

# The Canadian Engineer

Established 1893

A Weekly Paper for Canadian Civil Engineers and Contractors

Terms of Subscription, postpaid to any address:

One Year	Six Months	Three Months	Single Copies
\$3.00	\$1.75	\$1.00	10c.

Published every Thursday by

The Monetary Times Printing Co. of Canada, Limited

JAMES J. SALMOND  
President and General Manager

ALBERT E. JENNINGS  
Assistant General Manager

HEAD OFFICE: 62 CHURCH STREET, TORONTO, ONT.  
Telephone, Main 7404. Cable Address "Engineer, Toronto."

Western Canada Office: 1208 McArthur Bldg., Winnipeg. G. W. GOODALL, Mgr.

## PRINCIPAL CONTENTS

Design of Concrete Truss Bridges, by Frank Barber .....	543
Letter to the Editor, by A. G. Dalzell.....	544
Dominion Government Office Building .....	545
Weston Road Pavement, by E. A. James.....	546
Buckwheat for Waterworks Boilers .....	548
WR <sup>2</sup> —An Explanation, by J. S. Carpenter... ..	549
Significance of Black Sands in Filters .....	550
Pacific Great Eastern Railway, by C. Camsell. .	552
Thrust Bearings, by Eugene U. Gibbs .....	553
Velocity Formulas, by Ivan E. Houk .....	556
The Relation Between Civil and Military Engineering, by Maj.-Gen. W. M. Black .....	558
The Quebec Bridge .....	560

## LOCAL BUILDERS' EXCHANGES BECOME BRANCHES OF BIG NATIONAL ASSOCIATION

**B**UILDERS' exchanges throughout Canada should be merged with the newly-formed Association of Canadian Building and Construction Industries. In unity there is strength. United the exchanges will grow strong; divided they will fail.

The exchanges in Montreal and Toronto have set the example. At a meeting held December 17th in Montreal, the members of the exchange in that city decided unanimously to wind up the affairs of that exchange as such at the next annual meeting, and to reorganize as the Montreal Branch of the Association of Canadian Building and Construction Industries.

W. E. Dillon, president of the Toronto Builders' Exchange, gave a dinner at Foresters' Hall, Toronto, last Thursday evening, to which he invited all of the members of his exchange. About 125 men, including nearly 95 per cent. of the membership of the exchange, were present.

After dinner, J. P. Anglin, who is president of the Montreal Builders' Exchange, and also president of the Canadian Association of Building and Construction Industries, explained the action taken by the Montreal builders and contractors. Following a lengthy and thorough discussion, it was decided almost unanimously that a recommendation be made to the executive of the exchange that a merger be effected with the Association of Building and Construction Industries at the annual meeting of the Toronto exchange in January.

A very few of the oldest members of the Toronto Builders' Exchange were reluctant to give up the name "Builders' Exchange," their reasons being largely sentimental. Many of these were won over by the strong arguments presented by the members who had attended the Ottawa conference and who are enthusiastic about the new association; and even those who were not completely won over, remained silent

when the vote was taken. Only one member of the exchange afterwards expressed himself as dissatisfied with the step taken.

In urging the exchanges throughout the country to become members of the new association, there is no thought of belittling the work of the exchanges. The Montreal exchange has been a corporate body for twenty-one years. There were men present at Mr. Dillon's dinner who have been members of the Toronto exchange for half a century. These and the other exchanges throughout the country have in past years, at least, been highly respected by their communities and looked up to as truly representative of the building and contracting trades.

But changed conditions arose about ten years ago through the introduction into Canada of the general contractor or contracting engineer. This development was a natural result of modern business conditions, but it mitigated against the success of isolated builders' exchanges. The new association, with its three sections comprising the best thought from all branches of the industry and from all parts of the country, fills a national need that is not filled by isolated exchanges.

In organizing the new sections of the Association of Canadian Building and Construction Industries, Toronto and Montreal will take in general contractors, trade contractors and supply men whose headquarters are anywhere within a large district surrounding those two cities. It is hoped that the other exchanges who may desire to form branches of the Association will follow suit and get as many as possible of the contractors and supply men from surrounding municipalities into their exchanges, or branches, so as to organize the whole industry throughout the entire country.

There is no room for sentiment regarding the name "Builders' Exchange." If a change of name will give new birth to the exchanges, by all means change the name. As Mr. Phinmore, of Toronto, said at Mr. Dillon's dinner, the time has come when "the contractors must take part in the reconstruction of the country, socially and economically. The salvation of the building industries in Canada is in co-operation by all along national lines. We must adopt the principles of the Allies,—co-operation all the way 'round, and advance efficiently along the lines of other institutions so as to gain national recognition."

## SIGNIFICANCE OF BLACK SANDS IN FILTERS

(Continued from page 550.)

approximately 50 pounds per square inch. Variable rate of wash water. Operation of plant good.

*Winfield.*—Plant installed 1910. Modified Greer filter construction, using combined air and water wash. Wash water supplied by separate wash water pump, giving a wash water velocity of 7½ inches vertical rise per minute. Plant operation variable.

*Augusta.*—Installation test July, 1912. American Water Softening Company standard filter equipment. Air and water wash; Wash water originally furnished from distribution system; now furnished by separate wash water pump, which gives a wash water velocity of 9 inches vertical rise per minute. In 1916 the beds washed unevenly and mud balls were in evidence. Plant operation inconstant.

*Oswatomic.*—Installation test December, 1915. New York Continental Jewell Filtration Company standard equipment. Combined air and water wash. Wash water secured from distribution system at 60 to 80 pounds pressure per square inch. On different occasions the wash water valve has been opened so that the wash water rate was excessive and the sand and gravel became mixed. The plant has had considerable operating trouble from microscopic growth in basins and filters. Plant operation variable.

*Washington.*—Installation test October, 1914. New York Continental Jewell Filtration Company standard equipment. Filter washed with combined air and water.