Kentville is about seven miles from the outlet of Gasperean Lake. Saw mills and shingle mills are the existing developments in this basin.

Gold River drainage area is 144 square miles, of which about 5 square miles consists of lakes of considerable size. The maximum elevation is about 700 ft. above sea level.

Indian and North-East River drainage basins total an area of 105 square miles, of which surface lakes comprise about 10 square miles.

Kearney Lakes drainage area lies to the northeast of Halifax and parallel to Bedford Basin. Area, 16 square miles, of which about 1.5 square miles is water surface.

Moirs, Limited, have a box mill and chocolate grinding plant at the outlet of Kearney Brook, Millview, about seven miles from Halifax.

Lequille River drainage basin has an area of 48 square miles, of which 4 square miles is water surface. The municipal water supply for the town of Annapolis Royal is secured from this basin. This stream has peculiar interest from an historical standpoint as it is believed the first water-driven mill in America was built on it in 1607 by the early French settlers.

Paradise River drainage basin has an area of 41 square miles. General elevation, about 700 ft. above mean sea level.

Pennant River drainage area is 30 square miles of which 3 square miles is water surface.

Sackville River drainage area consists of 55 square miles. The Halifax Power Co. investigated the possibilities of this river and during the 1916 session of the Nova Scotia Legislature an act was passed incorporating the Atlantic Power and Development Co.

## RESEARCH COUNCILLORS INSPECT COLLEGES

After a six weeks' tour of Western Canada, Dr. A. B. Macallum, Dr. R. F. Ruttan and Dr. F. D. Adams, of the Honorary Research Council, have returned east. At the universities visited on their trip, they investigated the methods employed and studied the capacity of each institution for carrying on research work. Various industries were visited and the problem of cheaper fuel was discussed.

A joint committee has been appointed in Dublin of the Institution of Electrical Engineers, the Institution of Civil Engineers of Ireland, and the Engineering and Scientific Association of Ireland, with the object of investigating and reporting upon the utilization of the peat deposits of Ireland.

N. Cauchon, of Ottawa, who was associated with W. F. Tye, consulting engineer, of Montreal, in the railway entrance report for the city of Hamilton, Ont., advocates the construction of a wide boulevard from the proposed new terminal station to the old city quarry at the head of Ferguson Avenue. The beauties of Hamilton, says Mr. Cauchon, can be improved by a landscape architect sufficiently to make that city a rival of the coast of Normandy and other world-famous European beauty spots.

Very good results are said to have been attained in the experimental manufacture of square and bar steel, etc., at the Kawasaki Dockyard Company's branch factory at Hyogo, where two 15-ton smelting furnaces were installed last year. Encouraged by these results, the company has decided to establish a steel works on an extensive scale for the manufacture of steel plates and rails, and a suitable site is being sought in Fukuoka Prefecture, Kyushu. When the site is fixed, a large works, with five 30-ton smelting furnaces to begin with, will be erected on a capital of 5,000,000 yen, for manufacturing steel plates, rails, square and bar steel, etc., the same as the Government Steel works at Edamitsu.

## **DRINKING FOUNTAINS\***

## By H. A. Whittaker

Director of Sanitation, Minnesota Board of Health

A N investigation was undertaken to determine the sanitary condition of the drinking fountains in use at the University of Minnesota and, if they were found to be unsatisfactory, to offer recommendations for correcting defects. The work consisted of a study of the mechanical features of each fountain, bacteriological examinations of the parts of the fountain exposed to the lips of the consumer, and bacteriological examinations of the water supplied to and discharged from the fountain.

The method of conducting this investigation was briefly as follows: Samples of water were collected from taps in the various buildings to represent the water supplying the fountains, and from the jet on each fountain to represent the water discharged from the fountain. A swab was rubbed over all parts of the fountain that might easily come in contact with the lips of the consumer, in order to determine the presence or absence of streptococci. The water samples were examined for the total number of bacteria per cubic centimeter, for B. coli in 1 and 100 cubic centimeter amounts, and for streptococci in 100 cubic centimeter amounts. The bacterial counts were made on agar after forty-eight hours' incubation at 37 The determinations for B. coli were made in accordance with the routine methods used by this division. The examinations for streptococci in 100 cubic centimeter samples of water were made by enriching the samples' with quadruple strength dextrose broth and examining microscopically after forty-eight hours incubation at 37 C. The examinations for streptococci on the swabs were made by inoculating directly into dextrose broth and examining microscopically after forty-eight hours' incubation at 37° C. The presence of streptococci was used to indicate possible contamination from the mouth of the consumer, as these organisms are commonly found in abundance in the mouths of human beings. It must be admitted that streptococci might be contributed from other outside sources, but this is not probable under existing conditions. The presence of B. coli was used as an indication of contamination of fecal origin.

Following the collection of the specimens for bacteriological examination, a study of the mechanical features of each type of fountain was made by removing various parts so that the details of construction could be observed.

The water supply of the main campus of the University of Minnesota is obtained from the public supply of the city of Minneapolis. This water is taken from the Mississippi River and is subjected to sedimentation, coagulation, filtration, and liquid chlorine treatment before distribution for consumption. The water supply of the department of agriculture is obtained from two drilled wells located on university property.

A résumé of the results shows that 77 drinking fountains, which represented 15 different .types, were examined. Sixty-five per cent. of these fountains were of the continuous-flow type and 35 per cent. of the intermittent type operated by the consumer. The nozzles on all of these fountains discharged the water vertically. The height of the water jet above parts of the fountain that could be touched by the lips of the consumer was les<sup>5</sup>

\*Abstracted from 1917 Report to United States Public Health Service.