable in the present state of our knowledge," have been overcome by Mr. Grant.—The lime point which he uses will burn twenty-four hours without disintegrating. He has a full-sized apparatus at the observatory, near the Crystal Palace, where he produces a flash of such intensity that the shadow projected by it eleven miles distant is equal to that of the moon in the first quarter. To make a light of this intensity costs not half the sum required for a first-class Fresnel light.

[The above, we have seen in quite a number of our exchanges. We do not believe oxygen and hydrogen burned on a piece of lime which constitutes this light—can be furnished for twice the sum of good oil used with a first class Fresnel light. This calcium, or lime, or Drummond light, all of which names it has been called, is dear and troublesome. There can be no doubt of its great brilliancy, but the expense of supplying the gases for it, is too great for common uses.

Raising Canary Seed.

A writer in the Ohio "Farmer" strongly recommends the farming people to raise canary seed, which is said to be an operation attended with no more trouble than the culture of oats. Now that mother and Ann Eliza keep a canary bird or two, what is the use of paying ten cents a pound for seed, when it can be raised from a man's own ground, and be found, (as is said) an excellent food for horses. The head is large and heavy, resembling millet. Our writing friend says he has raised two crops of this seed in a single season—saving the first for seed, and getting a second crop on the same ground. Who is the enterprising farmer that will furnish an item next year by becoming the pioneer in the matter of raising *canary grain* for market?

Clark Mills has received an order for an equestrian statue of General Jackson, to be placed in Jackson-square, New Orleans. Mr. Mills is to receive for the statue the munificent sum of $38,000.