number of colonies was not sufficient to attract attention * and certain species, notably B. mycoides, appeared when the water was exposed to the washings of cultivated land.

As a rule 5 to 7 forms were detected in each sample when the water was pure, while in impure samples from the Montreal harbour, I have isolated as many as 16 species from the sample. On the other hand when a large number of bacteria developed in stored waters which were pure nearly 90 per cent of the colonies would belong to one species, usually *B. Fluorescens liquefaciens*, and if during the summer the proportion of this organism (which was normally from 30 to 40 per cent of the total colonies) fell to below 12 per cent, other proofs of pollution were usually forthcoming.

A singular circumstance was that in winter this ratio fell to 5 or 10 per cent, although the water was pure, the proportion suddenly rising again when the warm weather returned, while *B. Aquatilis* and other members of the yellow pigmentforming group formed the leading flora during winter. This transition is shown in the following table of analyses :

No.	Sample.	Date.	Temp. of water.	Bacteria per c.c.	B. Flunesc. liq. %	B.Aquatilis,
$\frac{128}{129}$	Тар	May 6, 1891.	6°	646	4	30
	Тар	May 7	6°	860	8	35
146	Tap	May 14	10°	106	$15 \\ 15 \\ 12 \\ 15 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10$	20
143	Reservoir	May 14	13'	106		20
140	Basin	May 13	11°5	146		20
138	St. Cunegonde	May 13	10°	189		15
131	St. Lawrence	May 13	9'	245		25
155	Tap	June 4	11°5	140	40	2
156	St. Lawrence	June 5	14°	123	30	4

The following were among the common forms met with in Montreal water :

B. arborescens, B. aquatilis, B. flourescens, B. fluorescens liquefaciens, B. janthenus, B. ylaucus, B. megatherium,

* See page 99.