



For the Scientific American.

Poisonous Acids.—Hydrocyanic Acid.

This terrible acid is well known under the name of Prussic. It is colorless, very volatile, inflammable, and has an odor like that of bitter almonds. Its taste is first cool, then hot and disagreeable. It is the most energetic poison known. One drop will destroy the life of an animal of considerable size. The chemical tests of this acid are nitrate of silver, sulphate of copper, protosulphate of iron and hydrosulphuret of ammonia. By treating hydrocyanic acid with the nitrate of silver, the cyanide of silver is formed, which by simply heating in a glass tube yields cyanogen gas, which burns with a blue flame. Sulphate of copper when added to a fluid containing hydrocyanic acid made alkaline with potass, gives a greenish precipitate, which becomes nearly white with the addition of more hydrochloric acid, the precipitate then being cyanide of copper. Lassaigne says that this test will detect hydrocyanic acid when only one part is dissolved in 20,000 parts of water.

When a solution of protosulphate of iron is added to a liquid containing hydrocyanic acid rendered slightly alkaline by potassa, a grayish green precipitate is produced which on adding diluted hydrochloric acid, or sulphuric and agitating them, prussian blue is precipitated. This is a beautiful test, it is free from every objection and it will act in cases, says Noad, where the nitrate of silver gives no precipitate. Liebig says respecting this fearful poison, that "its rapid action on the blood is very remarkable. Comparatively large quantities of the acid in aqueous solution may be taken into the digestive apparatus without producing any very perceptible noxious effects, while the same quantity inhaled as vapor, causes immediate death. Thus a cat can bear the administration of from two to three drops of anhydrous hydrocyanic acid diluted with from four to six ounces of water, without being the least affected with it. If two drops of the anhydrous acid be inserted into the mouth of the cat, taking care to prevent it from breathing by stopping its mouth and nostrils, no perceptible effect is produced, but the animal dies the very instant that it is permitted to breathe whenever the vapor of the acid gets into the lungs." Mr. Taylor says that one grain of anhydrous hydrocyanic acid will destroy life, and some say that even seven-tenths of a grain might destroy life.—The largest dose from which an adult has been known to recover, is one grain and a third of anhydrous acid. The acid of commerce differs much in strength, as it is easily decomposed in close vessels, and there is a great difference in the strength, owing to where and how it is prepared. This acid is much employed in the form of prussiate of potass, to give cotton, silk and woolen goods that beautiful blue color so well known. Its employment in the dye shop and the color house cannot but be injurious to the health of operatives. Little do those know who flaunt gaudy colors, at what sacrifice they are produced—that every mazarine blue dress contains the elements of one of the most virulent of all the poisons.

(To be Continued.)

To Paste Lithographs on Muslin.

Wet the muslin and stretch it on a frame until it is dry. Wet the lithograph with weak gum water on the back side in an even manner with a large soft brush, this must be done very nicely, and then let it dry. Take some very fine flour paste and brush it over the muslin, and then put on the lithograph.

The gum will prevent the paste striking through the print, which would injure it, some prefer fine gum to glue, and to it we give the preference, but glue is the common article used.

Heat applied to all metals but platina reduces them to liquids.

To Restore Stained Linen.

Rub the stains on each side with wet brown soap. Mix some starch to a thick paste with cold water, and spread it over the soaped places. Then expose the linen to the sun and air: and if the stains have not disappeared in three or four days, rub off the mixture, and repeat the process with fresh soap and starch. Afterwards dry it, wet it with cold water, and put it in the wash.

To Restore Scorched Linen.

If linen has been scorched in ironing, and the mark did not go entirely through so as to damage the texture, it may be removed by the following process:—take two onions, peel them, slice them, and extract the juice by squeezing or pounding. Then cut up half an ounce of white soap, and two ounces of fuller's earth, mix with them the onion-juice and half a pint of vinegar. Boil this composition well: then spread it, when cool, over the scorched part of the linen, and let dry on. Afterwards wash out the linen.

