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? WHY THE WEATHER ?

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GUTTERS AND SEWERS FOR DOWNPOURS

In planning gutters and sewers for a town, the engineer must consider a number of points. He will study the rainfall records to determine the maximum fall which is likely to occur in periods of five or ten minutes, or an hour, and must also consider what percent of that will necessarily run off. Some cities in fairly arid regions may be afflicted with cloudbursts, and so may require larger gutters and sewers than cities where the average rainfall, though greater, is more evenly distributed. Thus Cheyenne, Wyoming, has gutters three feet deep. In towns of northeastern Porto Rico, where the rainfall is heavy, gutters are so deep that they have to be bridged for the entrance of every house.

Besides rainfall, the steepness of slopes and imperviousness of soils or surfaces are important factors in determining runoff, and hence the sewer requirements. W. E. Sullivan of Cincinnati has found that on a naked hillside area, the immediate run-off is usually 10 to 20 percent of the rainfall, the higher percentages prevailing where the hillside is quite steep with scanty soil covering underlaid rock. In a suburban district 30 percent of the water may fail to sink into the soil, while in a compact residential district, with a house on every lot, the run-off is found to be 40 percent of the rainfall. In factory areas as much as 80 percent of the rain must often be carried away by the sewers. Indeed, in a mercantile district of Cincinnati it was found from actual sewer gaging that the run-off was 85 per cent of the rainfall. The increasing percentage of run-off as cities become built up overtakes early sewer systems and makes larger ones necessary.

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(Tomorrow: Dust Whirls)

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