SCIENTIFIC MUSEUM.

Lightning Rods for Houses.

As this is the season of the year when thunder storms are frequent, and as lightning has caused many deaths and serious accidents this season, as it does every year, we presume it will not be out of place to say a few words on the subject.

E. Merriam, of Brooklyn City, who has long devoted his attention to electrical phenomena, and the best means of conducting it to the earth, affirms that rods can be put up at very little expense, and that no house should be without a rod. Iron wire of a sufficient size is manufactured at No. 17 Burling Slip, this city, by Messrs. Cooper & Hewitt, which answers every purpose for lighthing conductors. It is put up in rolls of 63 pounds each, and is sold at three and one-fourth cents per pound. A roll contains between four and five hundred feet. This wire is the size used on board of the public ships in the American Navy, and has never in any case failed to protect the ship and all on board from injury by lightning. These rods have never been known to fail, and may be implicitly relied upon. Any person of ordinary capacity can place these rods upon a building. Let the rod project above the chimney and the highest point of the building, and descend to and enter the ground so as to reach permanent moisture. If the rod could be made to terminate in the water of the well, it would be a preferable termination to any other, or in a cess-pool. There should be a rod to each chimney. A barn fifty feet in length should have three rods—one in the middle and one at each end. The rods may be made to diverge, and in that case require but a fastening at the top. These rods require no other pointing than what can be done with a file. Rods should be in one single piece, and not be allowed to come in contact with the spouts, metal gutters, or any metallic body presenting a greater surface than the rod to divert the lightning from its immediate descent to the earth. A lightning rod may be obtained and put up at a cost of fifty cents to a dollar each. They should be secured to the building by some non-conducting substance, such as glass retainers, which are employed on telegraph poles. Copper is a better conductor of electricity than iron, but it is far more expensive. Iron lightning rods should be painted with black paint having little oil in it. Some people have an idea that a rough rod, and one of a square or twisted form is better than a round smooth one. This is not so; a smooth rod is a better conductor than a rough one. The solid section of the rod is the grand object, but at the same time it is asserted by many that very small wires are perfect protectors, especially copper wires.

The insulation must never be overlooked, the conductor should always end in a moist place. If a building is situated on a sandy foundation, it is more subject to be struck by lightning than if it were situated in a wet place; great care must therefore be exercised to conduct the fluid by the conductor to the earth.

How to Apply Guano.

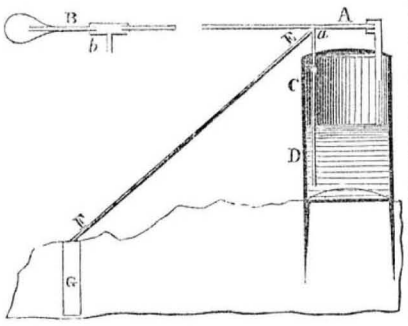
The Editor of the "American Farmer," Baltimore, recommends that every 100 lbs. of guano should be mixed with one peck of plaster and one bushel of salt. The guano is to be moistened and the salt is to be broken very fine along with the guano. This is to be sown over the ground either 100 or 200 lbs. of guano to the acre, and then plowed in. If 25 bushels of leeched ashes be spread over the ground along with this, the land will be so much the better for it.

Camphene.

Accidents from camphene are still very numerous. The Philadelphia papers relate a case of a child who was carrying a lamp with camphene, when it fell, broke in pieces, and the contents flashed at once into flame, burning the child in a most shocking manner. It is dangerous to use camphene in glass lamps, it should not be used where there are children. This we have asserted frequently, and we must do so on every proper occasion. Last week a young woman in Albany, N. Y., and a number of others in the same house, were severely injured by the bursting of a camphene lamp. While such accidents are taking place all the time, it is our duty to speak out on the subject.

Pneumatic Battery for Blasting Rocks.

The accompanying engraving illustrates a new method of blasting, by Thomas Taylor, of 342 Broadway, this city, who read a paper upon the subject at a recent meeting of the Royal Dublin Society, Ireland, and at a distance of about 200 feet ignited three portions of gunpowder simultaneously, upon a signal. He presents it through the columns of the Scientific American, for the benefit of the community, in order to prevent casualties to men engaged in blasting by gunpowder, in quarries and other places, in our country.



