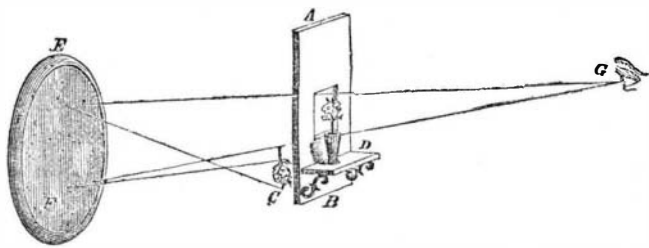


SIMPLE EXPERIMENTS IN NATURAL MAGIC.
MAGIC MIRRORS.

When a person looks into a mirror that is placed perpendicular to another, his face will appear entirely deformed. If the mirror be a little inclined, so as to make an angle of 80° , he will then see all the parts of his face except the nose and forehead. If it be inclined to 60° , he will appear with *three* noses and *six* eyes; in short, the apparent deformity will vary at each degree of inclination; and when the glass comes to 45° , the face will vanish. If, instead of placing the two mirrors in this situation, they are so disposed that the line of junction is vertical, their different inclinations will produce other effects.

THE PHANTOM BOUQUET.

Behind the partition, A B (see the figure), place, in a position somewhat oblique, the concave mirror, E F, which must be at least ten inches in diameter, and its distance from the partition equal to three-fourths of the distance of its center or focus. In the partition make an opening of seven or eight inches, either square or cir-



cular; it must face the mirror and be of the same height with it. Behind this partition place a strong light, so disposed that it may not be seen at the opening, and may illumine an object placed at C, without throwing any light on the mirror. Beneath the aperture in the partition place, in an inverted position, the object, C, that you intend shall appear on the outside of the partition, and which we will suppose to be a bouquet of flowers. Before the partition, and beneath the aperture, place a little flower-vase, D, the top of which should be even with the bottom of the aperture, in order that the eye, placed at G, may see the flowers in the same position as if the stalks came out of the vase. Take care to paint the space between the back part of the partition and the mirror black, to prevent any reflections of light being thrown on the mirror; in a word, so dispose the whole that it may be as little enlightened as possible. When a person is placed at the point G, he will perceive the flowers that are behind the partition, as if they were growing in the vase; but on putting out his hand to pluck them, he finds that is grasping a shadow.

THE REVIVIFIED ROSE.

Take a rose that is quite faded, and after throwing some common sulphur on a chafing-dish of hot coals, hold the rose over the fumes, and it will become quite white. Then dip it in a basin of water, and giving it to any one, tell him to put it in his drawer or box and close the place tightly. Five or six hours afterwards, tell him to open the box, and he will find, to his astonishment, instead of the white rose he put there, a rose that is perfectly red.

ETCHING BY THE SUN.

Dissolve chalk in aqua-fortis, to the consistence of milk, and add to that a strong solution of silver. Keep this liquor in a glass decanter, well stopped. Then cut out from a paper the letters or design you would have etched, and paste the paper on the decanter, which you are to place in the sun, in such a manner that its rays may pass through the spaces cut out of the paper and fall on the surface of the liquor. The part of the glass through which the rays pass will turn black and that under the paper will remain white. You must observe not to move the bottle during the operation.

EXPLOSIONS OF STEAMBOATS.—We are afraid that some of our western Steamboat Inspectors have become careless in the performance of their duties. Two terrible explosions have recently occurred—the one was that of the steamboat *Benj. W. Lewis*, at Cairo, on her passage to St. Louis; the other, the propeller *Kenosha*, at Sheboygan on Lake Michigan. By the first, about fifty passengers lost their lives; but by the latter only two of the crew. The scene which took place by the former explosion was heartrending, as the boat also took fire and burned down to the water's edge.

CURRANT WINE.

As the present is the proper season for making this cordial, we give the following old, but good receipt for its manufacture. When properly made, it is a very healthful beverage, particularly for summer drink, when fully diluted with water. Before pressing the juice from the currants, pass them between a pair of rollers to crush them, after which they must be placed in a strong bag, and they will part with the juice readily with light pressure, such as a common screw, heavy weights, &c. To each quart of juice add three pounds of double refined loaf sugar—single refined sugar is not sufficiently pure—then add as much water as will make one gallon. Suppose the cask intended to be used is 30 gallons. In this put 30 quarts of currant juice, 90 pounds of double refined sugar, and fill the cask to the bung with water; roll it over until the sugar is all dissolved. This will be told by its ceasing to settle in the barrel. Next day roll it again, and place it in a cellar where the temperature will be sure to be even. Leave the bung loose for the free admission of air. In the course of one or two or three days, fermentation will commence. By placing the ear to the bung-hole a slight noise will be heard such as may be observed when carbonic acid is escaping from champagne or soda-water. Fermentation will continue for a few weeks, converting the sugar into alcohol. As soon as this ceases, drive the bung in tightly, and leave the cask for six months, at the end of which time the

wine may be drawn off perfectly clear without any excess of sweetness.

THE MANUFACTURE OF SUGAR AND GAS IN GERMANY.

