

to be able to make all the calculations himself, and those that he gets from the contractor should serve only to verify his own, or to rectify points of detail on which practical experience gives better knowledge, or to be able to reject, with good reason, definite plans that had been submitted to him.

Admitting that the causes of the collapse of the buildings at Nice and Nancy are those that we suspect, that is, the use of materials of inferior quality in the course of the work, or possibly the premature removal of the supports from the arches, the architect ought to know the constructive value of the materials that will be used, he ought to be posted on the different qualities of cement, he ought to be able to analyze those that the contractor uses, and to know definitely the exact time necessary for the cement to set; he ought to know the distinguishing qualities of a good cement or a good sand; he ought to be able to specify exact proportions, in accordance with the nature of the work to be done. We may be told that the actual execution of a plan is the duty of a contractor in whom the architect has placed entire confidence and who could oversee the work in a dual capacity that would tend to increase the cost of the work.

This is a serious error. We must not forget that the architect is master of the work; that, being such, not only is his responsibility at stake, but his reputation is compromised if he fails to inspire the most complete confidence in his skill, and we do not believe that a contractor will ever refuse to place himself under the orders of the architect, when he feels that he has real ability before him—a man truly capable of leading and directing the work.

As a general rule, what annoys the contractor is that, in the great majority of cases, he finds himself confronted by gross ignorance, especially when it is a matter of utilizing new materials or of following new methods.

The architect is not alone responsible for this state of affairs. He can, in reality, know only what he has been taught, and it must be borne in mind that the curricula are not sufficiently modified, and do not keep pace with the constant transformations of science and industry. They still teach architecture and construction much as they did in 1691, at the foundation of the school. New science and modern materials are not mentioned except on the curricula, and it is in a very superficial manner that the professors speak of reinforced concrete of central heating, of "agglomerations" and of so many other recent products of human intelligence.

The accidents at Nice and Nancy are proofs positive of the deficiency of the architect's professional training, the legal responsibility of which is involved to an almost unknown extent, since, not being sufficiently conversant with the work that he undertakes, he finds himself at the mercy of the bad faith of certain contractors, of the carelessness of others, of the oversight of still others.

If, however, the truth of what precedes, and the sad results of the recent disasters could open the eyes of those who preside over the destinies of our schools of architecture, at the same time preserving

a striking recollection of those who have sacrificed their lives to it, we could say that these disasters have at least had a practical result and an undeniable value—that of forcing the professors to extend the scope of their instruction, and that of inducing the young students to follow with greater care the practical courses of construction. But, alas *Aures habent et non audient*.



THE CHURCH

OF ST. MARY

THE VIRGIN

Problem of church design worked out in new edifice to be erected for Toronto congregation.

IT WAS NECESSARY to plan this church with nave and aisles, because the available ground is nearly square—100 feet by about 80—and it must all be built on, in order to give the required accommodation. The resulting form, as wide as it is long for the body of the church, could not be covered in any other way which would combine economy with beauty.

Considerations of economy cast the design in the style of the Renaissance. The beauty of Gothic architecture is in workmanship, and cut stone is its proper constructive material. The beauty of the Renaissance is in form, which is independent of material and can do with little workmanship. Moreover, in a double-aisled church, there is a great saving in material if the division of nave and aisles is made by posts and beams instead of by an arcade. The flat ceiling which results, in the aisles, is so hostile to pointed windows as to commit the question of style beyond doubt. The plaster ceiling of the nave—one of the baits of the style—is an imitation of Wren's ceiling over the nave of Christ Church, Newgate street, London. Wren used there an elliptical barrel vault, instead of the more usual circular form; and the effect is more graceful than that of any of his ceilings. The delicate elliptical curve, which is usually unpleasing in an arch that has work to do, exactly suits the lightness that one seeks for in a ceiling line. The desired lightness is further attained by a penetration over every bay, to the full height of the ceiling vault, to admit the light from a clerestory window. The window, still following Wren in form, follows the line of the penetration in its head, and in height fills the space between the crown of the vault and the top of the aisle roof outside.

So far it is easy to keep close to the model, but that must now be abandoned. The springing of Wren's ceiling, at a height 30 feet above the floor, is very noble; but even if we were prepared to invest twenty courses of bricks to attain the same nobility inside, it would go hard with the outside, which is already high enough, because of the 12-foot basement that is necessary for the secondary functions of the church. Wren's stone Corinthian columns are also inadmissible, as outside the line of strict economy. They are the less regrettable as there is a taint of