

viz., water of combination. Let the clay now be raised to a red heat. This will cause the water of combination to be expelled, and a second shrinking of the clay takes place. This is usually termed "fire shrinkage." It may be mentioned, by the way, that this last shrinking can be counteracted by adding sand or chalk; and indeed, if these substances be added in proper proportions, we can produce a slight expansion. The last shrinking due to heat has now taken place, and the brick will now and afterwards behave in the usual manner of solid bodies—it will expand when heated, and contract when cooled.

The whole process may now be summarized in periods as follows:—

- (1). A period of shrinking during the loss of some of hygroscopic water ("water of shrinkage.")
- (2). A period of slight expansion during the loss of the remainder of the hygroscopic water ("water of porosity.")
- (3). A second period of shrinking during the loss of the water of combination.

And now to conclude with a few remarks on shrinking and true expansion. The expulsion of water from a solid body when heated may be very simply and effectively demonstrated by means of a "lucifer" match. Take an ordinary wooden match and light it; the flame will travel along the wood, and as it does so, a drop of water will be seen moving in front of the flame, although, to all appearances, the wood seemed quite dry. As regards true expansion it is a general law in physics that bodies expand with heat and contract with cold. To this law there are three or four most remarkable exceptions. It has been found by experiment that the following substances contract with heat, and expand with cold:—(a) India-rubber. (b) Garnets. (c) Iodide of lead. (d) Iodide of silver (up to 156 deg. C.) (e) Rose's fusible metal. This substance behaves in a most extraordinary way; it at first expands when heated, but after reaching a certain point it then contracts with further heating. There is another peculiar thing to be noted about this metal, it is an alloy of four parts of bismuth, one of lead and one of tin; and its melting point is as low as 94 deg. C., although that of bismuth is 266., that of lead 326 deg., and that of tin 232 deg.

Let it be noted that in the above list (which is taken from the best authorities on heat) there is not one of the ordinary constituents of clay or bricks.

ILLUSTRATIONS.

CHURCH OF ST. JOHN THE BAPTIST, MONTREAL.—JOS. VENNE, ARCHITECT.

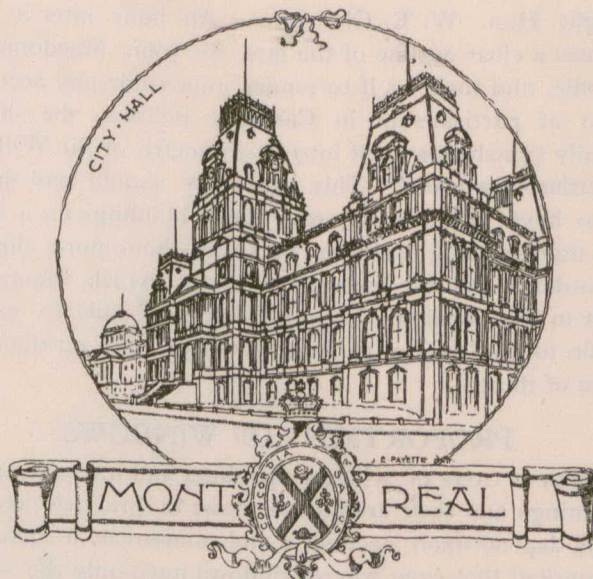
SUN LIFE ASSURANCE COMPANY BUILDING, OTTAWA, ONT.—E. L. HORWOOD, ARCHITECT.

RESIDENCE FOR J. S. WILSON, ESQ., PEARL STREET, ST. THOMAS.—EVAN T. MACDONALD, ARCHITECT.

SKETCHES ILLUSTRATING MR. JOS. VENNE'S PAPER ON "THE ÆSTHETIC VALUE OF MOULDING AND PROFILE."

ARCHITECTURAL COMPETITIONS.

AN invitation is given to architects everywhere to submit competitive designs for new buildings to be erected in connection with the University of California at San Francisco. Plans of site and other particulars will be placed at various accessible points in Europe and America, and ample time will be allowed for the preparation of the designs.



(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

SERIES OF PUBLIC LECTURES.

The St. Jean Baptiste Society have inaugurated a series of public lectures to be given in the Monument Nationale during the approaching winter. The subjects of these lectures, which will be delivered from 8 to 9 p.m. on week days, and at 3 p.m. on Sundays, are as follows:

Monday—Mines and Metallurgy; Mr. A. Roy, professor.

Tuesday—Architecture and Construction; Mr. Jos. Venne, professor.

Wednesday—Universal History; Mr. P. Demers, professor.

Thursday—Applied Mechanics and Machinery; Mr. A. V. Roy, professor.

Friday—Commerce; Mr. S. Cote, professor.

Saturday—Political Economy; Hon. Jos. Royal, professor.

Sunday—Agriculture and Colonization; Mr. J. X. Perrault, professor.

THE PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

The dinners and lectures instituted in former years by the association will be maintained during the coming winter months. With this object committees have been organized as follows:

Committee on Lectures—Messrs. A. Raza, A. T. Taylor and Professor Capper.

Committee on Dinners—Messrs. James Nelson, O. Mailloux and A. Arthur Cox.

Messrs. S. H. Capper, Professor of Architecture at McGill University, Edward Maxwell and Jos. Venne, of Montreal; Chas. Baillairge, F. X. Berlinguet and Harry Staveley, of Quebec, have been elected examiners in their respective cities for the Association Examinations in Architecture in 1898.

As decided at the last annual meeting, the Association will apply to the legislature at its approaching session for amendments to its charter, and especially to article 13. We hope success will crown these efforts, which have for their object the promotion of the interests of architecture.

AN IMPORTANT LEGAL DECISION.

A case of considerable interest to architects, builders and owners of real estate, has just been argued and decided in the courts of Montreal. Action was recently brought by the city building inspector against Mr. Eusebe Paquette, a local contractor, for violation of the city building by-law, by having used porous terra cotta blocks instead of ordinary bricks, in the construction of the interior partition walls of a building. Several of the leading architects of the city were called to give evidence regarding the strength of the material of which complaint was made. The defence also submitted results of the material made at McGill University as follows:

FACULTY OF APPLIED SCIENCES, }
McGill University.

TESTING LABORATORIES.

Results of crushing test of two specimens of terra cotta lumber:

Specimen 1, tested on flat—

Dimensions.....	equal to: 12 x 8 in.
Sectional area of hollows.....	" 3 3/8 sq. in.
Total crushing strength.....	" 46,000 lbs.
Crushing strength per sq. in. of bearing surface.....	" 479 lbs.

Specimen 2, tested on flat—

Dimensions.....	equal to: 12 x 8 in.
Sectional area of hollows.....	" 3 3/8 sq. in.
Total crushing strength.....	" 67,000 lbs.
Crushing strength per sq. in. of bearing surface.....	" 677 lbs.

[Signed]

HENRY T. BOVEY,
Dean of Faculty of Applied Sciences,
McGill University.

September 9, 1897.

It was established that terra cotta blocks had been in use in the city for a number of years. The Recorder's decision, which was given in favor of the defendants, will be published in full in a later issue.