

stress must also be correct ; but if so, we must conclude that when cast iron is tested in this particular manner it is capable of exhibiting a tensile strength of 20 tons per square inch, which is equivalent to the tenacity of good plate-iron.

But if theory has failed to solve this particular enigma, it has taught us a lesson of great importance in another direction, for this very investigation of transverse bending has shown us the proper way to construct an iron or steel girder. In the tested beams it was found that different fibres of the beam were performing different functions, and that some were a great deal more heavily taxed than others. In such an unequal division of labor, of course it was the hardest worked members that were the most useful, while the idle ones were really valueless unless they could be transferred into some position where they would get a greater share of the work. But when the fact was recognized, it pointed the way to a reform in the constitution of the body politic. The idle portions of this co-operative community were not exactly swept away, but rather were removed to more useful positions ; and by this means the real efficiency of the structure has been enormously increased.

The first step was to remove a great mass of nearly inoperative metal at and near the middle of the depth, reducing it to a mere web between the two flanges, and thus producing a section like that of the rolled joist which is so familiar to architects. The idea was carried still further in the design of plate glass girders, like those of the Britannia bridge, which were supposed

at the time to represent the most perfect form of construction that could be devised. But the reform has not stopped at this point, for in all modern girders of very large span, the plate-web has been done away with altogether, and has been replaced by a close lattice of diagonal bars, or by an open triangulation, leaving the two flanges separated from each other by a wide space, crossed only by the diagonal braces.

In this modern development of the old beam perhaps the most noteworthy feature is the well-defined subdivision of labor that has been organized. In the solid beam the functions of the different portions were a good deal mixed ; and when the thing broke down it was because some of the most useful of its members had been too severely strained. But in the modern structure every member has a definite duty assigned to it, and in each member the strength is made exactly proportionate to the burden ; so that in this reformed constitution of the fabric there is no ambiguity as to the function of each member or

the stress that it will be called upon to endure. The complex stresses of the old beam have been reduced to the elementary ones of direct tension and compression, and every member acts either as a tie or as a strut.

Prices of Building Materials.

Table listing prices for LUMBER (CAR ON CARGO LOTS) including items like 1 1/2 inch and thicker clear picks, 1 inch siding, and various types of shingles.

Table for Metallic Roofing Co. of Canada listing prices for Heavy Eastlake galvanized steel shingles and Light Eastlake galvanized steel shingles.

Mrs. Marie Barre Street Montreal, October 14, 1890. B.H. Mortimer Esq. Fellow Canadian Architect & Builder and Contract Record.

Dear Sir. I have to inform you that the following resolution was unanimously adopted at the First Annual Meeting of the Province of Quebec Association of Architects held in Montreal on 10th & 11th inst. We the Architects of the Province of Quebec now assembled in convention being satisfied that the Canadian Contract Record affords us a direct communication with the contractors. Resolved that we pledge our support to it by using its columns when calling for tenders. Yours truly C. Clift Secretary.

Table listing prices for various types of steel shingles and siding, including Heavy Eastlake painted steel shingles, Light Eastlake Painted steel shingles, and Tower of Mansard galvanized steel shingles.

Table for Hayes Patent Metallic Lathing listing prices for Broad Rib Roofing, galvanized, painted, per sq. and Northwestern Steel Siding, painted, per sq.

Table for Canada Galvanizing & Steel Roofing Co. listing prices for Corrugated Iron, galvanized, 26 W.G., painted, per sq., and Broad Rib Roofing, galvanized, per sq.

Table for YARD QUOTATIONS listing prices for Mill cull boards and scantling, Shipping cull boards, promiscuous widths, and various types of cantling and joist.

Table listing prices for B. M. flooring, dressed, F. M., and various types of shingles and boards.

Table for BRICK listing prices for Common Walling, Good Facing, and Sewer.

Table for Pressed Bricks listing prices for Plain brick, f. o. b. at Milton, and various types of Hard Building, Moulded and Ornamental, Roof Tiles, and Diamond locking tile.

Table for Stone listing prices for Common Rubble, Large flat, and Foundation Blocks, and Slate for Roofing.

Table for Sand listing price for Per Load of 1 1/2 Cubic Yards.

Table for PAINTS listing prices for White lead, zinc, red lead, venetian, vermilion, Indian, yellow ochre, yellow chrome, green, chrome, Paris, black, lamp, blue, ultramarine, oil, linseed, raw, boiled, refined, putty, whitening, Paris white, Litharge, Sienna, burnt, and Umber.

Table for CEMENT, LIME, etc. listing prices for Lime, Per Barrel of 2 bushels, Grey, White, Plaster, Calcined, Hair, Plasterers, Cement, Portland, and various types of Portland cement.

Table for HARDWARE listing prices for Cut Nails, American Pattern, Canadian Pattern, Steel nails, Finishing nails, and various types of nails.