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The Canadian Society of Civil Engineers

INCORPORATED 1887

ADVANCE PROOF (*Subject to revision*)

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DETERMINATION OF TRAIN RESISTANCE.

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(To be read before Electrical Section, October 28, 1909.)

The rapid development of the use of electricity as a motive power for railway trains has forced the engineer of to-day to the consideration of problems which were relatively unimportant a few years ago.

The tractive resistance of electric cars being the foundation upon which is based the calculations leading to the selection of motive power, equipment has of late claimed considerable attention. Numerous formulae have been developed, and a number of tests have been made to determine the train resistance of electric cars and trains. Amongst these may be mentioned the Buffalo and Lockport Railway tests in 1900 by Mr. W. J. Davis, the Zossen high-speed tests in 1902-3, tests made by the Electric Railway Test Commission on the test car, "Louisiana," in 1904-5, the New York Subway tests in 1905, and tests on the New York Central locomotives in 1905-6. The majority of these tests were made under somewhat unusual conditions of track and equipment, and consequently the results obtained are not generally applicable to traction problems met with in the ordinary inter-urban railway. It was, therefore, with the object in view of obtaining information which would be useful in the selection of motive power equipment for inter-urban railways operating single car trains that a series of experiments was undertaken by the Railway Engineering Department of the University of Illinois.