

The Canadian Engineer

WEEKLY

ESTABLISHED 1893

VOL. 15.

TORONTO, CANADA, JULY 3rd, 1908

No. 27

The Canadian Engineer

ESTABLISHED 1893

Issued Weekly in the interests of the

CIVIL, MECHANICAL, STRUCTURAL, ELECTRICAL, MARINE AND
MINING ENGINEER, THE SURVEYOR, THE
MANUFACTURER AND THE
CONTRACTOR.

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Present Terms of Subscription, payable in advance:

Canada and Great Britain:		United States and other Countries:	
One Year	\$2.00	One Year	\$2.50
Six Months	1.25	Six Months	1.50
Three Months	0.75	Three Months	1.00

ADVERTISEMENT RATES ON APPLICATION.

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Everything affecting the editorial department should be directed to the Editor

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Changes of advertisement copy should reach the Head Office by 10 a.m.
Monday preceding the date of publication, except the first issue of the month for
which changes of copy should be received at least two weeks prior to publication date

Printed at the office of THE MONETARY TIMES PRINTING CO., Limited,
TORONTO, CANADA.

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IRRIGATION IN WESTERN CANADA.

We have just received the report of the proceedings of the first Irrigation Convention of Western Canada. Although the report is many months old it is still of great interest. Gradually it is dawning on the minds of Canadians the great development in Western Canada that irrigation will bring about. The engineer has looked upon the mountain streams as a source of water power, and the hydraulic engineer has considered these streams as his especial care. In future he will have to divide with the irrigation engineer.

Irrigation enterprises, private and corporate, now completed in Western Canada comprise an area equal to one-quarter of the total irrigated area of the United States. Yet irrigation in Canada is but in its infancy. Almost a thousand miles of ditch, which serve over three million acres of land, is now in operation. The Rockies contain natural reservoirs, streams and lakes, that require only the touch of the irrigation engineer to make them serve the vast semi-arid areas of the Western plains.

Experiments and investigations have been conducted in other countries as to seepage, suitable grades, rate of flow, methods of measuring water, etc. The results of some of these investigations are available and useful to Canadian engineers, but many are not. Differences of climate, soil and service make many of these investigations of little value to our engineers.

Canadian universities should not neglect the problems met with in this work. The Faculties of Applied Science and departments of Physics of our universities may here find a wide field of usefulness not only in laboratory work, but in connection with investigations that must be carried on in the field.

The slope of repose is usually taken as $1\frac{1}{2}$ to 1, yet some clays have a flatter slope, and some may even stand on a steeper slope. The literature on this question for clays and loams of Western Canada is not very complete. The question of weirs and weir flow has been pretty thoroughly discussed, but a satisfactory value, for coefficients in many of the hydraulic formulæ used in calculating discharge, has not been obtained, as, for instance, a reasonable value of the coefficient of rugosity in Kutter's formula.

The question of seepage and drainage, although agricultural problems to a certain degree, are yet questions with which the irrigation engineer must be thoroughly familiar. He must allow for the one and provide for the other. The services of the irrigation engineer will be yearly in more demand in Canada. Our colleges should be equipped so that they might assist in preparing men for this work.

CANAL SURVEYS.

The announcement by the Minister of Canals and Railways that parties were in the field making surveys for a new Welland Canal has suddenly made the whole question of water transportation in Canada a subject of discussion.

A few months ago we expected to learn the policy of the Government in connection with the Georgian Bay Canal, but without any declaration of policy on this route surveys are commenced on the Welland; and it