exerted without slipping under bad rail conditions = 20p × W √ 1 — (G/100)² = 5034.7 lb.

This also represents the maximum retarding effort of the brakes before the wheels will slip on the incline with bad rail conditions.

Power required to overcome grade is 20 lb. per ton for each per cent grade—3580 lb.

Allowable braking effort to reduce speed—1466 lb.

Pounds per ton of car—59.4 lb.

Maximum negative acceleration—0.91 ft. per sec.

Taking an average condition of requiring to stop the car in 30 ft.—time required to bring car to rest 8.027 sec.

Maximum initial speed allowable to stop car in 30 ft. with bad rail conditions —7.30487 ft. per sec. corresponding to 4.98 m.p.h.

"The calculation takes it as possible to throw the brakes on instantly and set them at the exact pressure, such that any increase would cause the wheels to slip on the rails. This hypothesis, of course, is impossible, but a competent motorman can adjust brakes in 2½ sec. within 25% of the maximum braking effort. From the above, to keep a car under control in bad weather the speed on the grade should not exceed 8 m.p.h.

"Charts herewith show the coefficient of adhesion between car wheels and rails under various conditions of rail. These results are plotted from experimental data. There is also a chart showing the maximum grade that can be ascended under various conditions of track, providing there is sufficient motor capacity. As in the operation of Arlington St. bridge no trailers will be used, there will be 100% of the car's weight on the drivers. Hence where the 100% ordinate is cut by the coefficient of adhesion curve, the abscissa represents the maximum grade mountable. For example, the coefficient of adhesion being 14%, the maximum grade a motor car with all weight on drivers could ascend would be 13.3%. Conversely, with a grade of 7.1% the coefficient of adhesion would have to drop below 5%, a condition which is not met in practice."

Toronto Railway Co's Rights on Yonge Street.

The Judicial Committee of the Privy Council, sitting in London, Eng., May 26, heard arguments regarding the Toronto Railway Co.'s right to lay tracks and operate cars upon the portion of Yonge St. within the city limits, lying between the C.P.R. tracks and Farnham Avenue.

Mr. Clausen, for the City of Toronto in supporting the appeal, said the agreement was made in 1891 between the city and the railway and validated by the Ontario statute to grant to the company the right to operate a surface street railway in the city for 30 years. His contention was that the agreement did not give the right now claimed by the company, because no franchise could be granted for more than 30 years, and no franchise to come into operation in future (in this case more than 24 years after the date of the agreement) could be granted at all.

The Metropolitan Ry., in 1891, had a franchise from the County of York over that part of Yonge St., including a piece running from the present C.P.R. tracks to Farnham Ave., and a short time before the agreement the city had acquired this piece of land. The Toronto & Mimico Electric Ry. had, before the enactment of the validating agreement, obtained a franchise over the portion of Queen St. west of Dufferin St., but the franchise ran out in June, 1916. The Toronto Ry. insisted, however, that it still had a right to run its undertaking over the part of Yonge St. referred to.

The Lord Chancellor said: "The question is whether, on the construction of the agreement by which, by clause 2, the appellants purported to grant the right to respondents to operate tracks along the streets of the city within certain limits, excepting the part of Yonge St. which had been taken over by the Ontario & Quebec Ry., now the C.P.R., and so forth, 'so far as the corporation can legally grant same,' was a grant which passed to respondents, the right to which, in the Canadian courts, they were held to get under the agreement."

Mr. Clausen replied affirmatively, adding that the appellants only granted to the respondents such rights over that portion of Yonge St. in dispute as they had at the date of the agreement power to grant.