To Whiten Linen.

Cut up a pound of fine white soap into a gallon of milk, and hang it over the fire in a wash kettle. When the soap has entirely melted, put in the linen, and boil it half an hour. Then take it out; have ready a lather of soap and warm water; wash the linen in it, and then rinse it through two cold waters, with a very little blue in the last.

[The above receipts we copy from an exchange; they have appeared in a number of papers—taken out of McKenzie's Receipts—and are at least 50 years behind the lighthouse. 1st. The best way to take iron stains out of linen is to dip the stained parts in a solution of oxalic acid for about 10 minutes and then wash out in warm and finish in clear cold water. Twenty minutes will complete the operation. All other stains except grease, (which can be removed by simple washing) must be bleached. This is done by steeping the linen after it is washed in a clear solution of the chlorate of lime or potash, for a few hours, taking care that none of the linen is above the liquor, then take out the linen and wash it, then put it through some clear water slightly soured with sulphuric acid, when it should be afterwards washed well and run lastly through a tub of clear cold water with a little blue in it, then rung out and dried. These stuffs and this process, have shortened the old way of bleaching green goods, from 4 months, to 1 day, in fact to a few hours. 2d. Scorched linen and onions and vinegar, &c. Well that is enough to make any good housewife shed tears, and especially when they would find out that the vinegar had destroyed all the virtue of the soap, by destroying the equilibrium of union between the potash and tallow, of which soap is composed. Scorched linen is a burned piece and the best remedy if only singed, is to wash in white soap, then rinse and treat with a little oxalic acid as mentioned above.

3d. To whiten linen there is no use of the milk—the boiling of the linen is a common practice to whiten, every person knows that. The grand thing about whitening linen, is to use clean water, plenty of good soap and take out all the grease, and be sure to wash all the soap out of it. If this is not done the linen will be full of yellow streaks. In some places of our country the water used for washing may contain some iron, and cause new linen soon to lose its color. The best remedy for this would be to sprinkle a little of the flour of lime in the water for rinsing, and let it settle and use the clear. The lime will precipitate all the iron in the water.

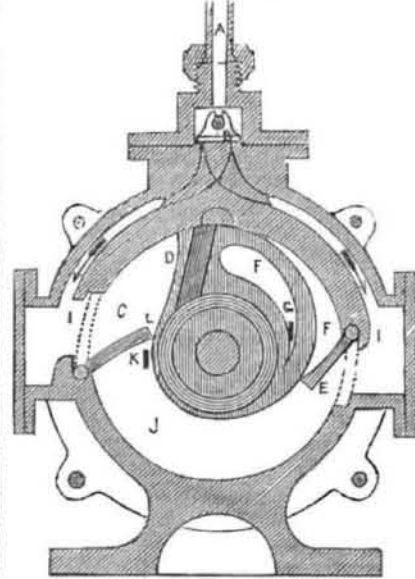
We have made these remarks on the above, believing that they will be of use. The highest aim of science should be to enter every household, and where is there a more beautiful department of science than that of Domestic Chemistry, and it is a department that has been and is too much overlooked. We want some Mrs. Somerville to take up this subject and present to the women of the world a book to let them know the why and wherefore of domestic phenomenon—the science of the cottage, the kitchen, the hall.

Water commonly expands when converted into steam to 1700 times its bulk.

History of the Rotary Engine.

Prepared expressly for the Scientific American.

FRENCH ROTARY ENGINE.
FIG. 58.



This rotary engine is the invention of M. M. Pierret, and Morel, of Paris, and it is essentially like James Watt's second rotary engine. Yet this engine was considered a few years ago to be the grand discovery in rotary engines.

