

The point of liberation of the flies was on Porters Island, a small island, about 1,100 feet long, lying in the Rideau River, which runs through a part of the city and is a tributary to the Ottawa River, which it joins a short distance further along its course. The surrounding district forms a portion of the north-eastern part of the city and consists chiefly, especially on the northern side of the river which is known as New Edinburgh, of working-class dwelling houses. On this island, which is connected with the bank by a small bridge, smallpox cases are isolated in a small wooden house used as a hospital, or in tents. The land rises gently from the river on the southern side.

Method of obtaining and marking the Flies.—Stable refuse, in which the larvæ were found in large numbers, was placed in breeding boxes, provided with a circular aperture at the top, and balloon fly traps were placed over these apertures. The flies, on emerging from the pupæ, entered these cages and were thus obtained in a healthy and uninjured condition. They were marked by spraying them while in the wire cages with a solution of rosolic acid (Rosau-

rin or methyl-aurin $C_{20}H_{16}O_3$) in 10 per cent. alcohol, applied by means of a fine spray. This method of marking insects was devised by Mr. Sanders, who first used it in experiments with ants. It is simple and harmless and reliable as a means of detection. The presence of a marked fly on a sticky fly-paper is indicated by its producing a scarlet coloration when the paper is dipped into water made slightly alkaline. In these experiments the flies were reared and marked in the Division of Entomology, which is situated about three miles from Porters Island, to which they were carried in the cages and liberated on arrival. "Tanglefoot" fly-papers were placed in as many as possible of the houses in the neighboring district on both sides of the river. The papers were placed chiefly in the kitchens of houses and were collected one or two days after being distributed. They were usually collected in that portion of the district toward which the wind had been blowing from the direction of the island, as it was found that the wind was the chief factor in determining the direction of distribution from day to day.

Experiments:—Flies liberated on Porters Island.

Date.	Number of marked flies liberated.	Number of marked flies recovered.	Place of Recovery.	Distance in straight line from point of liberation.
August 29, 1911.....	8,000	—	—	
August 30, 1911.....	4,000	1	647 St. Patrick St.	180 yards.
September 1, 1911....	1,000	1	35 Cobourg St.	
		1	106 Cobourg St.	600 yards.
		2 marked flies observed.	37 Cobourg St.	
			—St. Patrick St.	
September 3, 1911....	100	1	38 Beechwood Ave.	520 yards.
September 6, 1911....	500	—	—	
September 7, 1911....	—	43	647 St. Patrick St.	
		12	612 St. Patrick St.	
		4	681 St. Patrick St.	
		21	619 St. Patrick St.	
		3	565 St. Patrick St.	
		2	559 St. Patrick St.	
		2	553 St. Patrick St.	
		5	35 Cobourg St.	
		8	19 Cobourg St.	
		1	106 Cobourg St.	
		1	608 Rideau St.	700 yards.
		1	55 Augusta St.	
		3	4a Anglesea Square.	
		6	355 Mackay St.	
		12	337 Mackay St.	
		16	305 Mackay St.	
		7	316 Crichton St.	
		16	197 Crichton St.	
		2	143 Crichton St.	
		2	134 Beechwood Ave.	
		1	— Stanley Ave.	600 yards.