Nitrogen, Laughing Gas.

Our atmosphere is composed of two gases, nitrogen and oxygen. The latter is the supporter of life, the former has been called *azote*, from the Greek, to signify its unfitness for supporting animal life. Nitrogen will combine with oxygen in various proportions, hence the mixture of the atmosphere has been called "mechanical," because it combines with oxygen in other proportions and forms nitric acid. Nitrogen gas may he obtained by equal weights of sulphur and iron filings made into a paste with water, and placed in a shallow dish, floating on water, and a bell jar full of atmospheric air be inverted over it. In the course of a few days, it will be found that the water has risen about one fifth way up the jar, the remaining gas being nearly pure nitrogen—the oxygen having been all absorbed by the mixture.

Nitrogen gas may be obtained from a piece of lean flesh meat, beef for example, which may be put in a retort along with very dilute nitric acid. At a heat of about 100° the gas is disengaged and may be collected over water. In this case it is obtained by the decomposition of the meat, which is a compound of oxygen, bydrogen, carbon and nitrogen.—Nitrogen will not support combustion; even phosphorus when immersed in a jar of nitrogen is instantaneously extinguished. It is fatal to animals confined in it. When mixed with pure oxygen, in the proportion of four parts of nitrogen, by volume, to one part of oxygen, a mixture is formed resembling atmospheric air in all its properties.

Nitrogen unites in five proportions with oxygen, and forms compounds, called

1. Nitrous oxide : : N+O.
2. Nitric oxide : : N+O2.
3. Hyponitrous acid : : N O3.
4. Nitrous acid : : N+O4.
5. Nitric acid : : N+O5.

The first of these compounds is sometimes called the laughing gas, from the extraordinary effects which it produces upon the system when taken into the lungs. Sir H. Davy was the first chemist that inhaled any quantity of this gas; before his time it was supposed to be eminently noxious. The experiment of breathing this gas, cannot, however, be made with impunity, especially by those who are liable to a determination of blood to the head, or to palpitation of the heart.

Central Fires in the Earth.

The increasing temperature, found at increased depths in digging the Artesian wells, more particularly that of Grenelle in France, has been adduced by M. Arago, and other philosophers as proof of central fires in the earth. Commander C. Morten, known as the propounder of the "electrical origin of hailstones," and the vegetable origin of the basaltic columns of the Giant's Causeway, and those of Staffa, merely regards the increased temperature at increased depths as the natural consequenee of increased pressure of the atmosphere, and as much a matter of course as the increased cold or diminished temperature found to exist on ascending mountains according as the atmospheric pressure diminishes in the ascent. The beautiful simplicity of this theory may, perhaps, induce the conviction of its alliance with nature. In corroboration we may justly remark that the artificial compression of air does elicit heat.

Substitute Paint Varnish.

Recipe for a composition to economise paint:—To one pound of gum shellac add 4 ounces of borax, and two quarts of water.—Boil till dissolved. These proportions may be varied according to the quality of the materials used. After the paint is prepared for use add nearly an equal quantity of the above and stir until it unites. The paint will then be thicker than before, and must be reduced with oil or spirits of turpentine. The paint will now cover twice the surface as at first.

Manufacture of Glass.

(*Continued from page* 357.)

Glasses are silicates, and the more silica there is in them the more perfect and hard they are. The most perfect glass is found in a state of nature—the rock crystal—but as this is nearly infusible, it is not possible to manufacture it. To render the silica fusible, certain fluxes are therefore added to it, such as potassa, soda, lime, and the oxide of lead. Silica fuses well with the alkalies, but the glass obtained absorbs moisture from the atmosphere, and is therefore rapidly changed; the lime and the oxide of lead is introduced to cure this defect.

