

STRENGTH OF METAL IN CONCRETE CONSTRUCTION.

Summing up the results of a recent series of tests carried out by the Ministère des Travaux Publics of France, to exactly determine the part played by the metal in ferro-concrete constructions, M. Considère states in a report to the French Academy of Science, that concrete-steel submitted to tension acts precisely as ordinary concrete, so long as the tensile stress does not exceed the usual breaking stress of ordinary concrete. Under higher stresses it will support without breaking extensions which, in the case of specimens hardened under water, have been as great as 1/500th the total length; and, in the case of air-hardened concrete, have ranged between 1/2000th and 1/850th of the total length. When the concrete-steel is stretched beyond the usual elastic range of ordinary concrete, the tensile stress on the concrete remains constant up to the ultimate breaking-point, the whole of the additional load being taken up by the metal. When subjected to repeated tensile stresses, however, the fraction of the load carried by the metal tends to augment, and that of the concrete to fall, until ultimately the working stress on the concrete is only 70 per cent. of its original value. If finally, after a series of loadings and unloadings, the maximum load is raised 30 per cent., the concrete again exerts a tensile resistance equal to its primitive value.

EVOLUTION IN DESIGN.

In an article in the Magazine of Art for September on modern decorative art as shown at the Turin Exhibition, Mr. Walter Crane says: "There appears to be a law of evolution working in the arts of design quite as inevitably as in the natural world. Certain germinal motives, derived from forms in nature or art, are combined by the fancy of the designer. A conflict for pre-eminence, a struggle for existence, takes place in the mind of the artist, as his hand records the stages of the evolution of his design, either on paper or in some plastic material. In view of his ultimate purpose—the use and destiny of the design—certain lines, certain forms, prevail over others as the most fitting; the design sheds inessentials and takes final shape. It may closely follow the principle of its inception, or it may, passing through a multitude of complex stages, finally be evolved in some very different shape; but in either case its development proceeds much as the development of a plant from its seed germ to its full completion and flower, always strictly adapted to its environments. I would not say that forms of design, say surface design, are always so strictly adapted, and one must always, of course, allow room for individual caprice and wilful extravagance and the desire for originality. The limits, however, of even these apparently spontaneous impulses are more restricted than might be supposed. Efforts to be new and original sometimes lead to results curiously similar in form to work of former epochs, where the constructive principle in design has been obscured. For instance, I noted in more than one new art restaurant building in the Parc Valentino (near the exhibition buildings) that which, in its general masses and distribution of ornament, in its absence of rectangles or verticals, or constructive feeling, curiously recalled buildings of the late eighteenth century, or what would be called in Hungary 'Maria Therese' type. Extremes meet, and our twentieth

century new art touches, in its least consciously artistic form, the rococo decorative confectionery of the palaces of the eighteenth century.

A FIRE TEST FOR ROOFS.

Tests were recently conducted by the British Fire Prevention Committee of a slated roof and ceiling and a flat roof covered with vulcanite roofing and ceiling. The test lasted one hour, the temperature reaching 1,700 degs. Fahr., followed by the application of water for three minutes. Each floor was 100 feet super., and four weeks were allowed for construction and drying. The slates were "American green," measuring 20 in. by 10 in. by 3-16 in. thick, with a 2½ in. lap, and the ridge covered with blue Staffordshire ridging. The laths were of sawn spruce 1¼ in. by ¼ in. Gutters lined with No. 14 gauge (Vielle Montagne) zinc. The Vulcanite roofing was covered with 2½ in. of gravel and sand. The following is a summary of the effect of the fire:—In fifteen minutes the plaster to the ceiling of the slated roof began to fall; in twenty minutes the inside of this roof was well alight; in forty minutes the plastering of the Vulcanite roof began to fall; in forty-one minutes the slates on the other roof began to fall; and in forty-seven minutes the whole of the slate roof collapsed; while in fifty-four minutes the underside of the Vulcanite flat was a sheet of flame, but after sixty minutes the fire had not passed through it, and it was sound enough to walk upon.

NOTES.

The new King Edward Hotel, Toronto, which is rapidly nearing completion, is being elaborately decorated. It is understood that for the figure work in the dining room living models were employed. The furnishings, many of which are being purchased abroad, are also of an artistic and expensive character.

Work is to be begun at once on the rebuilding of the fallen Campanile, at Venice. Expert examination has proven that the foundations are intact and sound and can be utilized with perfect safety. Three hundred thousand dollars have already been subscribed, one-half of the estimated cost of rebuilding.

The authorities of Paris have recently established a scale of architects' fees for municipal work, as follows:—for buildings costing more than \$160,000 4 per cent. on the cost; for buildings costing \$120,000 to \$160,000, 4½ per cent.; for buildings costing from \$80,000 to \$120,000, 5 per cent.; from \$40,000 to \$80,000, 5½ per cent.; under \$40,000, 6 per cent. The right is reserved to increase or diminish the fee as the character of the work may justify.

"I am old-fashioned enough," says Mr. John Slater, Vice-President R.I.B.A., "to think that an architect ought to try to make his building beautiful, and that a protest should be made against what appears to me to be the cult of ugliness which has been growing of late years. There is too great a tendency nowadays to mere eccentricity and originality among the younger men. There have been several buildings erected lately the cleverness—I had almost said the infernal cleverness—of which cannot be denied for one moment; but are they beautiful?"

The restoration of the Madeleine at Paris, which was decided upon about seven years ago, is only now about to be commenced. It is presumed that the recent fall of the Campanile has created alarm for the safety of the structure. It is believed that sufficient data have not been obtained from which to compute an exact estimate of the cost. It has therefore been decided to expend about 40,000 frs. on the erection of a scaffold, which will enable every part of the building to be examined. The structure will be movable, in order that along the four sides of the building the slightest defect in any of the details can be observed. The design for the present building was the work of Vignon, and was adopted because it pleased Napoleon beyond any of its rivals. But a few years before the revolutions two sets of designs for a church on the site were prepared, one by Constant d'Ivry and the second by Couture. The work which is about to be restored was completed sixty years ago.