best guarantee that the building is safe, substantial and in a sanitary condition." The contention here made is not capable of proof, and is advanced in the hope that it may serve to obscure the real object in view. While it is doubtless true that a majority of the most skilled workmen may be found in the union ranks, it is by no means the fact that none but good workmen are admitted. There are thousands of incompetent workmen belonging to the unions, and conversely there are many first-class mechanics who are non-unionists. Hence it follows that the employment of only union labor is not in itself a guarantee of good workmanship. One of the most serious and well-founded complaints preferred against unionism is that it has done nothing to raise the standard of workmanship, but on the contrary seeks to place all mechanics on one level, disregarding the widely differing abilities with which the Creator has endowed them.

Uniform Cement Specifications.

Official or quasi-official specifications governing the character of cement for construction work have been adopted in Germany, France, Sweden, Switzerland and Russia. An attempt to standardize specifications is now being made in England, where, at present, as in Canada, specifications vary widely even where the nature of the work and the conditions are identical. According to a recent writer on this subject some English cement specifications call for 300 lbs. per square inch on the neat briquette after 28 days; others demand 550 lbs. after 7 days. Not only are different specifications inconsistent with one another (assuming that the architects and engineers who drew them were anxious to obtain good cement) but they often themselves contain paragraphs mutually inconsistent. Such for instance, as finely ground cement with an extreme weight per bushel. Some time ago, says the writer, an engineer drew up an elaborate document giving, amongst other things, the size of the sieve wires. Upon investigation it was found that had the sizes he specified been adopted the cement would have had to find its way through a solid brass plate. As we have previously pointed out the extensive use which is already being made of cement in construction and the certainty of its employment on a still more extended scale in the future demands not only properly drawn specifications, but also a system of testing all cement, in order that the safety and durability of structures built largely or entirely of this material may be assured.

Only the Best is Wanted

Manufacturing methods have greatly improved in recent years. The production by enterprising firms of goods possessing not only high quality but artistic design and pleasing appearance, has created a demand on the part of purchasers which cannot be met by the manufacturer who seeks to stand by old methods and styles. The manufacturer who is not prepared to bring his goods up to the highest standard in every particular had better retire from the field, and not wait to be forced out by his more enterprising competitors. Some manufacturers enter upon the manufacture of a certain line of goods as a side line to what they regard as their principal business. This side line fails to receive the careful attention and push that is given to the other departments of the business and in consequence drags along in a lifeless sort of way, the goods produced being regarded with disfavor, and failing to hold their own in the market. In perhaps no other direction has there been greater progress than in the production of materials adapted for use in the construction and furnishing of modern buildings. A remarkable improvement is manifest in our modern Canadian architecture, more particularly our houses. The new requirements make constant calls upon the manufacturer for new and improved materials. Whether his business be to make bricks, radiators, plumbing goods, or the thousand and one other materials used in modern buildings, he can only hope to succeed by keeping his goods in point of quality and appearance thoroughly abreast of modern requirements.

The Relation of Science to Architecture.

In a recent paper before the architectural Association of London, Mr. A. E. Munby urges the necessity of giving the study of science a larger place in the education of architectural students. He reminds us that the modern building and its equipment involves many scientific features and problems with which architects in the past had not deal but with which the modern architect must be familiar. There are also constantly being brought forward scientific inventions for use in buildings upon the merits of which the architect should be competent to decide. Mr. Munby points out that if the architect has not the scientific knowledge to enable him to do this, or having the knowledge, shows indifference to such attempts in the direction of progress, it ought not to cause wonder or complaint that the tide, stemmed by his apathy, finds new outlets, and that the public place in other hands matters which should pass through his hands alone. The author quotes the saying of Ruskin that "Every work of art either states a true thing or adorns a serviceable one," as proof that there is no conflict between art and science. After showing some of the most important applications to architecture, he concludes by suggesting that a passage through the following courses should form part of the requirements of an architectural student at the outset of his career: (1) A general experimental course on physics, including laboratory work and dealing with the dynamics of solids and fluids, with heat, magnetism and electricity, and very briefly with acoustics and optics; (2) A similar course dealing with the elements of inorganic chemistry, touching upon principles, but chiefly of a descriptive character. Mere analysis to be subordinated to simple quantitative work and the preparation of important compounds. The illustrations of chemical laws being based, as far as possible, upon those substances which would afterwards figure in a course of applied chemistry; (3) A short course outlining the principles of geology, and dealing with the stratigraphical arrangement of rocks and with petrology rather than with palaontology, and aided by the examination of museum specimens, and by occasional visits to quarries. The paper contains a table showing the hours per week devoted to science in the Architectural Courses in a number of Universities in Europe and America. At the head of the list stands McGill University of Montreal, with a total average of 79 or 30½ per cent. of the student's acadamic career devoted to science and its applications.