BIOLOGICAL EXAMINATION.

A microscopical examination of the deposit of this water, which had been allowed to settle in a suitable vessel, reveals the presence of vegetable débris, algae, diatoms and infusoria, but not in sufficient quantities to condemn the water from this cause alone.

It has been before observed that the organic matter of a water serves as food for bacteria, and consequently the number of these organisms in a water gives a measure of the organic purity of a water. For the purpose of this report we may classify bacteria into pathogenic and non-pathogenic forms. To distinguish between these is a matter of great difficulty and often requiring some months of arduous work. The number of bacteria, apart from their nature, in a given volume, is, however, of much value, as will be seen from the results of Prof. R. Ramsay Wright's investigation on the water of the Toronto supply. Some of his results are tabulated below.

Number of Bacteria per Cubic Centimetre.

No. 1—Bell buoy (Lake Ontario, mouth of inlet pipe).....	0
No. 2—Eastern gap (Toronto Bay)..... 5,000	
No. 3—Reservoir	10
No. 4—Tap in School of Science.....	17

From these figures he draws, among others, the conclusions that the water No. 2 is unfit for drinking purposes; that the water at the Bell buoy is pure from bacterial life and sewage contamination; at the time of examination that the tap water in this respect compares very favourably with that of New York, London, Berlin and other cities.

I have subjected to such an examination the four waters enumerated above, the samples being taken on the 5th inst., with the following result.

	Bacteria per c. c.
A.....	135
B	100
C.....	96
D.....	145

From these numbers I am unable to make any distinction between these waters as to their degree of organic purity.

Those who have made such investigations the object of research give it as their opinion that water containing but 50 micro-organisms per c. c. would be ranked as very pure, while a water containing 1,000 per c. c. should be subjected to some cleansing operation before use for drinking purposes.

The present analysis shows that the Ottawa water is surcharged to a dangerous extent with vegetable organic matter. Whether this is temporary or not it is impossible to say from one analysis. It is very reasonable to suppose that the character of the water has been affected by the long continued drought of the past summer, and we may expect therefore that the water may improve rather than deteriorate. I would suggest that analyses be made of the water at regular intervals, in order to gain information on this most important point.

As the majority of the citizens have but the city water to draw from, it may not be out of place to suggest some means whereby they may render the water comparatively free from any noxious principle it may contain.

By far the greater number of bacteria in fluids are killed below the temperature of boiling water, and especially is this true of most of the pathogenic forms. Their spores, as a rule, are capable of sustaining their vitality at temperatures which are