Sir John Simon, for the Toronto Ry., submitted that the effect of the agreement was that the city had given the company whatever rights the city had over the street in question; those rights were for a term of 30 years from 1891. His learned friend had shown no ground which entitled the appellants to impose restrictions on the company in the proposed operations on Yonge St. The agreement gave the company the exclusive right to operate such railways for 30 years, and went on to provide that the right should be renewed for a further 10 years in the event of legislation being obtained to enable this to be done. With this object, the appellants' predecessors pleaded that they and their successors would aid in procuring the needed legislation to authorize such renewal if that alone was insufficient to entitle the Ontario Railway and Municipal Board to decide the dispute in favor of his clients. All doubts were set at rest by validating the act which incorporated the company and confirmed the agreement, and declared that under the agreement the respondents had acquired and were entitled to the exclusive right and privilege of using and working the street railways in the city for 30 years, except so far as they overlapped the right already granted to the Metropolitan St. Ry. on that portion of Yonge St. as existed at the passing of the act. The judgment of the court now under appeal, he submitted, gave the correct interpretation to the language of the agreement. The question was not a new one. It had been argued in the Toronto Ry. vs. the City of Toronto as long ago as 1908, and incidentally in other cases decided since then. In these cases the principle decided supported the contention of the respondents in the present case.

The Lord Chancellor said he would consider their opinion, and judgment was reserved.

Judgment was delivered June 28, in favor of the Toronto Ry. with costs. This confirms the original order granting the company permission to extend its tracks on Yonge St., north of the C.P.R. for 1,320 ft. to Farnham Ave.

James Lightbody, who was formerly on the staff of the Daily Province, Vancouver, has been appointed Publicity Agent, British Columbia Electric Ry., vice E. J. Dupont, who has left the company's service.

Brantford Municipal Ry. Wages, Etc.

In consequence of a dispute between the Brantford Municipal Railway Commission and its conductors and motormen, the men having demanded an increase of wages, that motormen be provided with seats on cars, and that there be a written agreement between the Commission and the men, a board of conciliation and investigation was appointed under the Industrial Disputes Investigation Act, 1907, F. W. Frank, of Brantford, representing the Commission, Jos. Gibbons, of Toronto, representing the employes, and Judge Snider, of Hamilton, being chairman. The Board reported on June 2 that, after repeated efforts a settlement between the parties was arrived at, and that a memorandum embodying the same had been signed by the chairman of the Commission and by the employes' representative before the Board, who is also the President of Division 685, Amalgamated Association of Street & Electric Railway Employes. Under the agreement a new schedule of wages was put into effect to date from June 1, 1916, and to remain in effect until June, 1917. Following is a comparison of the old and new rates per hour:

	Old rate.	New rate.
1st month	16c.	18c.
Following 11 months	17½c.	19½c.
2nd year	18c.	21½c.
3rd year	20c.	23½c.

Stools are to be provided for motormen in defined limits; rigid inspection of cars to be constantly made; change to be carried by conductors is to be amply provided by the Commission; boxes for coats and caps provided in each car to be used by motormen and conductors; open cars are to be improved as to storm conditions; charges against employes are to be always open to appeal to the Commission; half cost of uniforms is to be paid by the Commission; seniority as to duties of employes is to be left to the management; all rights and privileges enjoyed by employes on June 1 are to be continued; no discrimination is to be made against any employe on account of his belonging to a labor union. The terms of settlement are to be placed on the Commission's minute book.

Regina Municipal Railway Earnings, Etc.

Following are statistics for April, compared with those for April, 1915, and the total for four months ended Apr. 30:—

	Apr. 1916	April, 1915	Jan. 1 to Apr. 30, 1916
Total revenue	$12,121.57	$12,946.95	$72,184.39
Expenses	15,241.47	14,255.67	70,290.83
Capital charges	3,645.53	3,187.53	35,316.29
Operating surplus	7,880.10	xl,308.72	2,044.09
Deficit	6,033.80	10,456.38	33,761.11
Expense per car mile without power	15.81c.	11.83c.	18.31c.
Expense per car mile with power	20.11c.	18.03c.	24.10c.
Platform wages per car hour	73.44c.	73.06c.	73.71c.
Passengers carried	410,897	377,320	1,403,117
Expenses less capital charges, percentage	84.10		
Expenses with capital charges, percentage	107.97		

Fare Changes on Kingston, Portsmouth and Cataraqui Electric Ry.—On June 1 the company discontinued selling 6 tickets for 25 and instituted a cash fare of 5c. Workmen's tickets, good from 6.30 to 7.59 a.m., and from 5 to 6.30 p.m. are sold at 8 for 25c. and tickets for children between the ages of 5 and 12 are also sold at 8 for 25c.