PUBLIC CONFIDENCE IN THE PLUMBER.

IN a paper read at the convention of the National Association of Master Plumbers held at Boston, June 27th, Mr. J. J. Wade, of Chicago, undertook to answer the question: "Does the plumber have the same confidence reposed in him as the family physician? If not, why not?" Mr. Wade's answer is in the negative, and he gives good reasons why the plumber has no right to expect the same amount of confidence to be reposed in him as in the physician. He points out that the physician is compelled to pursue a long course of study, pass many rigid examinations, and by virtue of his ability to cope with disease build up a practice. The accomplishment of all this forms a sufficient foundation upon which to rest public confidence. The case of the plumber is entirely different. "To the apprentice to the plumbing trade, unfortunately, even the rudiments of a common education are almost unknown, and he generally has no one to provide him with the necessary means to obtain this education. When scarcely able to handle the tools, he makes application to the master plumber to 'take him in' to learn the business. The master plumber, perhaps, favors his request and sends him out to assist a journeyman, and thereby acquire what knowledge he can. In some cases he may be placed with a man of intelligence, honor and integrity; but he rarely finds these qualities centered in the ordinary journeyman. Should such be the case, however, and if the boy possesses any good qualities, he will become, after spending the allotted time in probation, an efficient workman, and a good, honest character as well. But such experiences are seldom met with. We are often obliged to place our boys where they are best suited to learn the trade, which may be with a man who has no standard of morality whatever. From the force of association our apprentice imbibes the example of his indolent teacher and in all probability turns out the same reckless, indifferent mechanic who spends the precious time of his employer, not in the endeavor to attain perfection, but in watching the movement of the hour-hand in its journey around the dial. He is not obliged to pass any examination to manifest his ability, and so has to be continually under the supervision of the master or some fatal error will take place which may destroy a whole system of good plumbing."

Mr. Wade suggests the establishment of trade schools as the means to elevate the standard of plumbers and make them worthy of public confidence; also the adoption of legal means to obtain protection from incompetent workmen. In concluding his interesting paper he sums up the situation as follows:

What we want, then, are trade schools, whose pupils will inspire as much confidence, for skill and integrity in their line of business as the physician does in his.

Having considered the "plumber" at all stages, we have arrived at the conclusion that the qualifications necessary for carrying on the plumbing business are:

1. Technical education.
2. A special knowledge of the plumbing trade.
3. That the applicant at the termination of his apprenticeship must undergo an examination in all the branches relating to the trade before a board of experts, thereby proving himself capable of conducting business.
4. He must possess such qualities of character as energy, perseverence, honesty, industry and intelligence.

The electric light plant at Woodstock is under injunction, and as the contract with the gas company has expired the town is in darkness.

The following rule has been adopted by the Health Board of New York city: "The plumbing of all buildings executed under plans approved by the Board of Health after July 1, 1888, must be tested by the plumber in the presence of an Inspector of the Board, by means of the pressure test, the pressure to be applied as directed by the Inspector, and after all openings in the pipes have been securely closed by the master plumber or other person in charge of the work. None of the pipes shall be covered until after such test has been made and they have stood the test to the satisfaction of the Inspector."

EARTHENWARE DRAINS.

By Benjamin Kirk, Plumbing Inspector, Toronto.

TO the average builder this has been a matter of some considerable anxiety. The departure from the old system of "go as you please," to the present system of close inspection by city inspectors, has made the duties of the drain layer more difficult to perform inasmuch as greater skill is required to successfully execute the work in accordance with the requirements of the by-law. One of these requirements is that every drain for carrying sewage within the walls of a house or other building must stand a test (the water test is usually called for.)

Pure Portland cement properly worked into the joints with a small trowel should make sure work of the joints. If the joints were first packed with oakum, the same as for cast iron, the joints should be more uniformly filled with cement. I think that much of the difficulty in making earthenware drains water tight, is in not having sufficient cement in the bottom of the joint. Cement which has partly set should not be tempered up for use again, as it loses much of its adhesive power by the process.

The quality of the pipe is another item which contributes materially to the success or failure of the testing process. It should be well glazed, free from flaws and fire cracks, of vitrified fire clay, and the hubs large enough to receive a proper filling of cement in the joints. With fairly good cement, 24 hours ought to be sufficient to allow the cement to set hard enough to stand a fair water test. I have successfully applied it after five hours setting.

Another difficulty to be encountered is the stopping up of the drain to retain the water in the pipes long enough to test them. Various are the methods employed to this end. Some endeavor to stop up the main trap with rags, blue clay and mud, others will leave two or three lengths of pipe loose and stop up the end with cement or plaster of paris (the latter will not stand), and after the test break out the cement, replace the loose pipes and cement up the joints.

When the trap can be filled with blue clay it is the best, but the clay must be well worked and rammed into the trap, then it should be weighted down with something, or the water will raise it, and pass under it out into the sewer. An expansion plug with a rubber ring such as is used for testing soil pipes, might be so made that it could be inserted through a junction and expanded by means of a thumb-screw. This might afterwards be used for the air inlet, or it could be cemented over. It would be as well to have inserted near the front wall what is known as a "drain sentinel," which consists of a pipe having a longitudinal opening in it the full width of the pipe, with a cover secured in its place by bolts at each end. This would be convenient for cleaning or inspecting the drain at any time, and with a plug such as I have described, a test could be conveniently applied at any time. I believe that one of the manufacturers of plumbing supplies in this city is making plugs for testing soil pipes, and if he could sell them I presume that he would make testing plugs for drains also.

