general adoption was the cost of water necessary for the working of the apparatus, the charge in Edinburgh being 3d. per 1,000 gallons. I am not aware how this price will compare with other places in Scotland, but when you consider that in Partick we have to pay the Glasgow Corporation at the rate of 10d. per 1,000 gallons consumed, you will at once see that, for us at any rate, the Reeves system has no attractions whatever.

In the spring of 1898 Sir A. R. Binnie, engineer to the London County Council, convened a meeting of all the sanitary and municipal engineers within his jurisdiction to consider the question of sewer ventilation, with a view of establishing a uniform system for dealing with complaints as they arise. The resolutions of the conference were three in number—viz.: (1) "That the closing of sewer ventilators in response to complaints increases the general evil, the diminution of which is to be attained by the multiplication of the ventilators at regular frequent intervals. (2) "That in connection with any interceptor hereafter fixed on a main house drain it is advisable to carry up a ventilating pipe from the sewer side of the interceptor up the front, side, or back of the house to the satisfaction of the local sanitary authority, and that the outlet drain from the interceptor shall not be flap-trapped in sewer unless required by the local sanitary authority. (3) "That pipe ventilators up buildings, or otherwise where possible, should always be adopted in addition to surface ventilation."

From these resolutions it will be seen that the conference did not attempt to solve the whole question of sewer ventilation, but limited its view rather to the best emergency methods when complaints arose. The solution of the whole problem is still an open one, and while so little progress has apparently been made during the last quarter of a century, there is promise that by the increased attention given to the subject, and the tendency of local authorities to promote all the phases of sanitary reform, satisfactory principles will be established to guide in ventilating both existing and new sewerage systems. A paper read by Mr. Shone, C. E., at Eastbourne recently advocating an exhaustor fan driven by electricity, is perhaps the latest phase of the subject; but the difficulties of introducing this system on existing sewers, and making them air-tight, presents a most formidable objection. The proposal, however, is a good one where a complete new sewerage system can be carried out.

A very close connection exists between the ventilation and flushing of sewers. When it is said sometimes that a certain sewer is requiring proper ventilation, it actually transpires that what is needed is proper flushing. The neglect of systematic flushing of sewers in the summer months, and especially in those with flat gradients, is at the root of many of the complaints of sewer smells. Of many sewers in our large towns and cities it is a fact that not the slightest provision has been made for flushing arrangements, owing to the fact that the sewers in certain large districts, which ultimately were taken over by the authorities, were laid down by the estate owners, the aim being to put in the barest means of draining the properties without any thought of flushing arrangements for the future. An arrangement for flushing sewers adopted in the past, and which is now to a large extent condemned, is the damming up of sewage within the sewer by the fixing of iron or wooden doors on certain manways, and suddenly discharging the contents through the lower parts of the sewers. The only advantage this system has is that of economy, the objections being the possible silting up at house drain connections and the imperfect flushing attained, the deposit being only shifted further down the sewer.

Sewers are more thoroughly cleaned out with pure water than with sewage, and where there exists in the vicinity of pipe sewers a series of fire-plugs, it is found that the introduction of a hose pipe 2½ in. in diameter into the mouth of the sewer at the bottom of a manway is a very effective means of flushing, provided that the pressure in the water-main is about 50 lb. to the square inch. Another arrangement, now largely adopted by local authorities, consists of flushing vans constructed to carry from 400 to 1,000 gallons, which when full can be placed over a manway and suddenly discharged through a hose from 6 in. to 12 in. in diameter. This arrangement is very satisfactory where fire-plugs are not available, and where the water pressure is below 50 lb. to the square inch.

The most attractive arrangement, however, for flushing sewers is certainly that of an underground tank to work either automatically or by the usual siphon arrangement, built at the dead end or bend of a sewer, and supplied with clean water from a pond, stream, or the waste from hydraulic lifts, or anywhere, in fact, where comparatively clean water is running to waste. A tank like this with a capacity of from 300 to 1,000 gallons, as necessity requires, secures that systematic and effective flushing will be carried out without any attention, and consequently little or no expense, except for water where it is necessary to connect with the water-main. Much, however, might be done to keep sewers clean by means of house drains. If these are flushed systematically, and attention paid to keep them clean, the sewers would also receive a benefit. The example of Liverpool is to be commended in this matter. That city undertakes to flush all house drains twice a year in the poorer localities free of expense to the owners, with a marked improvement on the general health of the district.

The idea of ensuring that house drains are periodically flushed by the local authority is a good one, and could be extended with very marked improvement all round. This need not always be carried out as in the case of Liverpool. Another method would be for the local authority to provide and introduce, either at the back of the building or in the interceptin chamber under the footpath, an automatic flushing tank of from 10 to 15 gallons capacity, situated so as to collect all the waste water from sinks, baths, etc., and the rainwater from roofs and courts. In connection with a single house this arrangement would flush in dry weather at least ten times a day, while for a tenement of eight houses the tank could be 30 gallons capacity, and would empty its contents at least 40 times a day. Any arrangement of this nature, whether at the front or back of a dwelling, would, from a sanitary point of view, be a decided improvement on the present system of allowing a large volume of comparatively clean water run to waste in small discharges, and considering the benefit derived would be eminently economical, whether the expense of its introduction were borne by the landlord or the local sanitary authority.