TESTS OF BRICK.

The Canadian Department of Mines recently ordered an investigation of the clay and shale deposits of the Western Provinces, and while this was in preparation sixteen lots of bricks were shipped to Prof. A. Macphail, of the School of Mining, Kingston, Ont.

Each lot of bricks contained about twelve specimens; the lots, on receipt, were designated by letters (A to P), and each brick in this division again designated by a number (1 to 12). The following list gives the series letter, the locality from which the bricks were obtained, and the kind of brick:—

List of Bricks Collected for Testing.

Series.

Manitoba.

E. Alsip Brick and Tile Co., Winnipeg..... Soft-mud.
B. The Stephens Brick Co., Portage la Prairie . ..... Soft-mud.
C. A. Snyder & Co., Gilbert Plains..... ... Soft-mud.
D. Leary's Pressed Brick Works, Leary Siding . ... Dry-press.

Saskatchewan.

A. Eureka Coal and Brick Co., Estevan..... Dry-press.
F. Eureka Coal and Brick Co., Estevan..... Stiff-mud.

Alberta.

G. P. Anderson & Co., Edmonton..... Dry-press.
H. Edmonton Brick Co., Edmonton..... Stiff-mud.
I. Edmonton Brick Co., Edmonton.. ..... Soft-mud.
J. Red Deer Brick Co., Red Deer..... Soft-mud.
K. Canadian Brick Co., Medicine Hat.....Soft-mud.
L. Red Cliff Brick Co., Red Cliff.....Stiff-mud.
M. Alberta Portland Cement Co., Sandstone. Dry-press.
N. Calgary Pressed Brick and Sandstone Co., Calgary . ... Dry-press.

British Columbia.

O. Enderby Brick and Tile Co., Enderby.... Soft-mud.
P. John Coughlan & Sons, New Westminster Soft-mud.

Tests.

Eight separate tests were conducted on the bricks of each series, and these tests are indicated by the letters (a to h). Here follow the specifications under which the tests were made:—

a. Place six thoroughly dried bricks in water to the depth of one inch, and leave them covered over for forty-eight hours. Weigh before and after this partial immersion, to calculate the percentage of absorption in terms of the original dry weight.

b. Test six **dry** bricks flatwise on supports seven inches apart, to determine their transverse strength.

c. Take the six bricks from the absorption test, soaking them some more if they have dried out, and determine the transverse strength of these wet ones.

d. Take one-half of each brick from Series b and determine its crushing strength set flatwise.

e. Take the other half of each of the bricks from b, and determine their crushing strength when set on edge.

Table I.

Series No.	Test a. Per cent absorption.	Test b. Transverse (dry) Breaking load.	Test b. Transverse (dry) Modulus of rupture.	Test c. Transverse (wet) Breaking load.	Test c. Transverse (wet) Modulus of rupture.	Test d. Crushing flat (dry) lbs. per sq. in.	Test e. Crushing on edge (dry) lbs. per sq. in.	Test f. Crushing on edge (wet) lbs. per sq. in.	Test h. Crushing on edge (dry) after freezing. lbs. per sq. in.
A	13·5	1533	805	1490	773	6975	5960	5132	4700
B	23·2	887	472	843	472	2208	2358	1547	2196
C	22·1	1150	647	1073	594	2435	2567	1983	3260
D	10·5	1295	622	1273	610	2807	2652	2833	3378
E	23·1	983	473	1432	716	1830	2468	2310	2846
F	25·8	1286	746	977	568	2932	2050	2065	1730
G	25·5	704	337	720	345	2612	1744	1562	1250
H	19·2	825	384	920	428	1692	1868	1628	2027
I	22·2	702	365	617	320	1298	1512	1282	1400
J	24·1	774	337	797	343	1220	1492	1502	1989
K	15·8	640	298	506	237	1320	1494	1310	1732
L	14·4	672	313	598	278	2242	1660	1948	1950
M	15·3	657	267	612	249	2343	1364	1513	1503
N	15·8	808	329	662	270	2420	1640	1296	1190
O	20·8	972	467	983	471	1869	1950	2658	1990
P	14·4	2008	972	1618	776	5242	5735	4028	5115

f. Take one-half of each of the bricks from Series c, and determine their crushing strength when set on edge.

g. Take the other half of each brick from c, soak it for one hour in ice water, and then subject to a temperature of not less than 15° F. for five hours, all faces of the samples being exposed. The bricks are then thawed in water of not less than 150° F. for one hour. This is to be repeated twenty times.

h. Determine the crushing strength on edge of the bricks after they have been through the frost test.

With regard to the crushing test, the sides or edges of the brick in contact with the machine are to be made flat and parallel with plaster of paris. The opposite sides should be exactly parallel. The testing machine should be equipped with spherical bearing blocks.