

Our only real safety seems to be in carefully attending to the four following particulars:—1st. The entire disconnection of our houses from the sewers. 2nd. The construction of the house drains in such a manner that impurities formed therein, or entering from without, can not get into the houses. 3rd. The thorough ventilation of the sewers at numerous points; and 4th. The frequent flushing of these so that no excrement can be retained in them for more than about two days; as there seems to be little danger from the decomposition of faecal matter until it has been exposed two or three days; at least there is much less danger from fresh sewerage.

Dr. John Spear, medical officer of health for South Shields, Jar-row, and Hesburn, Eng., lays down in the *Sanitary Record*, the following rule:—

*Soil Pipe.*—1. The soil-pipe must be disconnected from all other house-drains, receiving only the discharge from the pan of the water-closet.

2. In addition to the usual trap at its commencement, this drain should have a trapping bend in the horizontal part of its course, as it runs towards the sewer; thus cutting off air-communication with the common sewer system.

3. From the house side of this additional trap a ventilator should proceed directly to the surface, opening at the surface in a convenient spot in the yard or premises.

4. The soil-pipe should be carried up, full calibre, as a ventilating shaft, to the roof.

*Discharge Pipes from Baths, Sinks, Urinals, etc.*—1. These may be connected with one common drain, which should always discharge in the open air, above a trapped gully.

2. If the drain be a long one, leading from upper stories, it, too, should be carried for the purposes of ventilation to the roof, thus being open at both ends. The inlets from the house should be trapped.

In reference to the enclosed sketches, [see next page]:—A, illustrates the method of disconnecting slop-water and sub-soil drains from the sewer; B, that of trapping and ventilating water-closets. They are slight modifications of the mode advocated by Mr. Buchan and Dr. Spear, and also by Dr. Buchanan (in app'x to Report on outbreak of typhoid at Croyden.)

The bath is shown at b; s, sink; w w, water-closets; y, yard.

The advantage of the ventilating tube leading from the upper part of the bend near the trap of the closet is obvious.

It has been argued that the ventilator at the yard level is unsafe, but it has not been found to be so in practice. In accordance with the natural laws of the movements of gases, a constant current of pure air will pass through the soil-pipe, the inlet being the yard ventilator, and the outlet the opening at the roof. If foul air chanced to escape into the yard, it will probably be because the pipe has become choked at the bend, or the trap has been forced by the gases