

# The Canadian Engineer

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## BRICK WALLS AND RESEARCH

THAT Canada needs a Central Research Institute similar to the United States Bureau of Standards, is again demonstrated by the article which appears on another page of this issue, on brick piers, by W. W. Pearse, city architect and superintendent of building of the city of Toronto.

When Mr. Pearse began the work of revising the building by-laws of Toronto, he found it necessary to look to the United States for all information regarding the strength of steel columns, wooden columns, wooden beams and all other structural items. There were very few available Canadian tests.

In connection with brickwork, McGill University and the University of Toronto had no data. They had tested some individual brick and a few piers, but had made no exhaustive tests of piers in relation to the individual brick of which they were composed.

The lack of Canadian data on Canadian materials made it difficult for Mr. Pearse to write an independent and original by-law based on Canadian materials and Canadian conditions. Pending the acquirement of more information, he was forced to leave many chapters remain just as they were. This was particularly true of the chapters on brickwork; but it is hoped that he will be allowed to continue his tests, because during each month in the construction season, the builders and owners in Toronto will save many times as much as the sum that he is asking as an annual grant for the tests.

Aside from the fact that the city of Toronto needs this data for its new by-law, however, there is no reason why that city should be required to pay the entire expense for work of this sort, which is of value to every city and town throughout Canada. In fact, it is not at all likely that the city of Toronto will vote any large sum of money to carry on the tests in a truly comprehensive manner. From time to time the city may vote \$500 for these tests, but \$10,000

would not be any too much to secure adequate data and proper research into the whole problem.

Would it not be possible to form an advisory committee consisting of all the principal city engineers throughout Canada, to undertake the general direction of these tests? Every city engineer could then include in his annual estimates a grant of a few hundred dollars toward the expense of the research.

Mr. Pearse's tests tend to put a premium on good brick, and rightly so, for there is no reason why for the same load a wall should be as thick if constructed of brick with 5,000 lbs. per sq. in. crushing strength and laid in cement mortar, as if it were built of brick of 1,200 lbs. per sq. in. crushing strength and perhaps laid in lime mortar.

In steel and most other materials, the effect of the slenderness ratio, fixed ends, etc., have been exhaustively investigated, but in brickwork we appear to be about as far advanced technically and scientifically as were the Babylonians.

The few tests conducted by the city of Toronto are not sufficient to warrant very much generalization or the derivation of very reliable formulæ, but the work is valuable and should be continued in the interest of safety and economy for the general public, in the interest of manufacturers of good brick, and above all in the interest of engineers who desire to eliminate guess-work and to make engineering as nearly as possible an exact science.

## TWO CENTRAL STATION DIRECTORIES

PROBABLY the clearest instance of duplication of effort by government departments has come to light in connection with the census of central electric stations, that has been undertaken by both the Census and Statistics Office and the Commission of Conservation.

Summaries were recently given out by the Census and Statistics Office of a census that had been taken last year by that Office in conjunction with the Dominion Water Power Branch, and it was announced that there would be published at an early date a complete directory of central electric stations in Canada.

Directly upon the heels of this announcement there is issued a 300-page directory by the Commission of Conservation, covering exactly the same ground and apparently giving the same sort of information that will be given by the Census Office's directory.

Both departments claim to have started the work first, but the Commission of Conservation would at least appear to have completed it first, and their publication is in the mails while the other directory is still in the hands of the editorial committee attached to the office of the King's Printer.

The Commission of Conservation's volume arrived just as this issue was about to go to press and time is lacking to examine it in sufficient detail to offer any comments upon it other than that it appears to be a very thorough and valuable work of reference. Whether the Census Office's directory will be more complete, we do not know, but surely, there has been wasteful duplication of effort that should have been avoided.

It should not be necessary to compile and print two directories for the one purpose. Whether the publication of a directory of this kind comes within the province of the Commission of Conservation or whether it could be more rightly considered a function of the Census and Statistics Office, we do not know; but the duties, rights and fields of these two bodies should be more clearly defined.

Overlapping of this sort seems to be waste of public funds. Surely both parties who were gathering this information must have known, at least latterly, that the other was at work, and if so both are to blame if they did not make some effort to get together and merge their information into one volume. The fact that such merged effort would have resulted in greater value to the public is evidenced by the fact that the two reports differ as to the total