

Glasgow, who, in his admirable little treatise on 'Plumbing,' suggests the introduction of two ventilating pipes into the container; and by Mr. Livesey, of Westminster, who, by means of a perforated pipe, flushes the sides of the container; but they will probably both agree with me that a good 'valve closet' is the best apparatus, rendering as it does, all such measures unnecessary.

There are some bold enough to assert that with a proper inlet for air into the drain or soil-pipe, and an extracting cowl at the top, even the sink or other wastes may be connected with the drains or soil-pipes without trapes, and that they will really act as auxiliary inlets, the suction being in all cases towards the cowl.

I will briefly describe an experiment made at the house of Professor W. T. Gairdner. The soil-pipe runs up the centre of the house, and has a ventilating pipe carried above the ridge, the entire height being about 60 feet; at the foot of this runs the drain, and in the area about 27 feet distant is fixed one of Buchan's ventilating traps. There was at the time of the experiment a strong natural draught inwards and upwards; smoke then being admitted at the eye of the trap emerging from the ventilating pipe above the roof in one minute. A Banner's three-inch cowl was then placed upon the top, and the smoke showed itself in fifty-nine seconds; after the cowl had been on some time the smoke came out at the wrong end, and again at both ends together; the inlet end of the cowl was then plugged up, and the smoke poured out just the same; the plug was then withdrawn, and the water was taken out first from the sink-trap in the kitchen, and afterwards from one of the water-closet traps; and in each case, instead of there being an inward suction to the soil-pipe, the smoke poured into the house, and even although in the kitchen a door was left open to the outer air.

It has been stated that the force of the wind is at all times sufficient to cause these cowls to act as exhausters, that this is not the case will be seen from the following sketch:—

At the house of Dr. Fergus the rain-water pipes join the soil-pipe, and the ventilation is found satisfactory. Here also the same description of cowl was used, the rain-water pipes being closed up, and the same result ensued.

At another house the ventilating trap was placed immediately at the foot of the soil-pipes, and a Banner's cowl at the top: but whenever the water-seal was dispensed with the smoke came pouring into the house.

Now, with pan and valve closets it will occasionally happen that there is no water in the basin; and if there is no trap below the basin it is apparent that danger must ensue; it is not necessary to perpetuate the D trap; a properly constructed syphon is better. With regard to wastes from baths, sinks, etc., without traps, the danger is of course constant; but, as so often pointed out, wherever it is practicable they should be disconnected, and made to discharge in the open air.