

## TESTING OF CEMENT.

THE Master Builders' Exchange of Philadelphia having reported on standard specifications for cement, basing its clauses largely on those of the American Society of Civil Engineers, Mr. Cecil Smith, of McGill College, Montreal, criticises them in the Brickmaker in the following terms:

1. SPECIFIC GRAVITY.—During the last three years I have tested very carefully about forty brands of Danish, German, Belgian, English and Canadian Portland cements and not one of them has gone as low as 3.00 in specific gravity; therefore, I consider a clause demanding a value of 3.00 for specific gravity is of no value whatever to prevent under-burnt products. Natural cements, also, usually range from 2.90 to 3.05; therefore, there is little use in specifying a minimum of 2.50 for natural cements. A specific gravity of about 3.09 for Portlands and 2.90 for naturals would really obtain what was intended,—nameiy, well-burnt products.

2. FINENESS.—Why should there be two classes of tests? Surely any two persons can sift cement the same, whether in a laboratory or in a contractor's shanty. What should be specified is that a certain amount of cement should be used in sifting, and that the sifting should be continuous such a number of minutes; then uniformity will be obtained. For myself, if I use 10 ozs. of cement, and sift two and one half minutes on a No. 120 sieve, then sift the residue one minute on a No. 100 sieve, then the residue three fourths of a minute on a No. 80 sieve, then the residue one half minute on a No. 50 sieve, I find the residues are about uniform in size and color. I obtain close uniformity. If only a No. 100 and No. 50 sieve are used, the same method could be employed.

Regarding the actual amount of residue demanded, that is entirely a matter of dollars. Fine grinding must be paid for, but the clause, as set forth in the specifications being dealt with, is so lax as to call forth a protest.

Any natural cement having more than 15 per cent. residue on a No. 100 sieve should be certainly rejected, because they are so lightly burnt as to make it very easy to grind them finely. It is quite easy to obtain Portlands and naturals with only 10 per cent. residue on a No. 100 sieve, and this is the requirement of the standards of Canadian Society of Civil Engineers, formulated in 1894.

3. CHECKING OR CRACKING.—No checking when exposed in air or water! How long are we supposed to wait? The report does not say, but from a great number of experiments I have made I would say that cements with a slight amount of free lime in them will stay solid in cold water for several months, but finally crack. The only way to develop "blowing" in a short time is to subject the cement pats to hot air or hot water.

4. STRENGTH.—With ordinary care, neat cement briquettes made in the ordinary way, by using sufficient water to make a plastic mortar, then putting the mortar into the molds with a trowel, and shaking the molds well to drive out air bubbles, will give fairly uniform results; but in making sand tests the method of putting the mortar into the molds is the whole matter; a one week test, three to one, can be made to vary all the way from 25 to 150 or even 225 lbs., depending entirely on the manner of placing the mortar in the molds. Therefore, a clause not stating how this is done is of no value whatever, even if the clause stated that the mortar should be rammed into the molds. There are as many ways of ramming as there are operators, and the result might vary by at least 100 per cent.

Personally, I consider sand tests are of little value, because if the clauses of specific gravity, fineness, blowing (or checking), and neat tensile strength have been sacrificed, then one can predict the comparative sand test value; but if sand tests are wanted, then I believe firmly that there is only one way to make them strictly comparable, and that is to put the mortar into the molds in a soft, plastic, condition, such as is used by masons, and let it be forced into the mold under a uniform dead pressure. This method I have used for over a year, and I feel I can determine accurately the desired knowledge of the actual cementing strength of sand mixtures as used in practice.

The city hall at Chicago threatens to collapse. An official inspection shows that the two ends are settling, and pulling the building apart, which is shown by large cracks through the centre. Immediate repairs are necessary.

## GOOD ADVERTISING METHODS.

MR. Chas. Austin Bates, in his department of criticism of advertising methods in *Printers' Ink*, says:—

Gara, McGinley & Co., of Philadelphia, have been successful advertisers in a line little advertised. They are roofers and makers of architectural decorations in metal. They make metal ceilings, skylights and store fronts. The inexperienced or unposted observer would say, from looking at the mass of advertising matter that they send out, that they were spending more money than the business would justify. That this is not true is proven by the fact that the business becomes bigger and more profitable every year. And apparently the more money the firm spends in advertising, the more money they have to spend. They have made quite a feature of advertising what I believe to be a very insignificant part of their business. That is the repairing of roofs.

One of the best phrases I ever saw in an advertisement is one of theirs, which says: "We do one thing well. We mend roofs." Another phrase is: "We are leak finders." One ad that they have used has stuck to me, and amuses me every time I think of it. It is a funny ad, and is the exceptional funny ad that proves the rule that all funny ads are bad. It is: "How much better it is to sit by a cosy fireside, and think how much better it is to sit by a cosy fireside than to be on the roof cleaning the snow off, thinking how much better it is to be sitting by a cosy fireside than cleaning the snow off the roof. We are snow removers and leak finders. Gara, McGinley & Co."

The last smart thing the firm has done was to get out a handsome little booklet entitled, "Pointed Suggestions." I think it would have been better to call the booklet "Pointed Suggestions to House Owners," or "Points on Roofs," or something of that sort, letting a man see immediately what the book was about.

It is liberally and suitably illustrated with half-tones of wash drawings. From a mechanical standpoint, there are only a few criticisms to be made. One is that on some pages the matter is arranged in a spotty sort of way. It is broken up too much and isn't sufficiently cohesive. The best thing in the whole book is a thing that certainly deserves praise as a plain and convincing piece of advertising. It is a series of half-tone pictures of Gara, McGinley & Co.'s office as it was and as it is. First there is a picture of an old-fashioned, three-storey brick house, in the architectural style of sixty or seventy-five years ago. The next picture shows this house in process of demolition. The third picture shows the addition of another storey. The fourth picture shows a part of the building covered with rock-faced metal plates. The other part is uncovered, giving the idea of the method of applying the plates. The fifth picture is the finished building, a stately, dignified, artistic piece of architecture, which no one who is not admitted to the secret would ever suppose to be the same house as was portrayed in the first picture. This is a practical illustration of what Gara, McGinley & Co. are prepared to do with other old houses.

Mr. Joseph Bourque, of Hull, Que., is taking action to compel settlement of balance of account of the court house and jail contract, which has been standing for two years.

As a result of a recent accident in Ottawa, a scaffold inspector for that city will probably be appointed. It is proposed to have all contractor's plant inspected and branded, and to insist on its being placed under cover during the winter.