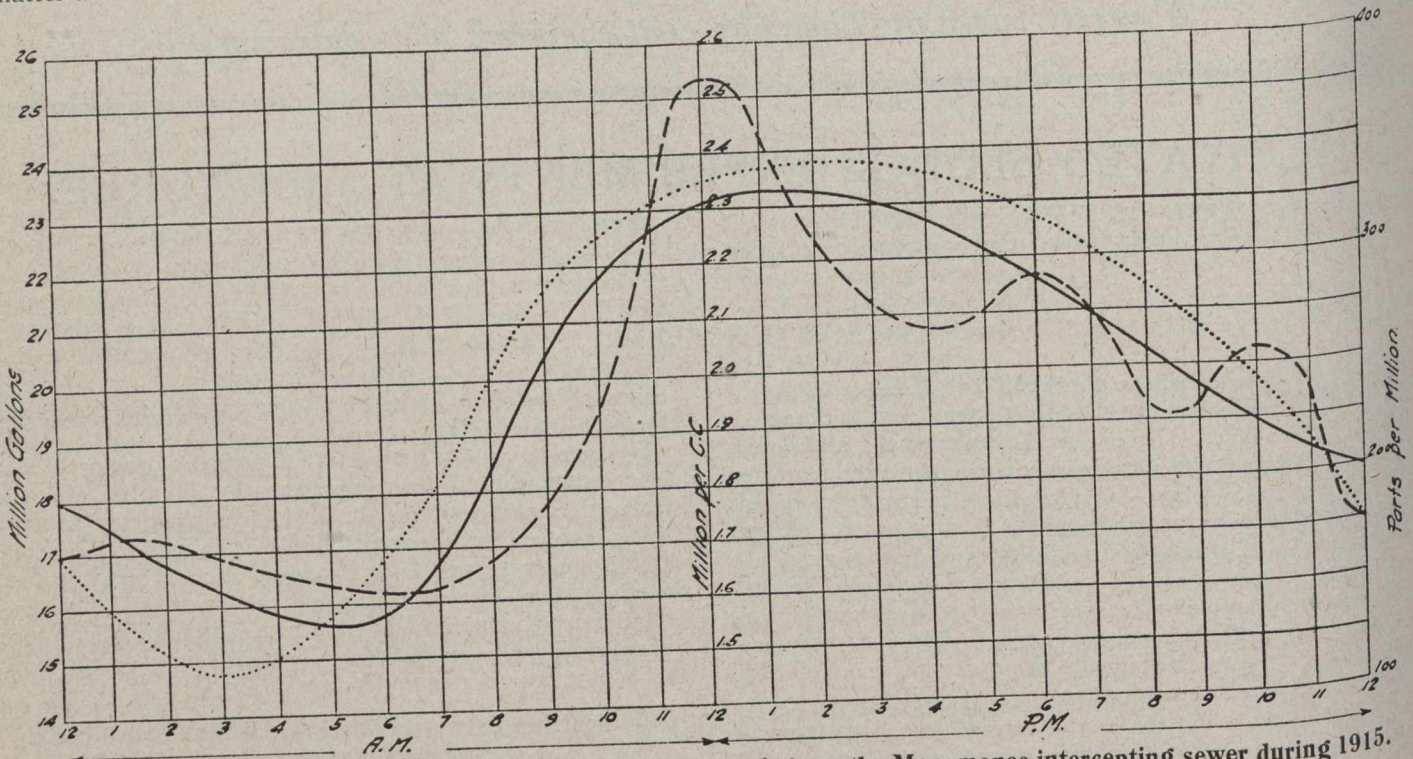


sewage changes throughout the day. The following diagram, taken from the report, will illustrate the average hourly fluctuations of sewage flow at one of the outlets at Milwaukee, as well as varying proportions of suspended matter and bacteria.

According to the diagram, the flow of sewage was lowest at about 5.0 a.m., when it was 80 per cent. of the daily mean, and the greatest flow was at 1.0 p.m., when it was 118 per cent. of the daily mean. The flow from midnight to 8.0 a.m. was 30 per cent. of the mean, so

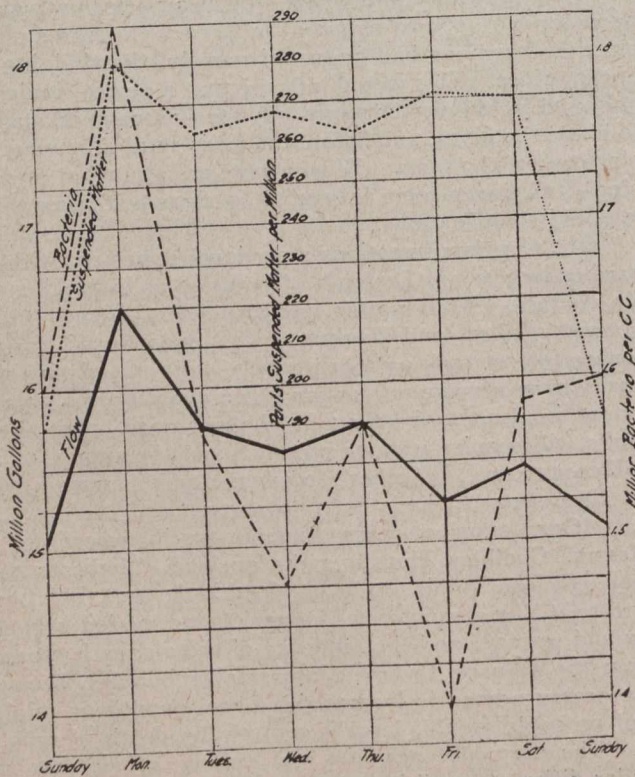


Showing average hourly discharge of sewage over 20-foot weir from the Menomonee intercepting sewer during 1915. Average flow represented by solid line. Average suspended matter represented by dotted line. Average bacteria per c.c. represented by dashed line.

The next diagram shows the average daily characteristics of the sewage during the year.

that 30 per cent. was discharged in 9 hours and 70 per cent. in 15 hours.

The following table affords excellent examples of the fluctuating flow and composition of sewage during different periods of the day:—



Showing certain characteristics of sewage flow from the Menomonee intercepting sewer for the year 1915.

Volume of Flow and Composition of Sewage During Different Periods of the Day.

Date 1915 Period	No. of Gallons of Sewage	Parts Per Million				
		Settleable Solids Cu. Yards per Mil. Gals.	Suspended Matter	Oxygen Consumed	Organic Nitrogen	Free Ammonia
April 1st—						
24 hours ...	12,300,000	17.5	226	159	37	18.2
12-7 a.m. ...	3,217,000	2.0	70	89	26	14.6
8 a.m.-3 p.m. ...	5,343,000	32.0	280	193	58	21.2
4-11 p.m. ...	3,740,000	18.0	240	183	38	15.2
April 29th—						
24 hours ...	13,070,000	19.0	293	174	52	17.2
12-7 a.m. ...	3,430,000	4.5	117	70	21	14.7
8 a.m.-3 p.m. ...	4,960,000	22.0	791	264	92	25.2
4-11 p.m. ...	4,680,000	13.0	254	156	40	15.2

From the data given in this table it is plain that the disposal plant will have to handle a volume between the hours of 8 a.m. and 4 p.m. that is 30 to 40 per cent. greater than between the hours of midnight and 8 a.m.; and that liquor will in addition be from twice to three times as strong. In short, the plant will have to provide an increase of 100 per cent. in the capacity for purification to meet the overload from 9 a.m. to 4 p.m.

Whereas the volume of sewage will increase, the tank capacity will remain the same; therefore the rate of flow