

WELLAND, Ont.

Building permits for the month of June \$10,124; building permits for month of June, last year, \$46,636; total for year to end of June \$90,997; total for corresponding period last year \$248,578.

OTTAWA, Ont.

The Ottawa-Prescott highway scheme is progressing. The present estimate for its construction is \$10,000 per mile. Ottawa's share is not to exceed \$180,000. The government may, under the terms of the general act, contribute a sum not to exceed \$4,000 per mile toward its construction.

HAMILTON.

Mr. A. F. Macallum, City Engineer, the city of Hamilton, according to a report, laid during that year new water mains as follows: 506 feet of 1-inch; 270 feet of 2-inch; 25,702 feet of 6-inch; 800 feet of 8-inch; and 996 feet of 12-inch pipe. In addition some 53,635 feet of service pipe was installed, ranging from ½-inch to 2-inch in diameter.

NEW APPOINTMENTS.

Claude A. Bulkeley has accepted the position of chief consulting engineer with the Canadian Domestic Engineering Company, Limited, Montreal. Until recently Mr. Bulkeley practised consulting mechanical and electrical engineering in New York City.

Peter Cowan succeeds S. Bartleman as waterworks superintendent for the city of Galt, Ont.

THREE NEW BRIDGES PROPOSED FOR WINNIPEG.

The Winnipeg city council twelve months ago directed the city bridge engineer, Mr. P. Schioler, to prepare plans for three new bridges across the Assiniboine River. The plans have been completed and were submitted recently. A bascule lift bridge with concealed counterweights is proposed to replace the existing Main Street structure at an estimated cost of \$191,276. Two others with fixed spans, are proposed for Maryland and Arlington Streets, to cost \$141,680 and \$126,379, respectively.

LIME CONCRETE IN THE EAST.*

Stone lime of great purity, and consequently non-hydraulic, is used largely in India and Burma, and engineers have learned to place considerable confidence in the material. To enable it to set under water, it is mixed with "Soorkhee," a finely powdered red brick. To the present day, engineers in India do not know exactly how much soorkhee is required by each kind of lime, and this ignorance is due to the want of scientific laboratory tests, of the kind so frequently made in Europe. It seems no advantage to send lime and soorkhee to England to be tested, since the difference in climate, the sea voyage, and the lapse of time in transit might vitiate the results. Conservative Indian opinion, based on long experience, approves of a mixture of a half part of under-burnt with a half part of well-burnt soorkhee to one part of slaked lime, and one part of sharp, clean sand, all measured in bulk, dry. The materials are thoroughly incorporated and ground in a mortar-mill, either under one wheel pulled round a circular track by a bullock, or in a pan-machine under a pair of wheels. The mortar should be a thick reddish paste, in which the particles of lime cannot be distinguished by the naked-eye. A mortar made in this way sets very well indeed in still water, but it sets comparatively slowly, and some engineers add, when necessary, a proportion of Portland cement to the mixture. The introduction markedly hastens the setting to an extent depending on the proportion of the cement to lime. One part cement to one part lime by volume sets apparently as quickly as cement mortar. In the early stages of setting the strength of the concrete is much increased, admitting of early handling and removal of moulding boards. The addition of cement preserves soorkhee mortar in wet foundations from the evils of percolation, and the cement, besides, seems to have a chemical effect on the lime, fixing the particles and aiding in a more solid set.

First-class soorkhee mortar, several centuries old, it has been asserted, exceeds Portland cement mortar, 1 to 3, in strength and impermeability, and is said to be often equal to 1 to 2½.

* From a paper by E. A. W. Phillips, M. Inst. C.E., before the Concrete Institute (Great Britain) May 20, 1915.

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