

SNOW REMOVAL IN MONTREAL.*

By P. E. Mercier, Chief Engineer, City of Montreal.

THE city of Montreal has a total area of 26,226 acres. The length of the streets aggregate 485 miles, 104 miles of which have tramways tracks. The sidewalks form a total length of 622 miles.

The Snow Fall.—The snow fall varies each year, but has averaged, for the last 41 years: 119.3 inches. The number of days on which snow fell in 1915, was 79. Out of these 79 days, it rained and snowed on 28 days.

The snow-fall period covers five months: November to March. The heaviest snow fall we have had this winter was on the 14th of December, and was of 7.4 inches. The previous day we had a snow fall of 2.1 inches. On the 14th the temperature was 9.7 degrees, and the wind had a velocity of 23.7 miles per hour. The following day the temperature went down to 5.4, and the wind went up to 32.6 miles per hour.

Administration.—The affairs of the city are administered by a Board of Commissioners. The different departments report to and receive their instructions from the board through the heads of the departments.

The chief engineer, known in the charter as the city surveyor, is the head of the public works.

The public works are divided into roads, waterworks and sewers, each under a superintending engineer.

The roads have charge of the construction and maintenance of the roadways and sidewalks; the cleaning, watering and oiling of streets; the snow removal.

The snow removal is done entirely by the city, by day work. The cost of removal of snow from the sidewalks, is paid by the proprietors at the rate of five (5) cents per running foot. The cost of the snow removal from streets with tramway tracks is paid half by the Montreal Tramways Co., half by the city.

The cost of the snow removal in any other streets is paid by the city.

As the country surrounding Montreal has winter roads, the city does not entirely remove the snow from its streets, but keeps, during the winter months, a thickness of 6 to 12 inches of snow.

Organization of Labor.—The Road Department is divided in three divisions under the charge of a superintendent, and in sections under a section foreman.

We have, therefore, the following organization:

BOARD OF CONTROL.

Chief Engineer.

Supt. Eng.
Waterworks Dept.

Supt. Eng.
Road Dept.

Supt. Eng.
Sewer Dept.

General Superintendent.

East Division.
Superintendent.

North Division.
Superintendent.

West Division.
Superintendent.

	East Division.		North Division.		West Division.	
	Streets.	S'dw'ks.	Streets.	S'dw'ks.	Streets.	S'dw'ks.
Timekeepers	2	4	2	4	2	2
Foremen	21	18	23	19	20	23

The snow plow, walkaways, etc., are kept in city yards as near as possible to the centre of each section.

*Paper read at the Canadian and International Good Roads Congress.

Each section foreman keeps a list of laborers and owners of horses within his section.

The division superintendent keeps a list of owners of sleighs, single and double, in his division. Each sleigh is numbered and measured. A single sleigh must contain 65 cubic feet, and a double 210 cubic feet.

The superintendents keep at their offices reliable barometers.

At the beginning of a storm, word is sent to all section foremen to gather their forces.

Long before the snow season starts, routes are defined and each plow is detailed to a certain route, so that each man knows where to go and what he has to do.

The Montreal Tramways Company, to keep its tracks clear during a snow storm, has a wonderful organization. Regular routes are mapped out for the sweepers, before the beginning of the winter. Routes that can be handled to best advantage from it are given to each depot. These routes are arranged so that each can be covered by its sweeper in from forty-five minutes to one hour and also arranged so as to have one central conveying point for three or four sweepers. In case of need, it is therefore easy to direct a sweeper from another route, when it reaches this spot.

In each car, a blue print is posted, giving the detailed route of that particular car.

The necessary men are appointed to each car at the beginning of the winter, and they are kept during the entire winter. The superintendent meets all of these men before the winter season and discusses with them proposed improvements on actual conditions.

Their organization is so well thought of, that, as Mr. Gaboury, the Montreal Tramways superintendent, said: "Each man knows where to go and what he has to do, and it seems that he simply goes and does it."

Machinery Used.—The Montreal Tramways Co. has 39 sweepers and 12 levellers or wing cars. Most of the sweepers are of the two-broom type, having on the right side a large iron wing to clear the snow from the outside of the track, and on the left side a smaller wing to clear the devil strip.

Single truck sweeper: Two 50-h.p. motors (G.E. 80), and one K10 controller at each end, one K10 controller for broom, length 28 ft., width 8 ft., height 11 ft., weight, 31,000 lbs., wing 8 ft. by 2 ft. Used to brush off the snow from the track and push it towards the sidewalk.

Double truck: Two 50-h.p. motors (G.E. 80), and two K35 controllers for motors, two 101-h.p. motors and one K10 controller for broom, length 39 ft. 6 ins., width 7 ft. 6 ins., height 11 ft., weight 44,500 lbs., wing 11 ft. Does the same work as the first one.

Leveller or wing car: Flat freight car fitted up with iron shaped wing 12 ft. long and 2 ft. high. The wing is pushed out by reinforced wooden bar operated by chains and drum—four 50-h.p. motors (G.E. 80), weight of car 43,400 lbs. Used to push the snow towards the sidewalks.

Single truck leveller or wing car: Made from old box car; length, 26 ft. 7 ins.; height, 11 ft. 1 in.; width, 8 ft. 6 ins.; two G.E. 80 motors; wing, 16 ft. long; weighted down by double floor filled in with rails and cement; total weight, 30,640 lbs.

Walkaways to move snow from the road towards the sidewalk: Ordinary automobile truck, fitted up with a side plow. The plow can be raised and put to any angle.

Snow scarifier used to lower or level the roadway: Hauled with four horses or by a truck. Cost \$165 to \$200. Built by the city.

Two-horse plow: The plow can be placed at any elevation or any angle. Bought at \$150 and built by the city for \$85.