A, is a steam pipe. The steam is directed by the side valve B alternately into the courses as indicated by the arrows. Supposing the steam to be admitted into the chamber C, it would act upon the arm of the piston D and force it round in the direction of the valve C, at the same time exhaustion is going on in the chamber F F, through the aperture G, but when the point of the piston has come to the end of the valve L, that valve is closed, as shown by the dotted lines, and the instant it has passed the point of the valve L, it falls upon the face of the piston D, and the steam being then admitted renews the pressure on the surface of D. A condenser accompanied this engine and to make it more complicated, it had a fly wheel, the very thing that other rotaries have endeavored to avoid.

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Useful Problems.

1. One end of a lever is 15 feet in length, and the other, 6 feet and 9 3/5 inches; what power must be applied to the longer end to balance a weight of 225 pounds at the shorter end?
2. What must be the diameter of a wheel by which a weight of 75 pounds suspended by a rope going round an axle whose diameter is 12 inches, is balanced by a power of 8 pounds?
3. A pendulum, which vibrated seconds at the level of the sea, when taken to the top of a mountain, was observed to vibrate only 3587 times per hour; what was the height of that mountain?
4. It is found by observation, that an eclipse of one of the satellites of Jupiter is seen 16 1/2 minutes sooner when the earth is nearest to that planet, than when most remote; required the rate at which light travels?

Uses of the Black Currant.

The Black English Currant is represented to have qualities that entitle it to extensive propagation. A kind of wine has been manufactured from it, which is celebrated for its medicinal properties. "It has all the good properties of the best Port, without any of its heating or constipating effects. In sore throat it has, for many years, been considered almost a specific remedy." From the black currant a jelly is made, of considerable medicinal efficacy. The jelly has been highly recommended for disorders of the throat, and as a necessary article in the stores of ships sailing to the East Indies. A liquor is prepared from the black currant, which, is possessed of great medicinal efficacy in obstinate coughs, &c. The currants for this purpose are bruised, and, being placed in a jar, whiskey or any other species of alcohol is poured over them; the jar is covered close for a fortnight; after this, the liquor is strained and bottled.

A cubic foot of water weighs sixty two and a half pounds.

LITERARY NOTICES.

We have received the April number of the Pictorial National Library, and we hope the publishers will remember that we are constant readers of it. We regard it as a sound and instructive journal. Its contents are perhaps more varied and useful to the reader than that of almost any other monthly now published,—not light and romantic, but solid and real, abounding in interesting historic, scientific and biographic sketches, illustrated by well executed wood engravings. Wm. Simonds & Co. proprietors, Boston, Mass.

The Banker's Magazine and State Financial Register, for April, is on our table. It is published in Baltimore, Md. and edited by J. Smith Homans and Edwin Williams.—Contents: Baron Humboldt on the production of gold and silver; Legal Miscellany—Bank Bonds; The Southern Bank of Kentucky; Circular of the Directors of the Louisiana State Bank; Bank Statistics—Ohio; Estimates of the Crops of the U. S. 1847 and 1848; Ansted on the future supply of Gold; Foreign Opinions upon the discoveries in California; Remarks on the public debt of New Orleans; The Gold Regions of California and Russia; American Stocks in Europe; Bank Items; New Banks; New Appointments, &c.; Legislative Report upon the failure of the Canal Bank; Review of the month; Miscellaneous Items; Stocks and Exchanges at New York, Philadelphia, Boston and Baltimore. We should think this a valuable publication for business men and others desiring a knowledge of the financial condition of the country.

"Aurora Borealis," is the title of a new weekly journal published in Boston and edited by J. F. Kelly, jr., favorably known in this city as the "Falconbridge" of the Spirit of the Times. We congratulate the Boston readers that they have so humorous and excellent a writer among them, and we trust that his association with the "Aurora" will not only prove profitable to himself, but equally so to his readers.

The New York Organ, published by Oliver & Brothers, is a very excellent family paper, and deserving a wide circulation. Its columns are devoted to pure literature, temperance, education and sound morality.

The Southern Cultivator, published at Augusta, Georgia, is one of the best monthly journals on Agriculture, and other useful information too, in our country.

The London Patent Journal and Inventors Magazine, published by Barlow & Payne, is the best Magazine of the kind in Europe.



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