In 1914 the cost per square yard was 1.23 cents, including cost of oil and sand and all labor, teaming and plant rental charges for removing dust, applying oil and spreading sand. The cost for oiling only was 0.81 cents per square yard. Part of the reduction was due to the lower cost of oil, but about half was due to improved methods of handling.

	Gasoline	Oils, Grease, Waste, etc.	Tubes and Tires	Batteries	General Repairs	Labor (Pay Roll) Rep.	City Blacksmith Rep.	Wheel Chgs & Repairs	Magneto & Duplex Ignition System	Accessories Inc. 1916 License Fee	Sand Sprinkling Attachment	Oil Sprinkling Attachment	Totals
"Velie"	$238.85	$60.30	$278.42	$21.44	$110.77	$71.75	$307.45	.....	$102.45	$51.27	.....	.....	$1,242.70
"Peerless"	266.06	85.75	435.00	26.35	144.43	74.55	261.10	.....	.....	147.82	.....	$9.75	1,450.81
"Commer"	233.70	18.40	631.25	.....	111.57	129.85	171.90	$38.70	.....	23.55	$12.65	.....	1,371.57
Totals	$738.61	$164.45	$1,344.67	$47.79	$366.77	$276.15	$740.45	$38.70	$102.45	$222.64	$12.65	$9.75	$4,065.08

	Date of Purchase	Cost	Valuation January, 1914	Valuation January, 1915	Rentals Earned 1914	Rentals Earned 1915	Maintenance and Operation Charges 1915
"Velie"	1913	$4,747.00	$4,000.00	$3,150.00	$2,052.00	$2,171.00	$1,242.70
"Peerless"	1913	4,500.00	3,750.00	3,000.00	2,388.75	2,149.50	1,450.81
"Commer"	1912	5,750.00	4,800.00	4,555.00	*1,600.00	2,381.90	1,371.57
Totals		$14,997.00	$12,550.00	$10,705.00	$6,040.75	$6,702.40	$4,065.08

*Approximate.

	Depreciation 1915, say 20%	Balance over and above Maintenance Operation and Depreciation charges 1915	Rental Rate per day 1914	Rental Rate per day 1915		Total Depreciation written off since purchase	Approx. Percentage of Depreciation written off
"Velie"	$630.00	$298.30	$8.00	Jany. to June June to Nov. December	$8.00 10.00 8.00	$2,227.00	46.91
"Peerless"	600.00	98.69	17.50	See below.	8.00 12.00 13.50 15.00	2,100.00	46.66
"Commer"	911.00	99.33	17.50	Jan. to Nov. December	13.50 12.00 15.00	2,106.00	36.62
Totals	$2,141.00	$496.32	$43.00		$35.00 Averaged $10.90 per day	$6,433.00 =	42.89

	No. of Days Worked 1915	Removal of Garbage Days	Removal of Garbage Rate	Removal of Garbage Days	Removal of Garbage Rate	Oiling Streets & Roads Days	Oiling Streets & Roads Rate	Oiling Streets & Roads Days	Oiling Streets & Roads Rate	Sand Sprinkling Days	Sand Sprinkling Rate	Hauling Straw, etc. for Stables Days	Hauling Straw, etc. for Stables Rate	General Hauling, etc. Days	General Hauling, etc. Rate	Rock. Days	Rock. Rate
"Velie"	245	139½	$8.00	105½	$10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
"Peerless"	192⅞	66	8.00	30¾	10.00	9	$13.50	11	$15.00	1	$13.50	1⅜	$12.00	74¼	$13.50	.....	.....
"Commer"	176⅞	.....	.....	.....	.....	.....	.....	7	15.00	2¼	13.50	2⅛	12.00	156½	13.50	9	$12.00
Totals...	614¾	205½	.....	135¾	.....	9	.....	18	.....	3¼	.....	3½	.....	230¾	.....	9	..
		341¼				27								239¾			

Fig. 3.—Report of Motor Trucks for Year 1915.