Great care is necessary to prevent the joints being broken while the cement is setting. The time consumed in making tests and repairing leaks is another item to be considered when estimating the cost of a drain. This is a serious item in earthenware drains, for it is difficult to find the leaks, and when found, it requires so much time to repair them owing to the setting of the cement. With cast iron pipe the leaks are easily found, and when found are easily repaired, unless the pipe itself is defective. Again, when drains are left open for four or five days while testing, as is sometimes the case, the banks become loosened and cave in, walls and piers are liable to settle. Although the first cost of earthenware pipe is much less than iron, I think that those who have undergone the experience here narrated, will agree with me that cast iron is the cheapest in the end.

Another trouble with drain laying is the difficulty of getting men who understand the work. The public is not in a position to intelligently discriminate in the selection of drain layers. This might be remedied by licensing drain layers the same as plumbers are licensed. One is just as important as the other. A defective drain is just as efficient in the diffusion of sewer gas through the house as a defective soil pipe. In nearly all cities where plumbing regulations are in vogue drain layers are licensed the same as plumbers, but we are only commencing here, and cannot expect to attain perfection at once.

The Master Plumbers, Toronto, have elected President W. J. Burroughes and Joseph Wright to act as examiners for all applicants for plumbers' licenses on behalf of the city.

The firm of Quintal & Hogue, plumbers, Montreal has been dissolved.

Port Arthur is moving in the direction of establishing a system of lighting by electricity.

The Whitby Gas and Water Company with a capital stock of $10,000 has been incorporated.

The Holly system of waterworks is being put in at Welland, Ont., at an estimated cost of $40,000.

City Engineer Bell, of St. Thomas, is looking about for a source from which the city may obtain a supply of pure water.

It is said that the natural gas well in Collingwood has a capacity of 2,000,000 feet a day, enough to supply a town of 20,000 inhabitants.

We are pleased to learn from a Brantford paper of the laudable ambition of the Local Medical Health Officer to make that the cleanest city in America.

Hamilton Local Board of Health is enquiring into the purity of the milk supplied to the residents of the city, and the medical Health officer has gone to New York to investigate the methods in operation there for testing.

The City Engineer of Toronto states that two Plumbing Inspectors are not capable of seeing that the Plumbing by-law is properly observed. There is little doubt that the statement is correct. The Council should increase the number of Inspectors, and thereby secure the proper enforcement of the law.

The Peterborough town buildings have been undergoing sanitary inspection, with the result, according to a local paper, that "the condition in which things were found one would hardly believe without seeing for themselves, and more than one councillor expressed astonishment that the officials were not attacked with typhoid fever long ago." There are many such death traps throughout the land.

Mr. E. R. Jones, superintendent of waterworks, Boston, Mass., recommends the following as a very quick and satisfactory method of thawing house-services if the pipes are straight: Cut the services inside the cellar-wall and put in a ¾-inch round-way cock; then take fifty feet of 4-16-inch block-tin pipe with a funnel attached, into which hot water is poured, while the small pipe is pushed into the service as fast as the ice is thawed.

A limit to the rapidity of filtration has been generally adopted by the London water companies; it is represented by the passage of about 540 gallons of water through each square yard of the upper surface area of the filter in twenty-four hours, or two and a half gallons through each square yard of surface per hour. Water passed through well-constructed filter-beds at a rate not exceeding this becomes under ordinary conditions bright and clear.

Donald McDonald, a Louisville architect, has patented an invention to prevent water from freezing in the pipes. A small tube is taken off from each of the service pipes just behind the faucet. The tubes are then brought together from two valves, one hot water and one cold water. The valves are connected with a glass thermometer in such a way that when the temperature reaches freezing point the water is allowed to run, and as soon as the temperature rises above freezing point the flow instantly ceases.

The process of purifying sewage by passing through it currents of electricity has been patented by William Webster in England. The effect of the current, it is said, is to cause the solid particles held in suspension in the sewage to collect at the surface of the fluid within a few minutes. It is estimated by the inventor that the cost of treating the London sewage by this plan would be about $125,000 a year. The chemical method, if adopted would involve an annual expenditure of about $150,000 the electrical plan being therefore the more economical of the two.

"Twenty years ago," says a London newspaper, "no one knew of the association between pulmonary consumption and a damp subsoil; but statistics have fully proved the connection. In fifteen English towns recorded by Mr. Simon the deaths from consumption fell immediately when the subsoil was dried by a system of drainage. In Salisbury the deaths from consumption fell 49 per cent.: in Ely, 47 per cent., and Merthyr Tydvil, which gained least, had its death-rate from consumption lowered by 11 per cent. By statistics we were pointed to the high mortality from consumption in the British army, and especially in the Guards, due to confined air—a mortality which has been so affected by better ventilation of barracks that the consumptive death-rate fell in the Guards from 125 in 10,000 in the year 1858 to 16.9 in the year 1875; that is to say, the deaths from consumption alone in the Guards in 1875 was less than a seventh of the number in 1858."