obtained by finding the square root of the reciprocal of these numbers, thus: 1 in 25 = 0.04 and $\sqrt{0.04} = 0.2$, 1 in 100 = $.01\sqrt{0.01} = 0.1$.

Starting with the origin at the left hand a vertical line was erected at a distance corresponding to each particular gradient and thus a scale of gradients was plotted which could be used for any of the diagrams. The values of $A.C.\sqrt{R}\sqrt{S}$ for each size of sewer were worked out for a gradient of 1 in 100 and these values marked off on a vertical line at 1 in 100 to a suitable scale.

The points for each sewer were then joined to the origin and extended into the quicker gradients to the right.

A considerable amount of work was entailed in arriving at the values $A.C.\sqrt{R}$ for the different depths of flow in the pipes as, of course, it was necessary to find the area, and wetted perimeter, of each segment of the circle for each inch in depth and to get the proper coefficient for this particular value of R.

These diagrams for different depths of flow in pipes are worked out for much steeper gradients than are usually to be found in tables of discharge.