Sanitation.

TRAPS ON MAIN DRAINS.

LONDON, ENG., August, 1880.

The discussion in the columns of the *Sanitary Engineer* as to the desirability of utilizing the soil pipes of houses for the purpose of ventilating the main sewers, prompts me to enter my protest against such a rule being permitted to be introduced in any but exceptional systems of sewerage and of house sanitation. The practical difficulty of carrying out extensive sewerage works, without, at certain points, introducing such changes of gradient as to involve changes of flow with risk of deposit, leads to the conclusion that the arterial drains must of necessity be subject to a greater change of evolving dangerous gasses than subsidiary causes, such as house drains, in which there ought to be no difficulty in effecting a prompt removal of the reiuse of the house. Where there occurs, as is stated to be the case with some of your correspondents, a serious obstruction to the flow of the house drainage, it arises from the inherent defects of the closets employed. If a deficient flushing power is used it is obvious that the more solid parts of the refuse do not receive the necessary impetus to affect their removal, and by this means a trap may be stopped, although it very rarely then happens. Mischief could be produced, not so much by the closing of the trap as by the retardation of the current and consequent deposition and decomposition of solids. This, however, need not occur, and should not be regarded as a factor of sufficient importance as to give weight to a contention in favor of the traps being dispensed with. In my own experience I have found that house drains and soil pipes become foul through the neglect either to have sufficient water flush in the closet, or to provide an air flush from the house side of the trap. Without this, and the corresponding continuation of the soil pipe as an upcast, no current of air is induced, and the gases evolved in the surroundings of the house remain almost stagnant, until they find a means of escape into the house through the closets (when used), or otherwise.

The gases that are produced in a properly-constructed main sewer need only be a source of danger when the refuse from patients suffering from typhoid, or other similarly contagious diseases, passes into it. In that case the exclusion of the exhalations from the house drains, by means of traps, prevents the spread of the disease, and to introduce a current of air from the sewer into the surroundings of the house would be attended with danger, as the occasional and unavoidable holes and leaks, such as from rats, would, until discovered and repaired, tend to disseminate disease. I have recently had an example of the ill effects which arise from direct communication between a building and a main sewer in the city of London. One of the principal banks asked my opinion as to the sanitary condition of the establishment, and the result of an inspection showed that owing to the absence of a trap the sewer gas from the main sewer had free access to the building, and a chronic state of sore throat and other conditions of blood poisoning had been the result. This, of course, indicated a bad state of the main sewer. But how is a householder to know that the main sewer is perfect? He is only safe when his house is entirely cut off from the sewer. By properly trapping the building I refer to, the foul gases and smells disappeard; a healthy condition was established, and many valuable lives rendered more useful than previously. I advise the introduction of street ventilators at more frequent intervals than they are generally placed, and rely on the natural pulsation which occurs by the rise and fall of the flued in the sewer during the twenty-four hours to force out the sewer gas. In its diluted form, mixed with the air in the open, it is less likely to produce mischief than if it is drawn in the direction of the houses, as is advocated by those who would abolish traps. I say confidently that the experience of sanitary engineers in England points to the necessity for effectually trapping every building from the main sewer, and of providing a sufficient air flush on the house side of the trap, for the purpose of purifying the air in the drains and soil pipes, by maintaining a constant current of air from the house drain to the highest part of the house.

HENRY ROBINSON, C.E.

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11 ARGYIL STREET, LONDON,
August 27th, 1880.

I will briefly state my opinion as to how a house should be drained into a sewer. First of all, it should be taken for granted that the sewer in the road properly belongs to the town authorities, and should not be ventilated by means of pipes run up, against or through the houses. Effective sewer ventilation can be got by means of openings in the crown of the sewer, etc. I hold that the house should be disconnected from the sewer by means of a disconnected trap or chamber, placed as close to the house as possible, such contrivance taking in a body of fresh air at an inlet between the trap of the chamber of the house. To provide an outlet for this air the soil pipe should be carried up the full diameter to the roof of the house, and where it is necessary, especially at the ends of the drains, further ventilating pipes should be provided. In all cases where it is possible I recommend the severance of the rain water pipes from the drain, and their delivery over a trap at the foot of the pipe. In like manner I disconnect the wastes of baths, lavatories, and clean waste sinks, keeping the pipe open at the top, so as to preserve a current of air in the pipe, and to prevent the effluvium of decomposing soap, etc., from entering the house. The only waste which I allow to enter the soil pipe is from the bed-room urinal slop sink, and in some cases I provide a disconnection even for this. It is more difficult to deal with scullery sinks, but I find it better to deliver the waste pipes of these into a grease-collecting arrangement, taking the wasts first of all into a small gully where possible. I do not see why the same general rules should not be practised in America, and I believe that disconnection of this kind would be preferable to anything else which can be devised. In very cold weather I would protect the traps from freezing by temporarily covering them over, as suggested by your correspondent, Mr. Anderson, C.E. I am, sir, yours faithfully.

W. EASSIE, C.E.

LONDON, ENG., Aug., 26, 1880.

The question of retaining the trap placed on the line of the "house drains," between the house and the public sewer, is very important, and under the existing systems of sewers cannot be dispensed with. Even with the most perfect system of sewers, as carried out by the best modern experience, I could not recommend the rejection of the trap. It may of course be argued that every trap is a direct loss of scouring power, and so it is; but we must be satisfied to accept this compromise. It is the safe principle, I believe, to lay down all modern house drainage work so as to cut off, "disconnect," and ventilate, that the house may be harmless from sewer air, even should the sewerage system into which you drain be bad, as it mostly is in the older cities and towns. The theory that sewer air should not be found in properly constructed sewerage systems is not borne out in actual practice, and until it is we cannot do away with the trap in question. If the trap on the line of house drains be done away with, you will ventilate the public sewers through the soil pipe, and other ventilating pipes of house drainage systems, and form a ready means of carrying contagion from house to house. I am, sir, your obedient servant.

J. WALLACE PEGGS.

SAN FRANCISCO, CAL., Aug., 28, 1880.

In answer to your inquiry as to my views of the "Trap on Main Drain" question, I have to say that in the present unventilated condition of main street sewers, I consider it an absolute necessity. Of course, there is no difference of opinion as to the desirability of getting rid of our house sewage as quickly as possible, and with that end in view to avoid all bends. Still, the argument used by some parties that the trap is such an impediment to the flow of sewage as to warrant it being left out entirely, is not borne out by my experience. Even if all they say against the trap should happen, viz., that it should choke up and thus retard the flow of sewage, the trouble and expense of cleaning it is far more than compensated for by the protection it affords the house inmates while it has been in use; but I do not admit there is any danger of its becoming stopped up if ordinary care is taken in the setting of it. Of course, with a long line of pipe and a very little fall, not only the trap, but the whole line of pipe will be clogged. A remedy I apply in the latter case is to carry the waste of the kitchen and pantry sinks into a "grease trap," properly vented, before it enters the house drain pipes. As an illustration of the efficacy of such traps, one placed in the underground drain pipe of the Palace Hotel in this city, which runs over four-hundred feet on a fall of "one-eighth of an inch per foot," has been running nearly five years, and the pipe has never yet being stopped up. I always put in a trap.