

The organism is probably of the same species as the yellow bacillus of Lustig and the Rhine water bacillus of Burri, if not identical with them. It also corresponds to the yellow bacillus mentioned some years ago by Prof. Shuttleworth in a report to the Local Board of Health. Numerous other yellow organisms are described in Franklands "Micro-organisms in Water" that also correspond in several particulars with this organism, and when it is remembered that these descriptions were given 20 years ago, when the science of bacteriology was not so well developed on standard lines, it is at least probable that they are identical. The organism was found to be present in lake water, lagoon water, polluted bay water and ice in the vicinity of the Toronto Island. The same or similar organisms have been found in water from the River Thames (England), River Lee and Loch Katrine; at Chemnitz, Vienna and Freiburg, so that it is more or less ubiquitous. It is essentially psychrophilic, a slight elevation of temperature above the optimum resulting in total destruction of the organism. It is obvious that the bacillus is of no sanitary importance, but owing to its ability to multiply at low temperatures it interferes with the efficiency of slow sand filtration when the results are judged on low temperature counts. The presence of considerable numbers of psychrophilic bacilli in water renders it desirable that the temperature of incubation should be sufficiently high to prevent the development of these organisms, but not too high to prevent the growth of the normal water bacilli, such as *B. Fluorescens*. The objection might be raised that these bacilli also have no hygienic significance, and that the temperature of incubation should be such as will exclude all organisms except those of the intestinal origin. This seems to be the present attitude of the American Public Health Association, for, in their recently issued report on "Standard Methods of Water Analysis," they recommend the use of Agar at 37°C and an incubation period of 24 hours. If this method enumerated only those organisms of intestinal origin, it would leave nothing to be desired, but it is well known that such is not the case. The results ob-

tained in the laboratories of the Metropolitan Water Board of London, where both gelatine at 20°C and agar at 37°C have been in use for some time, show that, although the counts at 37°C vary in some measure with the amount of typical *B. Coli* present, other organisms are present that develop rapidly at the same temperature, and their numbers may be sufficiently large to obscure the bacilli of intestinal origin. The writer has used agar at 37°C in conjunction with other methods for counting the organisms in the filtered and unfiltered Lake Ontario water, and has found that during the period when flood waters are rapidly raising the lake level the colonies developing at 37°C are quite out of proportion to the organisms of intestinal origin, as indicated by the *B. Coli* test. The use of agar at 37°C is, therefore, open to the same criticism as the other methods of enumeration previously in use, and the only advantage obtained is a reduction in the period of incubation. Results are obtained after 24 hours, a distinct advantage where the results might affect public health. The writer has for some months used agar at 27°C, the colonies being counted at the end of 1, 2 and 3 days, and the results so far obtained indicate that this temperature is sufficiently high to enable the organisms of intestinal origin and some of the normal water bacilli to produce visible colonies within 24 hours, and also to prevent the growth of psychrophilic bacilli. As psychrophilic bacilli usually develop in about 60 hours at 20°C, the counts made after 48 hours at this temperature rarely include them, so that the counts on agar at 20°C and 27°C after 48 hours incubation ought to approximate. The results obtained in May, 1912, at the Toronto filtration plant laboratories show that such is the case, and as the 24 hours' count is at least five times as great as the one at 37°C, after a similar period, the one and two-day counts at 27°C provide a simple solution of the whole problem. The one-day count gives a result obtained as rapidly as time will permit, and the two-day count enables an estimation to be made of the organisms other than those that act psychrophilically. The writer is continuing these experiments on comparative counts and hopes shortly to be in a position to publish them.