

fluctuations form a source of malignant odors. The deposits washed off by precipitation, consisting principally of paper, rags, street sweepings, fallen leaves, etc., mostly of an organic nature, undergo decomposition during their retention, often lasting for months, and thus pollute the air in the streets. A still more serious danger is caused by the traps. The light matter passing the gully grating is not naturally retained, but frequently chokes the trap. Catch pits and water traps should be rejected in any case, even if cleaning takes place frequently. Firstly, the removal of the collected silt is neither

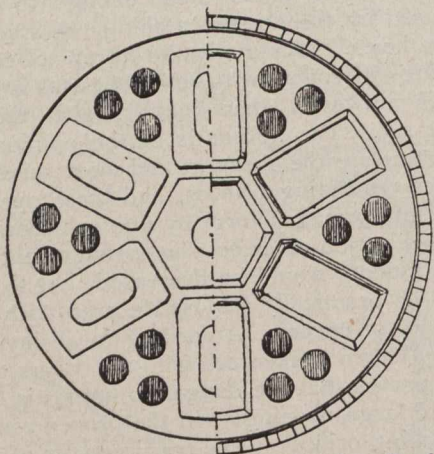


Fig. 4.—Manhole Cover With Circular Perforators (by Falkenroth).

hygienic nor æsthetic, and secondly, the silt retained in the receptacles will decompose and eventually infect the freshly entering flow, which will reach the sewer in a strongly contaminated state. With proper ventilation and flushing arrangements, however, in a sewer with sufficient grade, it would not lead to odorous nuisances, thus there is no necessity for a trap.

Simplicity should be the standard of a sewerage system, also the protection against odors of any kind. Therefore, the catch pits and traps should be discarded. It should always be the endeavor to prevent obstacles in design so as to remove the sewage, in fresh condition, as quickly as possible without any objection to the senses of sight and smell, from any dwellings. For this reason the water trap between the sewer and house drains has been rejected as unsuitable and the catch pits in the manholes abolished, as both have been the cause of a direct offence to inhabitants. Why is this measure not extended to the catch basins of the gullies and down-pipes? Why pin our faith to catch basins and traps in gullies, while close beside them manholes are built without catch pits, and their covers are, without any objection, equipped with ventilating perforators? The contradiction to this condition should be the best argument for the abolition of catch pits and traps. As soon as the catch pits are omitted no silt will be retained which would cause nuisances, and when the traps have been abolished there will be no more choking of gullies. Above all, an exceedingly favorable opportunity for a constant ventilation would be acquired. Indeed, in recent times prominent sanitary engineers were always advancing the advisability of the correct recognition of these advantages for the abolition of the gullies in the present form. Indeed, in recent times prominent sanitary engineers were always advancing the advisability of the correct recognition of these advantages for the abolition of the gullies in the present form. Prof. Ewald Genzmer advanced this desirability in the sewerage of the city of Schwetz (Fig. 5)

which was designed by the author, and so did Stadtbaurat Fleck at Dresden. On the other hand, it will always be those who doubt the economy of such an enterprise who will speak against the generalization of the measure adopted in Schwetz. Such views can be discarded if we consider the figures. Generally one meets with the view that the quantity of silt retained by the catch pit would result, if omitted, in considerable additional cost for the cleaning of sewers: A calculation made by the author based on the annual report and the budget of the city of Dresden may lead to this aim.

According to the annual administration report of this city for 1911, the gullies in paved and macadam roads were cleaned in the recorded time, four times a year, in asphalt and wood-paved roads, sixteen times, on account of the bigger amount of silt conveyed into the gullies of the latter by precipitation and the more frequent washing. The catch basins of the down-pipes were cleaned only once a year.

The street gullies contained, on an average, $1/25$ to $1/30$ cu. yd. of silt, while that from the house gullies was only .07 to 0.11 cu. ft. The total silt removed was 4154.21 cu. yd. and the cost amounted to \$5,250.

Frequently the washing of a street suffices to fill the gully completely, so the catch basin or the tray in the basin will not be able to contain the larger quantity of silt which is washed away at times of precipitation. The silt, moreover, passes directly into the sewer where it is carried away by the sewage flow, or by flushing. The cost for the removal of street silt is, to the greatest extent, generally included in the cost for the cleaning of sewers, and only the smaller part comes into consideration for the cleaning of the gullies.

On investigation as to whether the sewers are able to withdraw the silt retained in the gullies or whether by its artificial removal by means of flushing, additional cost would ensue. Figuring on a water consumption of

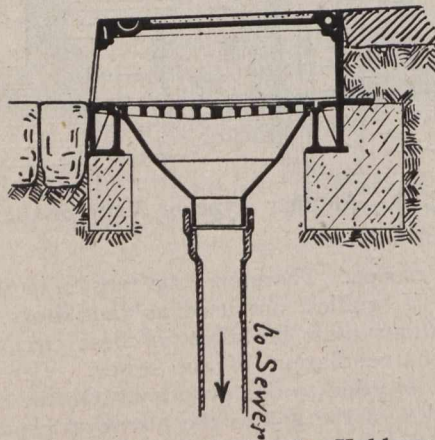


Fig. 5.—Street Gully (by Kohlmann).

$120\text{l} = 4.24$ cu. ft. per capita per day, it would mean for a population of 550,000 3,139,200 cu. yd. sewage per annum. The annual quantity to be removed from the gullies, however, only amounts to 4154.21 cu. yd. or 1.32 per M. of the D.W.F. (dry weather flow). Considering, further, a solubility of silt matter of 36%, the silt quantity would be able to be reduced to .085 per M. of the D.W.F. This small amount would doubtless be removed without any extra cost for haulage expenses by the uniformly flowing current of the D.W.F.

The conditions during times of storm are quite different. It is generally believed that the increased velocity, and larger flow in the sewers would have a greater clear-