

# The Canadian Engineer

VOL. IV.—No. 1.

TORONTO, MAY, 1896.

PRICE, 10 CENTS  
\$1.00 PER YEAR.

## The Canadian Engineer.

ISSUED MONTHLY IN THE INTERESTS OF THE  
CIVIL, MECHANICAL, ELECTRICAL, LOCOMOTIVE, STATIONARY,  
MARINE AND SANITARY ENGINEER; THE MANUFACTURER,  
THE CONTRACTOR AND THE MERCHANT IN THE  
METAL TRADES.

SUBSCRIPTION—Canada and the United States, \$1.00 per year; Great Britain, 6s. Advertising rates on application.

OFFICES—62 Church Street, Toronto; and Fraser Building, Montreal.

BIGGAR, SAMUEL & CO., Publishers,  
Address—Fraser Building,  
MONTREAL, QUE.  
Toronto Telephone, 1892. Montreal Telephone, 2589.

All business correspondence should be addressed to our Montreal office. Editorial matter, cuts, electrots and drawings should be addressed to the Toronto office.

### CONTENTS OF THIS NUMBER :

PAGE	PAGE
Auto-car, The First Light .. 12	Good Roads .. 16
Automatic Ventilation .. 5	Goldie, The late J. .... 23
Baillairge, The late Chevalier .. 1	Hallfax Street Railway, The .. 21
Ball Nozzle, The .. 20	Horseless Vehicle Race .. 21
Bridges, New .. 23	Industrial No es .. 23
British Columbia Mines, Report of the Minister of the .. 16	Inspection of Stationary Boilers .. 8
Burleigh's Polygraph .. 17	"    Before or After .. 6
Canadian Canoe .. 16	Iron Manufacture .. 13
Civil Engineers, Canadian Society of .. 16	Marine News .. 26
Civil Engineers, Competition among .. 16	McWood, William .. 27
Cream Separators .. 17	Mining Matters .. 30
Dimensions of Shafting, etc. .... 21	Motor, A New Self contained ... 4
Dynamo Construction .. 2	Ontario as a Mining Country .. 18
Effects of Engineering Works on Water Currents .. 8	Personal .. 30
Electric Traction on Railways... 1	Power Rail Bending Machine .. 22
Electric Flashes .. 29	Rapid Transit .. 11
Fires of the Month .. 21	Railway Matters .. 25
Gas Engines on Light Rigs .. 11	Spiral Slide, The .. 15
Gartshore-Thomson Pipe and Foundry Co., Ltd., The .. 21	Stationary Engineers, Canadian Association of .. 22
	Trial Trip of the Wilson Co.'s New Steamer .. 21

### THE LATE CHEVALIER BAILLAIRGE.

The late Genezague Baillairge, Q.C., Grand Commander of the Order of Pope Gregory the Great, and Count of the Roman Empire, was born at Quebec in 1806, and died at the age of 88 in a house in Ferlonde street, which he had occupied for 84 years. The house contains many objects of interest, such as Louis XV. furniture, books, papers and pictures, covering a period of the last 300 years. Mr. Baillairge's grandfather, who was an architect and engineer, came to Quebec in 1741. The Chevalier Baillairge was educated at Quebec Seminary from 1822 to 1830, where he was a fellow student of Sir R. Caron, since Lieut.-Governor of the Province of Quebec. When the latter was elevated to the bench Mr. Baillairge was made city solicitor for Quebec, which position he held for 46 years.

In 1842 he was one of the founders of Jean Baptiste Society, and in 1848 of the Canadian Institute. He was also one of the founders of *L'Courier du Canada*, 1857. He was offered the position of judge during the sitting of the Seignorial Tenure Commission in 1855. The Recordership of Quebec was offered him in 1856, the position of judge in 1860, and after the death of Judge Power, he was offered a seat on the bench of the Superior Court. He became a Queen's Counsel under the Dorion Administration, and was Battonier of the Quebec Bar in 1876. The good deeds of the Chevalier Baillairge have been as great and widespread as his long life and considerable wealth enabled him to make them. Five mission chapels have been built in different parts of the world—Central Africa, Australia, China, Labrador, North Africa, and Palestine—besides many

gifts of large amounts to different churches, chapels, universities and public institutions in Canada. The late Mr. Baillairge left a fortune of about \$250,000, of which \$100,000 will be taken up by these and other charitable bequests, the remainder to be divided up among the two nephews and three nieces of the deceased.

It will be remembered that T. B. Baillairge, the brother of the deceased, was city surveyor of Quebec, dying in 1865, when his son Chas. Baillairge, the present city engineer, succeeded him.

### ELECTRIC TRACTION ON RAILWAYS.

BY J. H. KILLEY.

It is difficult to move people out of the beaten track, and after fifty years experience of steam traction for railways, it is only natural that the idea of employing electricity as a substitute for steam should be a little slow in making its way. It may not be long, however, before we see most of the railways now operated by steam locomotives adopt electricity as a means of traction, distributing it from a series of central power stations at suitable distances apart. Among the advantages of this system of operation would be the economical production and distribution of power from a station for a stretch of road on each side. There will be a pair of condensing engines, or more economical still, a gas engine, using about one-fifth of the fuel required by the locomotive of the best type. Each pair of engines would handle six passenger or freight trains, thus making two cylinders do the work that now requires twelve, the labor of six engineers and foremen being replaced by that of half that number. The locomotive is not economical either in the production of steam in the boiler or in distributing it as power. In the locomotive the ratio of expansion at slow speed is very wasteful, and under the changing conditions of load and weather it is not possible to run the locomotive economically. On the other hand, the automatic cut-off compound engines attached to the latest design of dynamo placed direct on the shaft, can in most instances be relied upon to generate one horse power per hour per two pounds of coal. The makers of some of the new gas engines guarantee one horse power per hour with less than one pound of coal, using a producer gas plant. In a locomotive usually from four to six pounds coal per h.p. per hour is consumed. It is also claimed that the propelling wheels of an electric locomotive do not slip when overloaded nearly so readily as do those of the steam locomotive.

The speed at which the locomotive can be driven is known to have limits which cannot be safely passed; the speed of a locomotive, twenty-four inches stroke, driving-wheels five feet eight inches in diameter, travelling at sixty miles per hour, would be four hundred feet per minute. With electro-motors, there is not the friction due to the reciprocating parts, and the loss occasioned by the emission and compression of steam. The efficiency of any economical device is limited only by the power given in the design. There would be a consider-

6716  
576