tains the seal, by means of a small quantity of mercury, even after all the water has been sucked away. Its expense is unfortunately too great to allow of an extensive application.

The Bell trap used for yard sinks is one of the most common, but also one of the worst, contrivances in use. It readily fills with deposit, maintains, at best, a shallow seal, which in summer evaporates and in winter freezes up. When it is cleaned by removing the bell, the seal moreover is completely broken. A deep trap should always be used in preference.

To recapitulate, I consider the siphon traps, viz.: the S. P. and running traps decidedly to be the best under all circumstances, provided they are properly vented. Without ventilation, Bower's trap is good where only a slight tendency exists to siphonage and Nicholson's mercury trap where there is a strong tendency.

The next question refers to the proper arrangement of the pipes which receive and carry away from the premises all the discharges of the receptacles, after they have passed the traps. These pipes necessarily contain more foul air and foul matter than the fixtures, and any fault in the arrangement or in the execution is likely to be fraught with more dangerous consequences.

In the first place, it is therefore advisable to maintain as much simplicity as possible, and therefore to have as few pipes as is consistent with safety. The receptacles on each floor should be concentrated at one or a few points, and be placed directly over each other in different floors, so that horizontal pipes running between or across the floor-beams are avoided. The comparatively small size of the pipes necessary in a building requires them to have a very good grade if they are to work satisfactorily, and this cannot be given them in the small space between the floor boards and ceiling laths.

Usually, it suffices to have one soil pipe for a building, and one or two waste-pipes connecting the wash-basins, bath-tubs, etc. In England, the common practice is to run the soil-pipes down on the outside of the house, as they are considered more dangerous than common waste-pipes, which are kept inside. In the colder countries of the continent, however, the soil-pipe is also inside in order to be protected against the action of frost. In our climate, we are likewise obliged to keep all pipes except rain-leaders inside of the walls. We also do not hold the English idea that waste-pipes from wash-basins, bath-tubs, etc., should not discharge into the the soil-pipes, for we say that if the waste-pipes are well jointed and trapped against the escape of any interior air, which may be just as dangerous as the air in the soil-pipe when the bath and laundry water from a diseased person enters them, then there is no reason for any distinction. Waste-pipes should have exactly the same treatment as soil-pipes. All vertical pipes descending from the receptacles terminate in the main drain, which extends from the furthest pipe to the point of discharge or outfall. They should be placed on the inside of the wall of the house, and if they are boxed, it should be done in such a manner as to permit ready examination when necessary. The main drain is likewise best placed where it can be seen and where any defects can at once be discovered. It should therefore be run along the cellar wall and suspended or supported by brackets. If carried under the cellar floor, it should lie in a brick or stone trough, closed with removable covers, to permit examination.

The main requirements of discharge pipes, are that they carry away the waste matter as thoroughly as possible, without a cessation of flow or eddy, and that they are thoroughly ventilated. To accomplish