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Sewage Pollution of the Lower Genesee River and Lake Ontario*

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ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION

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SEWAGE POLLUTION OF THE LOWER GENESSEE RIVER
AND LAKE ONTARIO

Data published in previous reports issued by the RCSI established that the lower reaches of the Genesee River were heavily loaded with sewage, that this sewage generally contained solids, that it was chlorinated only sporadically, and that coliform counts in this water were extremely high. The state of the river was such that it could not purify itself of its load of industrial and sanitary sewage before issuing into Lake Ontario, in which the people of Monroe County swim and from which they get drinking water.

Because of the continuing public interest in local pollution problems, it was felt that a follow-up study was essential. This report presents the results of the first month of this work, from samples obtained between 2 April and 11 May, 1966. We have established that the outfalls of the Town of Irondequoit are presently discharging into the river large quantities of sewage solids (toilet paper, grease, condoms, and dung), that this sewage is not chlorinated about half the time, and that the unchlorinated sewage contains of the order of a million coliform bacteria per hundred milliliters. It should be noted that the area concerned is densely populated, and that the water is used extensively by small boats.

Our data also establish that unprocessed sewage containing solids (mostly dung) continues to enter the river from a large outfall about a quarter of a mile north of the Hawkeye Works.

Samples taken from Lake Ontario off Durand-Eastman Beach in the vicinity of the deeply submerged discharge point of the Durand-Eastman Plant contained grease balls, some small pieces of dung, condoms, and toilet paper. A coliform count of 50,000 was obtained on one sample, indicating that, although this sewage may be chlorinated, it is apparently not disinfected. (No free chlorine was detected in any of the samples taken in the vicinity of this outfall.)

The "special" classification of the Genesee River sets certain standards for water quality. Among these are the following (underlined):

(1) There should be no readily visible" floating solids, settleable solids, or sludge deposits from sewage or industrial wastes. (Readily visible floating solids seen on numerous occasions included grease balls, condoms, toilet paper, and fecal pellets. In addition, in most of the samples a readily visible grey sediment and/or many small brown flakes readily settled out.)

(2) Effective disinfection of sewage. (Chlorination has been erratic: on some dates all samples showed free chlorine; on others some or none of the samples did so. In the absence of chlorine, coliform counts were close to that expected for raw sewage diluted with a few volumes of river water. Even on days when some of the samples showed chlorine, high counts were obtained on samples containing solids; no doubt disruption of the pellets would have given even higher counts.)

These results indicate that no improvement whatsoever has been made in the overall situation since last summer. It appears extremely likely that we can again expect sporadic acute pollution of area beaches this summer. Boaters in the lower river should take great care to avoid contamination of food, drinks, and hands by river water. Children should not under any circumstances be permitted to come in contact with river water.

We are indebted to Mr. Neal Dunkelberg for his help in collecting the samples in Lake Ontario.

TECHNICAL APPENDIX

The data from which the above conclusions were drawn are presented here.

2 April.

Genesee Yacht Club (Pattonwood Plant outfall). Chlorine tests positive. Toilet paper shreds, small chunks of dung seen in effluent. Discoloration, odor.

Triangle Marine (Summerville Plant outfall). Chlorine tests negative. Toilet paper shreds, small chunks of dung in effluent. Discoloration, marked odor.

Outfall north of Hawkeye Works. Clear, slight odor. A couple of pieces of dung. Chlorine tests negative.

All samples from these three outfalls were taken directly from the effluent.

9 April.

Genesee Yacht Club. Chlorine tests positive, very strong. Small chunks in effluent.

Triangle Marine. Chlorine tests very weakly positive. Dung, grease, toilet paper, 4 condoms.

Outfall north of Hawkeye Works. Chlorine tests negative, 6 pieces of dung on concrete apron. Some grease. Odor.

17 April.

Durand-Eastman outfall. Greaseballs in lake for at least a mile down-wind. Condoms, small shreds of paper, dung. 10 chlorine tests run in the water around the point of origin of the greaseballs were all negative. Compass bearings: large single smokestack on beach, 220°; dual stacks near mouth of Genesee, 290°; checkered water tower, 165°; red-roofed beach house, 240°. The coliform count on a sample containing a greaseball was 50,000.

Genesee Yacht Club. Chlorine tests negative. Paper, fine solids noted in effluent.

Triangle Marine. Chlorine tests positive. 2 condoms, paper, fine solids.

4 May.

Genesee Yacht Club. Chlorine tests negative. Odor, lots of toilet paper. Coliform count 4 million. Chemical oxygen demand 143 p.p.m.

Triangle Marine. Chlorine tests negative. Odor. Quite a bit of paper, grease, dung, 0 condom. Coliform count 0.9 million. Chemical oxygen demand 380 p.p.m.

8 MAY.

6 May Genesee Yacht Club. Chlorine tests positive. Some paper.

Triangle Marine. Strong odor of chlorine, chlorine tests very strongly positive. Lots of paper, solids.

It should be noted that on 5 May a letter was sent to the County Health Department informing them of the data obtained between 2 April and 4 May.

10 May.

Genesee Yacht Club. Chlorine tests negative, chemical oxygen demand 224 p.p.m., solids, some paper.

Triangle Marine. Chlorine tests positive, chemical oxygen demand 202 p.p.m., paper, 3 condoms, grease, dung.

11 May.

Genesee Yacht Club. Massive flow, black with filth, paper, solids. Chlorine tests negative. 5 condoms, large chunks of paper, foul odor, dung, grease. Chemical oxygen demand in excess of 1000 p.p.m.

Triangle Marine. Chlorine tests positive. Lots of grease, 2 condoms, paper, small chunks of dung.

Outfall north of Hawkeye Works. 13 pieces of dung on cement apron (which had been swept clean at last visit), chlorine tests negative, odor.

The starch-iodide test was used to detect free chlorine. Coliform counts on these samples were taken by dilution and plating on MacConkey's Agar, an unofficial method suitable for use where extremely high counts are expected and where sewage pollution is known to be the predominant source of coliform organisms. Chemical oxygen demands were run by the acid dichromate digestion procedure employed by the Lake Ontario Program office of the Department of the Interior. We are indebted to Dr. Clarence Calbert for the procedure.

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11 May, 1966

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