work, the water test, which is the best test, cannot, for obvious reasons, be applied, and here the smoke test, or the test with oil of peppermint, intelligently applied, give indications as to the condition of the work.

A great step forward would be made and plumbing work vastly simplified, by abolishing, or at least modifying the trap vent system.

There are at present two quite different methods of arranging the system of trapping the fixtures in a building. In the one system, which is in accordance with the majority of plumbing regulations, and is the one at present enforced in New York City, all traps must be back aired or vented. We thus obtain a duplicate system of pipe lines, the work is complicated, more expensive and may become more unsafe, on account of the greater number of pipe joints and the possibility of "by passes." The other system—the one pipe system, as we may call it—is distinguished by its greater simplicity, economy and, as I maintain, by its greater safety. This method substitutes non-siphoning traps or anti-siphon trap attachments for the cumbersome method of back airing. In this system, all main soil and waste lines must be quite as fully ventilated by extending them the full size up to the roof as in the usual method. All fixtures are located directly at the lines carried up to the roof, or within a very few feet of the same. Siphonage of the traps is impossible under the ordinary conditions, quite as much so as in the back airing system. You will find the majority of plumbers opposed to the new system: for while it simplifies the work, it reduces the amount of piping used and thereby the cost of the work. There is also much prejudice against the proposition, many plumbers seeming to fear that by putting themselves openly on record as in favor of it, they would by others be considered as not quite up to date in plumbing matters. The fact remains undisputed—and I have demonstrated it in many cases in my practice—that the new method is, at least, quite as safe as the old one. I venture to predict that in a very few years plumbing laws will be so modified as to leave it optional with the owner or architect of a building which method he will adopt.

This leads me to say a few words in regard to plumbing rules and regulations, in particular of those in force in New York City. Further advancement in plumbing requires the revision and improvement of the plumbing by-laws of the building department. Far be it from me to underrate the good which the present rules have accomplished in the past. Ours is not, however, an age in which we can at any time afford to stand still. Constant progress is made in every department of construction and the researches of the practical sciences are everywhere utilized and embodied in actual practice. Let us hope to see soon a revision of our plumbing laws. Be it largely copied by other cities. We cannot afford to fall behind in this matter. Our present rules are too indefinite in many details; they are much too arbitrary in others. Take, for instance, the question of sizes of drain pipes, of soil pipes, of vent pipes, the diameter of traps, etc. There is certainly now sufficient practical experience available to lay down more definite rules as to sizes. The rules should also in the future prohibit fixtures which sanitary science has long ago recognized as being absolutely bad. Pan closets, wooden sinks and wooden wash tubs should be discarded, and privy sinks should no longer be tolerated.

MANUFACTURES AND MATERIALS

BRICKS FOR WELL LININGS.

Of patent bricks there are no end, but we know of none that fully satisfy all the requirements of the well-sinker, says the British Clay Worker. Our readers will probably say that our view, in that case, must be very limited—they could tell us of plenty of bricks that answer the purpose very well indeed. But we shall convince them to the contrary, and we throw out this suggestion with every confidence. Patent cement blocks have been much employed in recent years for well lining; they are made on the interlocking system. But whether it be cement blocks or bricks, the effective locking too often takes place horizontally only. It seems to be forgotten that there is considerable pressure from behind, and bulging inwards too often results. That is a fault, however, that can easily be remedied, and we are not so much concerned with that at the moment as with the manufacture of a type of brick that will permit the well sinker to gradually decrease the diameter of the well with the usual ledges and steps. With a deep well it is customary to sink to a considerable depth of a certain diameter, say 6 feet to commence with; then the diameter is decreased to say 4 feet 6 inches. It is at the point of alteration of the diameter (which alteration may be allowed three or four times in a very deep well) that the weakness results, and it is there that we would advise the use of a different type of brick to any at present employed, to our knowledge. The change from 6 feet to 4 feet 6 inches ought not to be sudden, but gradual; interlocking bricks should always be used except where the strata bored into are of a very dry character, and no difficulties result from pressure of superincumbent weights. And these bricks should be made by proportionately decreasing from the one diameter to the other. The bevelling off at present creates a spot for the lodgement of any sediment, any weeping and leakage too frequently takes place at such points. This would no longer be the case were suitable non-porous bricks of an interlocking decreasing diameter type employed at such junctures.

Some beautiful specimens of stone have recently been taken out from the vicinity of Lake Manitoba.

Mr. G. C. Morrison, of Hamilton, has invented a seamless tube hot water boiler for domestic heating purposes.

It is reported that a company has been formed in Toronto to manufacture bricks on an extensive scale at Rossland, B. C.

The Richmond Times states that the asbestos mines near Danville, Que., have been sold to a joint stock company for $2,500,000, the deal having been completed in England between Mr. Boas and an English syndicate.

Mr. C. Sontum, commercial agent for Canada at Christiania, Norway, has just sent to the Department of Trade and Commerce a letter in which he speaks of a successful shipment of steam radiators from Toronto. He emphasizes the importance of manufacturers branding their goods with the name "Canadian," or "Manufactured in Canada."

The slate industry of New Rockland, Que., is being pushed with the usual vigor, a valuable new bench of slates being reported from the eastern side of the quarry, so that the work will be extended at the surface instead of sinking to a greater depth. The slate quarry and works at Danville, Que., are at present closed pending the disposal of a large quantity of merchantable material on hand.

A new material has been discovered for insulating pipes, which is made of silex, which, when ground into fine particles, is to be used to surround the conductor wire with, inside an iron pipe, which should be packed down. It is claimed that the silex will not burn, or melt, or rot, or leak; it is said to absolutely prevent electricity coming into contact with any other substance inside a building where it is used.

According to the annual report of the Ontario Bureau of Mines, the production of Portland cement in Ontario in 1895 was 58,699 barrels, as against 30,580 barrels in 1894. The value was $114,332, as against $61,060, and the wages paid were $46,000, as against $31,858. It is noticeable, however, that this is but a small proportion of the total used, the entries of Portland cement for home consumption for the fiscal ye 394-95, exclusive of that imported for Dominion government use, being 196,281 barrels, valued at $242,813.