The body of the motor truck was replaced by a 600-gallon tank, which the city had on hand, and the oil, which was delivered in tank scows, was pumped directly into the tank. By this means we were able to oil from four to five times the yardage covered in the same time by a team in 1913. The sand was delivered to the streets, rehandled with carts and spread by hand, but we found it difficult to keep pace with the oiling machine.

In 1915 the cost per square yard was 1.09 cents for carrying out the work as enumerated in 1914. The cost of oil was slightly lower and wages were reduced, but there was also an improvement in handling the sand. A hopper which feeds onto a rotating disk, as shown in Fig. No. 5, was made at the corporation machine shop and attached to the rear of a motor truck. The truck went direct to the bunkers for sand and thus saved double handling of the material. However, as the oil sprinkler covered a greater area than the sander, it was necessary to use carts to sand the balance of the yardage oiled in a day. It was found that the sanding machine spread the material more quickly and more uniformly than it could be done by hand and used less sand per square yard.

Next year it is proposed to lay out the entire work before commencing operations, so that where possible a day's work will be divided between macadam streets which have already been oiled, and which will therefore require less oil and more sand per square yard; and the newly resurfaced and dust streets which will take more oil and less or no sand, so that the sander can cover as much as possible of the yardage oiled in a day and thus eliminate carts. This will make a further reduction in cost. As the city oils an average of 600,000 square yards per annum the importance of even a small reduction in cost per square yard is apparent.

The sander is also used for spreading sand on the paved streets when they become slippery. This has not only greatly reduced the cost of handling, but the work can be done much more rapidly and the material spread more uniformly.

The city recently completed the northwest trunk sewer by day labor. The estimated cost of this work, as prepared by the engineers of the three interested municipalities, was $365,300. The work took two and a half years to complete, and involved the construction of about one and a half miles of tunnel in solid rock at an average depth of 44 feet below the surface; the laying of a 36-inch steel pipe for an outfall, and the carrying of an inverted syphon under Selkirk water.

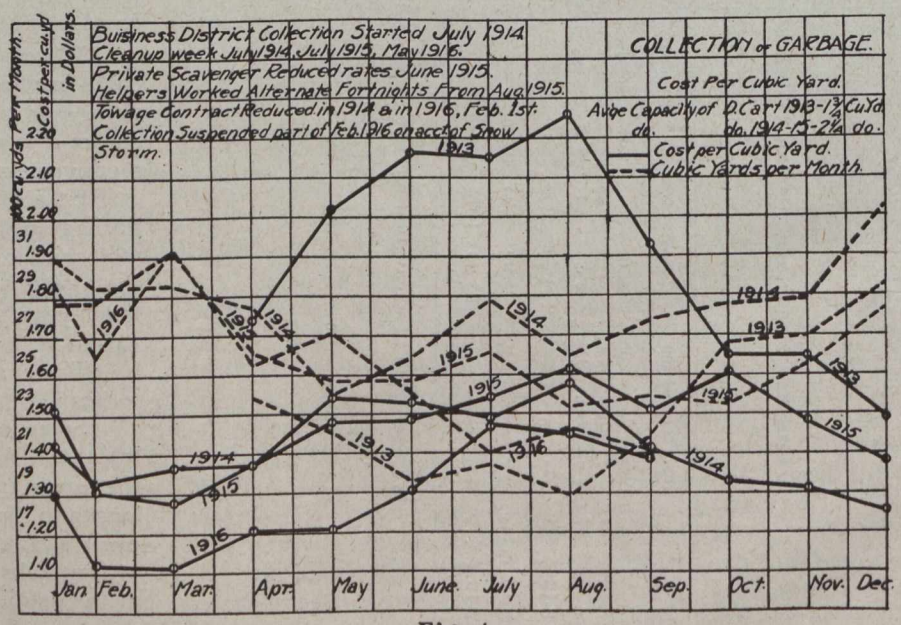

Fig. 4.

Largely through the interest created by the weekly cost data reports, the cost of the work was steadily re-