Transparency and whiteness are the first properties of glass; therefore to obtain these, the articles employed in its manufacture, must be very pure, and the least possible quantity of flux used. A small quantity of the sulphate of potassa gives glass a greenish shade, soda gives it a yellow tint, and too great a quantity of lime makes it milky; iron makes glass bottle green, an excess of manganese, (which is used to take way the green of the iron,) oftentimes becomes a violet. Copper gives glass an emerald color, and charcoal makes glass a topaz yellow; therefore glass cannot be made in purity in smokey furnaces, without melting the materials in covered crucibles. The glass made in Bohemia is about the best in the world It is very elastic and has a very beautiful sound, and is so hard that it will strike fire with a piece of steel. Glass that contains much lead is not hard. The silica that is used in Bohemia, for making glass, is crystaline quartz, calcined and pounded. The quartz is selected in parcels and the purest laid aside for making the superior kind of glass. The quartz is generally calcined in reverberatory furnaces, and when it is heated to a cherry red, it is withdrawn and thrown into a large tub of water, which is often renewed to keep it cold. Pine wood is generally employed in the calcining process. When the quartz is dry, it is pounded in hemispherical mortars, by cast iron pestles. Pure potash is the best flux that can be used. Soda is used in the manufacture of window glass. The lime that is used in Bohemia, is very pure and white. The stone of it is burned like quartz and slaked in the air, and then reduced to fine powder, when about 20 parts are used in the smelting, along with 100 parts of silica.

The wood employed for making the best glass, should be fine pine, slightly roasted before it used. The clay for the glass crucibles nearly the same as what is known as the "Stourbridge clay" Common window glass is made of 60 parts of pulverized quartz, 40 parts of common calcined potash, 5 of carbonate of lime, 100 parts of the refuse glass, and 100 of old broken glass. The very white window glass is made of 100 parts pulverized quartz, 50 of calcined potash and 80 of carbonate of lime. There are various proportions of different materials. White sand, flint, and rock crystal, and salt, are used in quantities proportioned to the supply of the materials, in those places where they are found, to produce inferior, or superior glass.

Glass making has become an important American manufacture. Articles of crystal which a few years ago were imported from England, are now made cheaper and better in the United States. Philadelphia is famous for her crystal ornamental work, and the city of Brooklyn is fast advancing in an extensive glass business—the art is already carried to a high state of perfection. We believe that all our plate glass for mirrors is imported. In a few years this will cease to be the case. The materials for the glass manufacture are very abundant in the United States; it only requires capital wisely invested and the business energetically conducted, to insure the most triumphant success. It is a business that cannot be learned but by practice, competent artists are therefore essentially necessary to success in that, as well as every other business.

Mode of Breeding Leeches in Scinde.

The breeding of leeches in Europe, is kept a secret, so far as anything can be in that quarter of the world. The breeding of them was at one period almost entirely confined to a tribe of gipsies, but the secret got known and went abroad. In Great Britain, even to this day, the best description of leeches are procured from the Continent. In Ceylon, where the variety of leeches are more numerous, perhaps, than in any part of the world, the propagation of the sort used in phlebotemy is made a secret of. In India the leech propagators do all they can to keep the knowledge to themselves. But the way was carried to Europe and is as follows.

Burnt earthern vessels, commonly called "cottee pots," are used for this purpose, globular shape or form, being three feet in circumference, one ditto in height, and with mouth six inches in diameter, each pot being two-thirds filled with stiff black earth, containing a good portion of clay. To this add four handsful of finely-powdered dry goat or cow dung, two handsful of dried hemp-leaves finely powdered, with 2 ounces of asafœtida. The vessel is then filled to within three inches of the mouth with water, and the whole mixed up with a wand or stick. Leeches of full growth and of the largest size are required for propagation, varying perhaps, from three to five inches in length, after being placed on and glutted from the human body. The leeches are put, nineteen or twenty in each vessel: and an earthen cover is then placed over the mouth, and the whole smeared over with a coating of cow dung and earth, and placed in a sheltered spot, free from wind and sun. After the space of twenty-five days or a month on the cover being moved off about twenty cocoons will be found, of the size of a sparrow's egg and longer and of a spongy nature.—On being carefully torn open with the finger from five to fifteen small leeches will emerge. All of these are then placed in a pot of water, into which a table spoonful of sugar has been thrown. After ten days, it is requisite to feed them with blood from the human body for a period of three months, when they will have obtained the usual size for application. During the warm months, after a respite of ten days or so, the breeding leeches can again, be placed as above described. The leech appears to live about eighteen months, and any number can be procured in this way.