A B is a gutta percha tube, of any length required, and of about one-quarter of an inch in diameter; C D is a gutta percha cell, two or three inches square, or it may be round; E F is a gutta percha tube of a syphon form, and removable at *a*. The descending portion is stationary and a fixture; its diameter is about one-eighth of an inch. G is the prepared gunpowder charge. When the miner has arranged all his respective charges (for any number can be ignited simultaneously) by placing a cell at each charge, connected as shown above, ranging between A B, all of which may be easily attached by coupling joints, as at *a*. The tube, like E F, forms a complete syphor, descending near to the bottom of each cell, the *external* end joining G. The cells should be fixed with spikes into the ground. The miner having attended to this, may now remove to a place of safety. On the end of A B is an air bag of gutta percha, the compression of which will force a small portion of sulphuric acid which it contains, through the tubes A B and E F, to G, one drop of which will instantly explode the charge. The miner need not fear an untimely explosion. The connection at *b* will show how other charges may be ignited as connected with the bag, S. A single drop of sulphuric acid will answer to ignite a charge. This method of blasting is offered as a substitute for blasting by a galvanic battery. The air bag is not joined until all the charges are perfectly fixed and arranged, and if the tube, A B, is made with a turned-up mouth at the end, the air bag, S, may be dispensed with. A few drops of sulphuric acid may be poured into the mouth of the tube, and be blown through down into all the charges. The gutta percha tubes do not cost much, and in some cases a knowledge of this pneumatic battery may be of benefit to many persons. One thing must not be forgotten, on the surface of each charge of gunpowder there is placed about one grain of the chlorate of potass, and loaf sugar in fine powder.

To Clean Woolen and Shawls.

Pare and grate raw, mealy potatoes, and put to each pint of the potato pulp a couple of quarts of cold water; let it stand five hours, then strain the water through a seive, and rub as much of the potato pulp as possible—let the strained water stand to settle again—when very clear, turn the water off from the dregs carefully. Put a clean white cotton sheet on a perfectly clean table, lay on the shawl which you wish to clean, and pin it down tight. Dip a sponge that has never been used, in the potato water, and rub the shawl with it till clean, and rinse the shawl in clear water. Spread it on a clean, level place, where it will dry quick—if hung up to dry, the colors are apt to run, and make the shawl streaked. Fold it up while damp, and let it remain half an hour, then put it into a mangler—if you have not one, wrap it in a clean white cloth and let it remain till dry. If there are any grease spots on the shawl they should be extracted before the shawl is washed.—[Ex.

[The above is a curious receipt for washing a shawl. We thought that the taking out grease spots was a washing process, but the above says, "the grease spots should be extracted before the shawl is washed." The potato liquor prepared by the above directions, is merely weak potato starch liquor, no more and no less. There are some kinds of shawls which, if rubbed with a sponge, will forever be rendered unfit to wear. To wash shawls which have many colors in them, is one of the most difficult and intricate processes, especially if there are either blue or green colors in them. To wash a white shawl is an easy matter, the best way to do this is to use very strong soap suds made from white soap, then rinse well in cold water. Fine flowered shawls should always be sent to those who make a profession of shawl cleaning.

Naphtha.

Naphtha, the most fluid bitumen, is nearly colorless, but of a yellowish tinge, transparent, and emits a peculiar odor. It swims on water, its specific gravity being from 0·71 to 0·84. It burns with a bluish-white flame and thick smoke, and leaves no residue. It consists of carbon, 82·2, and hydrogen 14·8; being the only fluid destitute of oxygen. It is found in Persia, in the peninsula of Apcheron, upon the western shore of the Caspian Sea, where it rises through a marly soil in the form of vapor, and, being made to flow through earthen tubes, is inflamed for the purpose of assisting in the preparation of food. It is collected by sinking pits several yards in depth, into which the naphtha flows. It is burned in lamps, by the Persians, instead of oil. Near the village of Amiano, in the State of Parma, there exists a spring, which yields this substance in sufficient quantity to illuminate the city of Genoa, for which purpose it is employed. In a coal mine near Manchester, England, there is a spring of naphtha, welling up between the seams, and which yields 150 gallons a day.

