

THE DOVE-COT.

(See page 341.)

THE CROWNED GOULA PIGEON.

This magnificent and beautiful bird is a native of many of the islands of the great Indian Archipelago, being by no means rare in Java and Banda. In New Guinea it is abundant, as well as in most of the Molucca Islands. It inhabits the forests, and feeds upon berries, seeds and grain. It exceeds in size all the other Columbine species, being from 20 in. to 28 in. in extreme length. The bill, which is 2 in. long, is black; the tips of the mandibles are thickened, and that of the upper one moderately deflected. The head is adorned with a large, elevated, semi-circular, and compressed crest, composed of narrow, straight feathers, furnished with disconnected silky barbules, and always carried erect. This as well as the head, the neck, and all the inferior parts of the body, are of a pure grayish-blue colour. Its nest is built upon a tree. These birds are easily rendered tame; and in the East Indies they are frequently kept in courtyards, as poultry. They have all the habits of the common pigeons—billing, inflating the breast, and cooing. The sounds which they emit, however, are far from being so gentle as those to which we apply that term; they rather become a loud noise. It is said that M. Bougainville's sailors were greatly alarmed on hearing it for the first time, in the wild and unfrequented spots of some of the islands they visited; and no wonder, when they considered it to proceed from the savage cries of hostile natives in their ambush about to break forth upon them. Fear, when one is excited, as is well known, strangely exaggerates what is seen, as well as what is heard.

VERTICAL TUBE VENTILATION.

(See page 341.)

Few subjects have occupied the attention of scientific men to a greater degree than the important one of ventilation, and yet with so little practical result to the community. It has long been admitted that every department should be supplied with a steady inflow of fresh air, in order to maintain the health and comfort of its occupants; but the realisation of this requirement has been impeded by two principal difficulties. For a long time it has been found impossible to admit a sufficient volume of air without occasioning draughts, and without an undesirable lowering of the temperature; and when, at the beginning of the present century, these difficulties were overcome by the introduction of vertical currents maintained by the pressure of the external atmosphere, it was discovered that the smoke, blacks and other impurities, constantly present in the air of populous places, rendered the free admission of such a current of air itself an evil. In the most important buildings in the metropolis, such as the Houses of Parliament and the British Museum, it has been found necessary to filter the air before it could be allowed free ingress; but the arrangements for this purpose have been such as to counteract the external pressure, and to necessitate an elaborate and expensive system of fans, exhausts, and other mechanical appliances for the purposes of forcing the air so filtered into the apartment where it was required.

A company has been formed to perfect this vertical system of ventilation by cleansing the air admitted, in accordance with an ingenious system designed by Mr. James Livesey, C.E., and by supplying it in a pure state, in any quantity that may be desired, to every room in the house.

The method by which this desirable purification is effected will readily be understood by reference to the accompanying illustrations. The section shows the vertical tube, to be fixed in the interior or an apartment communicating with the outer air by means of an elongated box kept constantly supplied with water. The arrows show the direction of the external air entering the grating on the outside face of the wall; the current impinges upon the deflecting place and is driven down by it on to the surface of the water, where it leaves behind any extraneous matter. It then ascends by the vertical tube, pure and fresh, and deprived of all injurious articles, which, besides being prejudicial to health, work such destruction on furniture and works of art. The water-box is easily accessible either from the inside or outside of the house; and in very hot weather lumps of ice may be placed in the trough for the purpose of cooling the air as well as purifying it. In the engraving of the apartment fitted with the tubes—which, it must be admitted, rather improve than detract from the appearance of the walls—it has been found necessary to assume a little license and show by dotted lines that which is invisible, just as in a mechanical drawing those parts which are hidden by others are frequently shown dotted; but that the currents really do as-

cend almost to the ceiling and then become broken up and distributed, much in the manner depicted, may readily be proved by a lighted taper held at different distances from the orifices of the tubes.

The current of air diffuses itself throughout the upper part of the room, and gradually descends, the vitiated air passing away by the chimney or other openings provided (if no chimney exist), and the air thus constantly changed removes the oppressive and "stuffy" feeling of a room heated by gas. The free admission of air gives a better draught to the fire and prevents the chimney from smoking or the necessity of opening the door. Each tube being provided with a valve, the admission of air can be regulated at pleasure.

The Purified Air Ventilating Company not only supply the tubes and accessories, but are also prepared to fix them either in new buildings or those already existing. We are informed that the system is now being extensively introduced, and we can only wish success to any efforts for promoting the general health and comfort.—*Engineer.*

EXPERIMENTAL AMUSEMENT.—MYSTIC AND CHEMICAL EXPERIMENTS.

By F. R. JEROME.

THE INVISIBLE COIN MADE VISIBLE.—If a coin be placed in a basin so that on standing at a certain distance it be just hid from the eye of an observer by the rim or edge of the basin, and then water be poured in by a second person, the first keeping his position, as the water arises the coin becomes visible, and will appear to have moved from the side to the middle of the basin.

THE VAULTING KNIFE.—Have a pot full of water standing on a table; take a pretty stiff bit of whalebone, about three inches long, also a new stiff card, which fold down the middle, longways; cut a hole through both folds at each end, half an inch or more from the ends. Put one end of the whalebone in at one end of the card, bend it like a bow, and then put the other end of the whalebone into the other end of the card. Set this into the pot with two or more inches above it of water, then place the handle of your knife upon the uppermost part of the whalebone, with the point upwards; use some words of art, as "Presto, arise!" and the knife will leap out.

THE SILVER TREE.—Pour into a glass globe or decanter four drachms of nitrate of silver dissolved in a pint or more of distilled water, and lay the vessel on the chimney-piece, or in some situation where it may not be disturbed. Then add four drachms of mercury. In a short time the silver will be precipitated in the most beautiful arborescent form, resembling real vegetation. Another way of producing the same tree is by pouring into a diluted solution of nitrate of silver, as above, two drachms of nitrate of mercury dissolved in four drachms of water.

THE CHAMELEON SPIRIT.—A liquid which is blue when the bottle containing it is open, but colourless when the bottle is closed, may be made thus:—Put some shreds of clean copper into a small phial, fill it with liquid ammonia, and cork it air-tight; nothing will take place. Open the bottle and let it remain for a few hours; the liquid will become blue. Cork the phial; after some time the liquid will become colourless. Re-open the phial, the liquid will become blue again. It will be found necessary sometimes to add to the mixture, after it has remained exposed to the air for some time, a little more copper.

THE FADED ROSE RESTORER.—Take a rose that is quite faded, and throw some sulphur on a chafing dish of hot coals, then hold the rose over the fumes of the sulphur, and it will become quite white; in this state dip it into water, and put it into a box or drawer for a few hours, and when taken out, it will be quite red.

THE SUB-AQUEOUS VOLCANO.—Take one ounce of saltpetre, three ounces of powder, of sulphurivum three ounces, beat, sift, and mix them well together; fill a paste-board or paper mould with the composition, and it will burn under the water till spent. By this many a wager may be won, as few will believe it before they have seen tried.

A LAMP THAT WILL BURN TWELVE MONTHS WITHOUT REPLENISHING.—Take a stick of phosphorus and put it in a large dry phial, not corked, and it will afford a light sufficient to discern any object in a room when held near it.

A NEW freak of fashion consists of birth-announcement cards. They are very small, and read thus:—"Compliments of Mr. and Mrs. — and son (or daughter, whichever the case may be). Feb. 30, 3 p.m." Among relatives we presume these cards will have more or less significance in the silver cup line.