Rattlesnake Bite.

Wm. Milligan, of Jasper, Florida, sends to the Fayetteville North Carolinian, an account of a friend, T. J. Stewart, who was out hunting with him, being bitten by a rattlesnake, in the calf of the leg. The snake was about 4½ feet long with only six rattles, and his teeth went in half an inch deep. He immediately tied a bandage above the wound, went for some liquor, which he procured in fifteen minutes—give him half a pint. When they reached the house, he administered red pepper tea mixed with spirits, which he continued to give him, so that in 24 hours, he had used two or three quarts of spirits, which did not intoxicate him in the least. Although his leg was swelled somewhat the next day, and felt sore yet the man became well in a few days—the spirits counteracting the poison.—The drinking of spirits, very freely, in cases of being bitten by snakes, had before been tried, and proved to be effectual—and what is singular too, that however freely administered in such cases, the individual never becomes intoxicated.

To Preserve Milk.

If milk be introduced into bottles, then well corked and put into a pint of cold water and gradually raised to the boiling point, and, after being allowed to cool, be taken out and put away in a cool place, the milk may be kept perfectly sweet for half a year. Or it may be evaporated to dryness, by a gentle heat and under constant stirring. A dry mass will thus be obtained, which when dissolved in hot water, is said to possess all the qualities of the best milk.—Ex.

The latter process to preserve milk, will do but not the first.

A Summer Drink.

Two ounces of sassafras shavings upon which is to be poured two quarts of boiling water; when cold add a half ounce of the essence of peppermint, and sweeten with sugar to suit the palate. The cost of these ingredients will be about six cents, affording a delicious beverage admirably adapted from its tonic, warming and astringent properties to preserve the healthy action of the stomach and bowels.

Another Summer Drink.

A gallon of water sweetened with molasses, made tart with vinegar, and hot with ginger.

The great secret about the quality of all summer drinks is to have them as simple as possible and to partake of them with a prudent moderation. We have no great opinion of peppermint in any beverage, others who like it better may have a different opinion.

Syrup for Coughs.

Take of boneset as much as you can grasp in your hand, and two quarts of water; boil it to one quart; add a pint of molasses; let it simmer a few minutes, and then strain and set it by to cool. Take one gill three times a day before eating.

Take the iron scales from a blacksmith's forge, grind them in a coffee mill, and then heat them red hot in a retort and plenty of oxygen gas will be obtained.

The muriate of iron was given to Madame Laborde while in a collapsed stage of cholera, and it cured her.

LITERARY NOTICES.

Encyclopedia of Chemistry.

No. 16 of this great work, published by Carey & Hart, of Philadelphia, and edited by Professor Booth, assisted by Mr. C. Morfitt, is on our table. This work should be in every library, as the best book of chemical reference in existence, when completed. It covers the whole field of chemistry.

American Locomotives.

Part 2 of Emil Reuther's splendid work on American Locomotives, is now upon our table. It contains views of Ross Winans' Coal Burning Locomotive, the Delaware, lithographed in handsome style, together with the continuation of the Treatise on Steam which we noticed when the first part was issued—The drawings in this work are all to scale, and they are therefore, of the utmost value to working engineers. Each number costs only 75 cents.

Holden's Dollar Magazine for August, is a very interesting number. It contains a good engraving of Pyramid Lake, in Oregon, described in Fremont's narrative of his adventurous journey through that country. He furnishes a very interesting account of this wonder, which cannot but prove interesting to the readers of this valuable Magazine, it also presents a view of Monterey in California, an object of interest to 'money lovers.'—The scene lends enchantment to the extended imagination, and might repay an attempt at the reality. The magazine is readable throughout and as usual treats the "topics of the month" in a very interesting manner.

Mr. Holden is now in California, and we hope for the sake of his dear readers that he will furnish some golden tales for the future numbers of his Magazine.