Mr. Smith (resuming) said there ought to be some standard for all to accept in the matter of cements. However, each kind of cement needed a different amount of water, and it was difficult to decide how much. Regarding the rate of speed, also, it was difficult to know what rate to use. Although a great deal was her about the tensile strength of cements, yet there could be no doubt that on the whole the adhesive strength was the more important.

The secretary then read some communications from absent members, the first being Mr. M. J. Butler, who said that cement should be ground fine enough to leave not more than ten per cent. residue on the 10,000 on the mesh sieve (100x100 to the square inch). Any residue rejected by the sieve possessed no cementing properties, being merely the equivalent of so much sand. The specific gravity test should always be taken in preference to any weight per bushel test, the heavy weight per bushel hitherto demanded having been a direct encouragement to coarse grinding. Comparative neat cement tests would always show in favor of coarse grinding, hence the necessity for standard sand tests. The finest ground cement would, with the same proportion of sand, give the highest result. In other words, by using fine ground cement more sand might be used, and yet an equally strong mortar would be produced. The writer of the paper seemed to have overlooked the only reliable test yet known for free lime, viz, the hot water test. Twenty-four hours after immersion in hot water, it would be known whether the cement was safe, otherwise, in cold water, it might take three or four months before the effects of excess of free lime became apparent.

Prof Nicholson read some extracts from the report of a German committee on the testing of cements, especially bearing on the question of setting and consistency. The "consistency" was tested for by what is called a "normal needle," the needle sinking to a certain distance from the bottom of the vessel Another test was for the constancy of volume as time goes on. A cake of cement was placed on a glass plate and put to a temperature of 110° or 120° F.; its constancy was judged of by noticing the number of crevices produced. Only those tests should be used which relate to the purpose of the cement. Cement gave way sometimes by sheering. Therefore the compressing test was the natural one to be used for such cases as sheering was likely to occur in; and here the "personal equation" came in as a considerable factor.

Mr. Carry said that the standard tests gave no information as to the real value of a cement, they seemed to be given from the physicist's point of view, not from the practical engineer's They did not enter into the subject of how the cement was to employed. In the case of mortar for masonry, the mortar had to convey pressure over bends, to convey the stress from the upper to the lower. Strength in the cement was not particularly called for; he knew of no case of a building failing owing to the cement crushing out from the joints. Another object to be aimed at was to protect the joints from frost and atmospheric influences. The standard tests did not give information on this point. In the case of mortar for walls, why neglect the greater and attend to the less (for the strength of the cement is often more than that of the building material) If adhesive strength was what was required, he did not see why the test should not be for that, it was just as easy as to test for the tensile strength. He thought in tenders for cement the point specified should be for strength, not for fineness merely

Mr. Smith spoke of the test for blowing, and said that Yale had adopted what might be called a boiling test, to see whether the concrete would disintegrate. He also noticed that the number of meshes per inch was different in the tests of each country.

Mr. E. F. Ball communicated that fully 19-20ths of the Portland cement used in the United States was artificial; but in some localities deposits of rock occurred which contained lime, clay, etc., in proper proportions, and from which *natural* cement might be made Such a cement was manufactured in Egypt, Pa., from a dark-colored rock resembling hard slate, which was quarried, broken up, burned at a moderate temperature, made into bricks and burned a second time—the last burning being at a high temperature and continuing for some time, after which the resulting clinker was hnely ground into cement He would add fine grinding of the material before calcination to the requisites which Mr Perley had mentioned for a good Portland.

The secretary then read a few remarks in continuation of the discussion upon Alan Macdougall's paper on "Domestic Sanitation."

Dr Griffin, Medical Health Officer, of Brantford, Ont., drew attention to the plumbing by-law of Brantford No premises could be connected with the public sewers, unless plans of the plumbing and drainage had been made in duplicate, examined, approved and endorsed by the City Engineer and Medical Health Officer. Dr. Bryce, Secretary to the Provincial Board of Health, Ontario, thought that the house connections with sewers would come in time.

Dr Bethune, Medical Health Officer, Seaforth, Ont, spoke highly of the usefulness of Mr. Macdougall's paper.

Dr. ]. Ryall, Health Officer, of Hamilton, Ont, considered that all sanitary work regarding building, testing sewers, etc., should be under the inspection of a sanitary engineer, having full control over plumbers. He certainly approved of a Sanitary Association that could be worked in harmony with our health departments.

The Montreal stationary engineers have had another interesting addition to the nucleus of their museum, Peter II Cowper, mechanical superintendent of the Canadian Rubber Company, having presented this association with a model of a steam pumping engine, made by himself The model is a remarkably near piece of workmanship, and its value as a means of instruction is greatly enhanced by the fact that the cylinder has a tiny glass window for the purpose of showing the action of the water I he presentation was made the occasion of an interesting meeting of the association in their hall on Craig street a few evenings ago, when the generosity and mechanical skill of Mr. Cowper came in for an equal tribute of admiration from members. Bros. Hunt, Nuttall, Ryan, York, and others made interesting speeches on the occasion, when the hope was expressed that that would not be the last gift of a similar kind from those who had the intellectual progress of the stationary engineers at heart It is worth while in this connection to recall the fact that Mr. Cowper presented the first model-that of a glide valve engine-ever given to the association At the same meeting Hugh Vallance, of Montreal, presented the association with a portfolio of views of the machinery of the steamer "Lucania"

William Meaden, of 533 Richmond street, London, Ont., has been chosen secretary of the London brauch of the C A S. E, in succession to Geo Taylor, of the *Free Press* The meetings are in future to be held on the first Thursday and last Friday of each month.

A meeting of the board of the Ontario Association of Stationary Engineers took place a short time ago, and it was decided to petition the Ontario Government for a much stronger license law than that at present existing.

INPROVED GRINDSTONE TROUGH AND TRUING MACHINE.



One of the most disagreeable things to be done in a workshop is the Truing of Grindstones. It is, therefore, often the case that they are allowed to become quite out of shape and untrue, very much to the annoyance of the workman. The accompanying cut illustrates a device which is well adapted

for truing and keeping the face of grindstones constantly in good shape. This can be instantly applied to the face of the stone, working automatically, without interfering with the constant use of the stone, and does the truing without raising any dust.

The main stand or bottom piece is securely clamped upon the trough close to the face of the stone, then, by turning the hand wheel, the threaded roll is brought into contact with the face of the stone, and is allowed to remain so long as is requisite to produce the desired result. The water is to be left as usual in the trough When by long use the thread on the hardened roll becomes worn it can be re-cut. The stone should revolve so as to have the device upon the face which moves upwards, and the device should be well oiled before it is used.

The second cut represents a Grindstone Trough combining a number of very desiral-le qualities In addition to the ordinary arrangement of trough, spindle and pulley, which is 20° diam. and 4½" face, it is provided with selfoiling boxes, and the adjustable truing device referred to. Further infor-



mation may be had of Robt. Gardner & Son., makers of fine machine tools, Montreal, who represent the patentees in Canada.