On the surface of Seneca Lake, New York, a large quantity of naphtha, or "rock oil," floats at particular periods of the year. This Seneca rock oil is derived from the bitumen escaping out of the shales which are very carbonaceous in the middle counties of Western New York. The shale beds dip south and a little west under the waters of the lake, and where the opening of the seams meets the water at the bottom of the lake the bitumen oozes out, and rises to the surface. There are many other localities on this continent where native naphtha or bitumen is found. It is found abundantly in Kentucky. Any highly fossiliferous shale, which is dark colored from the large quantity of vegetable matter contained in it, and which also contains pyrites disseminated throughout, generally affords naphtha. Native naphtha boils at 201° Fah.

Artificial naphtha is obtained by the distillation of the crude coal-tar, one of the residues of the manufacture of coal-gas. It has a specific gravity of ·857, and consists of carbon, 83·04; hydrogen 12·31; oxygen, 4·35. Dr. Ure gives the boiling as 316°; but this must have been a very impure naphtha. The chief and valuable agent in coal naphtha is Benzole, which is obtained by distilling the coal-oil at a temperature not exceeding 185°. Coal naphtha is a valuable solvent for many solid hydro-carbons, as gutta percha and caoutchouc and when pure contains no oxygen. On this latter account it is the only substance suitable for preserving potassium and the other easily oxydized metals.

Mr. Lowe, of England, patented a plan for producing illuminating gas, and increasing the power of coal-gas by passing it through naphtha. He charges the gas-meter with naphtha instead of water, and the gas, bubbling through it, becomes charged with the vapor of this hydro-carbon. This is the simplest way, but gas companies objecting, a separate vessel was attached, filled with pieces of sponges, charged with naphtha. This plan was found to act equally well. Gas produces 30 to 50 per cent. more light when naphthalized than when not, and on this account there is a saving of 20 per cent. in gas. It is also more favorable to the human countenance, and to the distinguishment of colors. An inferior gas can thus be made equal to a superior one; and hydrogen passed through naphtha is highly luminous. Carbonic oxide, and even carbonic acid, can be made to burn when naphthalized, and common air burns with a bright flame when fully charged with naphtha vapor.

Glazing Earthenware.

M. Rochinski, a manufacturer of earthenware at Berlin, has found a varnish or glazing for common pottery, which, after trials made in the presence of the College of Medicine, offers no danger to health, and resists the action of the acids. This glazing is composed of five parts of litharge, two parts of well purified clay, and one part of sulphur. These substances are pulverized, mixed with a sufficient quantity of caustic alkaline lye (soapmaker's liquor), so as to form a mixture fit to be readily applied on the earthenware, and to cover it equally all over. Carefully baked, these wares offer no traces of lead.—Exch.

[What becomes of the lead of the litharge, it is an oxide of lead?

Dr. Forbes, in the Quarterly Review, says:—"The crabs in the Kneeling Islands, in the Pacific Ocean, eat cocoanuts, boring a hole through the shell with one of their claws; the fish eat coral, and the dogs hunt fish in the shallow water of the reef; the greater part of the sea-fowl roost on branches, and many of the rats make their nests at the top of high palm trees."

The following recipe will be found exceedingly valuable during the hot months, when there is so much inability to affections of the bowels. Parch half a pint of rice until it is brown; then boil it as rice is usually done. Eat slowly, and it will stop the most alarming cases of diarrhœa.

LITERARY NOTICES.

MACHINERY OF THE NINETEENTH CENTURY—Part 5 of this great work, by G. D. Dempsey, C. E., in London, has just been received, and is for sale by H. Bailliere, 290 Broadway, N. Y. It contains views of Crampton's Patent Locomotive Engine, and of Fairbairn's Rivetting Machine for Boilers. Crampton's Engine and Fairbairn's machine, have obtained a world-wide celebrity; the working drawings of them are of great interest to our engineers.

LITTELL'S LIVING AGE—No. 425 of this most excellent weekly periodical contains a very fine article from "Dicken's Household Words," on Submarine Geography, in which a very high compliment is paid to Lieut. Maury. There is a fine article on "Delta," from Blackwood's Magazine, and a number of other rich, racy, and instructive papers. It is for sale by Dewitt & Davenport, Tribune Buildings, this city.

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