two-thirds full. The designer made a liberal estimate in determining the capacity required, and yet during the past year it was plainly demonstrated that the capacity of the sewers was not sufficient to carry off the rainfall, and great trouble, damage and inconvenience has been caused in consequence. There is not the slightest doubt that the greater part, if not the whole, of this trouble would have been obviated if records of self-recording rain gauges had been available. While the greatest rainfall on record in 1876 was .183 inches in half an hour, we had in 1896 a storm lasting 7.5 hours, with an average rate of fall of .52 inches per hour, and another lasting 3.8 hours, with an average fall of .92 inches per hour. The maximum rate must have been greatly in excess of even the latter figure, but as the storm came on the dark hours of the morning, and the rain was not measured by self-registering instruments, we can only guess at the maximum rate per hour.

The design of sewers depends principally on two classes of storms. These are short storms of great rates of precipitation, and long storms of ordinary rates of precipitation. It is not sufficient to know the rainfall per hour. The severity of a storm often reaches a maximum during from 10 to 20 minutes only, and this maximum should be determined, if possible. It is also most important that the local conditions of the surface should be known. If the ground is saturated before the storm the rainfall will run off more rapidly.

A chief purpose to be subserved by a rainfall record is not merely how often does the maximum rainfall occur at each point, for that is an event which only occurs once or twice in a century. The great desideratum is: How often do the heaviest rainfalls of various rates occur, and for how long a maximum and average time does such a rainfall continue? The records from which such laws are deduced must necessarily be somewhat voluminous, and yet by proper study, aided by records of a number of years, a very close approximation to the real probabilities could be obtained and drawn graphically on charts, which would be of the greatest aid to hydraulic and city engineers; and even without