Messrs. Editors:—I embrace the first leisure opportunity to inform you of my safe arrival in Germany. Perhaps the following lines may embrace topics of interest to some of your readers:—

All inventions concerning cane sugar are of very little interest for Germany. There are, at present, at least 300 factories, where sugar is manufactured only and exclusively out of sweet turnips; and the manufactured article is so perfect that cane sugar can hardly compete with it, although the duties on cane sugar are not very high. These factories are in the German Custom Union (*Zollverein*) alone; and I understand that Austria is just as well off concerning the manufacture of sugar from sweet turnips. Thus Germany, like France, is entirely independent of foreign countries in regard to its wants of sugar.

A convention of gas manufacturers in Nuremberg (in which twenty-five of the prominent cities of Germany are represented) has under consideration the following subjects:—

1. *The employment of clay retorts.* What are their advantages and defects; will it be best to discontinue their use altogether?
2. *The quality of the light.* Is it practicable to introduce a standard light for every place throughout Germany? What are the best means for determining the quality of the light?
3. *Improvements in the gas pipes.* What are the principal defects of the present system of gas pipes? How can these defects be remedied?
4. *A new method of purifying the gas.*
5. *Manufacture of gas from different kinds of wood.* Which is the best method of treating different sorts of wood? How do different kinds of wood differ in regard to the yield of gas?
6. *Different qualities of coal for the manufacture of gas.*
7. *Theory of light, as far as it relates to the subject of illuminating gas.*
8. *The administration of gas-houses.*

In regard to the first point—concerning the employment of clay retorts—it is generally asserted that the gas made in such retorts is poorer in quality, although the yield in quantity is greater than in iron retorts; thus benefiting the manufacturers but not the consumers. This point, as well as the other points above enumerated, will be thoroughly sifted by the convention, and the reports on those subjects will probably be of more than common interest. I shall endeavor to obtain these reports, and give you the substance of the same as soon as practicable.
I. K. BREISACH.
Augsburg, Germany, May 26, 1860.

A COLUMN OF VARIETIES.

A large steam excavator is now being built at Boston for Messrs. Norris & Louthier, the American contractors for the Sagua Railroad in Matanzas.

It is stated in one of the London papers that cramp in the legs may be instantly cured if, on the moment of its seizure in the calf of the leg, the instep is forcibly drawn up. This method, which can be easily tried, may be of the most important benefit to bathers.

When a current of ordinary coal gas is passed through a neutral solution of nitrate of silver, a crystalline precipitate is obtained, formed of a large quantity of little prisms, which, when dry, detonate under the action of heat or the blow of a hammer, like fulminating silver.

The first locomotives in the United States were imported from England in the Fall of 1829, or Spring of 1830. The first Stephenson locomotive ever imported was the "Robert Fulton," in 1831, for the Mohawk and Hudson Railroad. The first locomotive built in this country was constructed at the West Point Foundry, in the State of New York, in 1830, for the South Carolina Railroad.

To prevent forked trees from splitting—to which they are liable—it is recommended that a few of the smaller limbs above the fork be twisted together, in which position they will grow and protect the fork.

MM. Jardin and Blancoud, of Paris, have been applying hydrofluoric acid to engrave upon porcelain. The latter is first covered with a varnish upon which the drawing is made with a fine point, when the porcelain is placed in a bath containing hydrofluoric acid in the state of a vapor, which eats out the lines forming the picture. The porcelain is then placed in a bath containing gold or silver in solution, and a deposit is made of the metals with a galvanic battery; no deposit is made on the surface covered with the varnish.

In Green county, Va., there is a spring of water that flows in a volume sufficient to drive a 4-horse-power wheel, for about twenty minutes; then it ceases to run, for about two hours, when it will flow again, and so on, continuously.

A French commission, appointed to examine into the means of destroying insects which prey upon grain that is stored up, have reported that a small quantity of chloroform or sulphuret of carbon put into the interior of a grain pit, and then hermetically sealed up, will destroy all the pests. About 75 grains of sulphuret of carbon are sufficient for about four bushels. Grain placed in a heap and covered with a tarpaulin may be effectually treated thus to destroy such insects.

A paper has been communicated to the *Moniteur Scientifique* by M. de Luca, professor of chemistry in Paris, detailing the result of an analysis of one of those wonderful plants that vegetate suspended in the air without any contact with the soil. He found that such a plant as the *Tillandria dianthioides*, after being burned, contained 10 per cent of ashes, in which were silica, lime, magnesia, potash, soda, phosphoric acid and a very appreciable quantity of iron, manganese, sulphuric acid and chlorine. This plant must have attracted its mineral elements from the dust which was floated on the breeze.

The basis of most of the substances which people term rocks, minerals, salts, &c., is a metal. Thus, rock lime, when deprived of its carbonic acid by burning, is oxyd of calcium—the rust of the metal calcium. This metal is very rare and is almost as combustible as turpentine. The very salt which we consume with our food is composed of chlorine and the metal sodium. The latter, when thrown into water, absorbs oxygen rapidly, decomposing the water, and evolving hydrogen and steam.

Sir David Brewster, inquiring into the history of the stereoscope, finds that its fundamental principle was well known even to Euclid; that it was distinctly described by Galen 1,500 years ago; and that Giambattista Porta had, in 1599, given such a complete drawing of the two separate pictures as seen by each eye, and of the combined picture placed between them, that we recognize in it not only the principle but the construction of the stereoscope.

There is now on exhibition, at Colyton (England), a single sheet of tissue paper which measures very nearly four miles in length (21,000 feet), and which is 6 feet 3 inches in breadth. The weight of this sheet is only 196 pounds. It was manufactured in 12 hours.