

The Canadian Engineer

VOL. XI.—No. 6.

TORONTO AND MONTREAL, JUNE, 1904

PRICE 10 CENTS
\$1.00 PER YEAR.

The Canadian Engineer.

ISSUED MONTHLY IN THE INTERESTS OF THE

CIVIL, MECHANICAL, ELECTRICAL, LOCOMOTIVE, STATIONARY,
MARINE, MINING AND SANITARY ENGINEER, THE SURVEYOR,
THE MANUFACTURER, THE CONTRACTOR AND THE
MERCHANT IN THE METAL TRADES.

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

OFFICES—18 Court St. Toronto ; and Fraser Building, Montreal.
Toronto Telephone, Main 4310. Montreal Telephone, Main 2589.
BIGGAR-SAMUEL, LIMITED, Publishers,

All business correspondence should be addressed to our Montreal
office. Editorial matter, cuts, electros and drawings should be
addressed to the Toronto Office, and should be sent whenever
possible, by mail, not by express. The publishers do not undertake to
pay duty on cuts from abroad. Changes of advertisements should
be in our hands not later than the 15th of the preceding month
or if proof is desired, 4 days earlier.

CONTENTS OF THIS NUMBER :

Ball Bearing Ordnance.....	178	Municipal Works, etc.....	164
Boring and Turning Mill, Fifty- three inch Vertical.....	171	More Lessons from Recent Fires.....	151
Calloway, Samuel R.....	166	National Electrical Light Associa- tion.....	152
Canadian Electrical Association.....	182	New Catalogues.....	166
Canadian Westinghouse Works.....	154	Pumps, Worthington Centrifugal.....	172
Cataract Power Co's New Engines at Hamilton.....	161	Railway Notes.....	179
Dynamo, T. & H. Twin-Kilowatt.....	166	St. Lawrence Route.....	152
Electrical Developments at Niagara	156	School for Nature Study.....	161
Grain Pressure in Deep Bins.....	175	Smoke Hood and Exhaust System for Locomotive Houses.....	169
Hamilton as an Electrical Power City	177	Sturtevant Improved Hand Blower	178
Hamilton's Electrical Supply.....	159	Smelting Iron by Electricity.....	151
Industrial Notes.....	161	Toronto University, Science and En- gineering awards at.....	170
International Railway Co's Power Extensions.....	160	Time Recorder for Factories.....	176
Light, Heat, Power, etc.....	153	Toronto Engineers' Club.....	164
Literary Notes.....	182	Water Softening.....	171
Marine News.....	180	Water Meters, Setting.....	172
Mechanical Wood Pulp.....	167	World's Fair at St. Louis.....	162
Mining Matters.....	162		

MORE LESSONS FROM RECENT FIRES.

On referring to the account of the Baltimore fire of February last, one cannot fail to be struck with the marked similarity of many of the features of the Toronto fire of April 19th. This we referred to in the last issue of the Engineer; but there are some points which are worth further consideration.

These two fires have shown how irresistible a modern city conflagration may become when it has once gained headway. The efforts of the best organized fire brigade, with their devices, become puny in comparison with the force against which they offer protection. They also show the exceeding combustibility of the average modern city. In Baltimore there were a number of steel skeleton, supposedly fireproof structures, which succumbed, but these were not totally destroyed, and may be restored without excessive cost, the walls in most cases standing intact, and the destruction being confined to the interior. Where stone was used for facing, or for columns, or decorative work, it was sadly injured by spalling, and stone showed itself equally

liable to injury in the Toronto fire. Where steel skeleton construction is employed brick seems to be the only effective facing. In the Baltimore fire there were six large buildings of this form of construction, and in all of them the steel framework is intact, and with a new member in one or two places will be as good as ever. In all of them the walls are structurally sound, and most of the floor arches are intact. In all, however, every window and every item of finish and contents was destroyed. In all, ignition resulted from the flames of adjoining non-fireproof buildings breaking through the windows. In one of the buildings there were shutters of wood covered with steel, but the building ignited from the other side, and with fire on both sides the shutters burst open and became badly warped. There were no steel skeleton buildings in the Toronto fire area, but the experience of the Baltimore fire seems to indicate many advantages of that form of construction. Outside the steel construction the destruction in Baltimore was complete, and as there were no such buildings in the Toronto fire the destruction everywhere was complete.

The advantage of having telegraph and telephone wires underground was shown in the Baltimore fire, where repairs were easily and quickly made. In Toronto a tangled mass was all that remained, and communication was interrupted for some time till the lines were rebuilt.

Many of the Toronto firms which were burned out are pursuing a wise course in rebuilding their manufacturing premises in more isolated positions and having only warehouses or offices in the congested district. This is not, however, altogether on account of the risk, but partly the result of an increase of insurance rates. Certainly the risk of a repetition of their losses will be greatly reduced.

Many of the sites in the burnt district of Toronto are offered for sale, and from present appearances the city is not going to rise from its ashes as rapidly as was first hoped.



SMELTING IRON BY ELECTRICITY.

In the last issue of the Canadian Engineer reference was made to the result of the visit of Dr. Haanel, and those associated with him, who were sent as a commission to inquire into the question of electric smelting of iron in Europe. Dr. Haanel's report has not yet been given to the public, but some of the results of his observations are known, and from these it may be inferred that smelting by electricity can be successfully and economically carried on. As stated already, the most important experiments witnessed were at Livet, in the Pyrenees, where some ninety tons were put through to illustrate the process. The furnace there employed is of the resistance type, and consists of two iron casings of square cross section, forming two shafts communicating with each other at their lower end by means of a lateral canal. The cases are lined with refractory material. The base of each