

wooden piles per lineal foot," but it is added that "one concrete pile was as effective as two or more wooden piles would have been.

Bad Scaffolding

Mr. R. J. Fleming, Commissioner of Assessment and Property in Toronto, has given his opinion

that scaffolding cannot be efficiently inspected by city officials. It would require an army of them, he says. As scaffolds are often put up only for a few hours, it would be quite possible for a scaffold to be erected, to break down, and the workmen who tried to use it to be dead, within an hour; while the department was still in ignorance of it being erected. The matter, Mr. Fleming thinks, should be dealt with by the workmen. If, he says in effect, through their organizations, they can decide how many hours they shall work, how much they shall be paid for their work in those hours and beyond them, how many hod carriers a bricklayer can keep going, how many lads ought to learn the trade—if they can do all this, surely they can decide the character of any scaffolding upon which they have to work. He might have added that, if work is to get on without continual delays, there must be some more concurrent way of assuring the safety of a scaffolding than by depending upon a visit from a City Hall official.

Clay vs. Iron Drain Pipes.

Modern building by-laws in Canadian cities require that nothing but iron pipe shall be used for

drains within the walls of buildings. Outside the walls vitrified clay may be and is frequently employed. In England, however, there appears to still exist a diversity of opinion regarding the relative merits of the two materials. Mr. Samuel Smith in a paper presented at the recent Glasgow Congress of the Sanitary Institute argued strongly in favor of the use of vitrified clay-pipe as against iron-pipe for this purpose. He advanced the opinion that clay-pipe would withstand the action of acids which would cause corrosion in iron pipes.

As a proof of the ability of clay-pipe to withstand hydraulic pressure, he pointed to tests made to determine this question, showing that a 4 inch diameter fire-clay pipe was tested up to a pressure of 45 lbs. per square inch without showing signs of porosity. Another test was made to find the exact pressure that a pipe would stand and still be air-tight. The pressure was gradually increased at intervals of ten minutes from .5 lbs. till a pressure of 3.3 lbs. was reached, and the mercury in the manometer remained steady at that pressure for twenty-four hours. From this test it was concluded that the pipe was capable of standing a pressure of 3 lbs. per square inch, or twenty times the pressure required to break a three-inch seal of a wash-down closet. Fire-clay pipes were also submitted to a hydraulic pressure of 250 lbs. per square inch without showing signs of fracture, but under this pressure there were signs of porosity in one pipe at 60 lbs. pressure and in another at 100 lbs.

Mr. Smith admits that clay pipes are liable to fracture if not carefully and evenly bedded, and also that great care is required to insure tight joints. To overcome the former difficulty he recommends the laying of a bed or layer of concrete underneath the pipes, and if the ground is very soft or unequal, the use of ferro-

concrete. For joints he recommends that nothing be used but slow setting cement thoroughly cooled and aerated and well staved into the joints so that all the air from the cement is forced out. To prevent breaking of pipes by reason of the settlement of the building, it is recommended that the openings be ample in size and linteled over with a space between the lintel and the pipe.

Mr. Smith's paper has been severely criticized by Mr. W. R. Purchase, building inspector of a Borough Council, who was formerly Superintendent of a large pottery where drain pipes were chiefly made. Mr. Purchase regards the advocacy of clay pipes as a retrograde step, and contends that porcelain iron pipes are the best material to be obtained at the present time for drains, their points of superiority being strength and capability of resisting fracture, reduction in the number of joints (6 ft. and 9 ft. lengths compared with 2 ft. and 3 ft. lengths of clay-pipe) and the greater security of the joints, which are run in molten lead. The weak points in clay pipes he declares to be porosity and weakness in the material, expansion and contraction of the cement in the joints, uneven expansion of concrete, careless filling in of trench by ramming, etc. In this writer's opinion the drain of the future will be laid in a brick or concrete culvert with stone cover and chambers for access (sufficiently large to admit a man) for the purpose of periodical inspection, the drain to be laid on blocks about 9 inches above the floor of culvert and at intervals of about 3 feet apart. These culverts might also be used for laying the water, gas and electrical mains.

Architects for City Improvements.

The address of Mr. E. Guy Dawber to the Architectural Association of London, from which

extracts are quoted in another column, treats at some length, in an address to students of architecture, upon street character as a matter for consideration by architects when building, and implies that street planning should come within the scope of their studies. Mr. Aston Webb, in commenting upon the address, goes a step further and gives it as his opinion that architects should be consulted about "the formation of new streets." As a matter of fact the rearrangement of the approach to Buckingham Palace, made in connection with Mr. Aston Webb's Memorial to Queen Victoria in front of the Palace, is so well done that, though it replaces the old rurality of the Mall, cherished and regretted by Londoners, there is no one who does not accept the improvement with satisfaction. The simplicity and serviceableness of the changes are remarkable; the place looks as if it had grown that way; yet the total result is a dignity which makes the Mall, what it was not before, a proper approach to a palace. Anyone who can appreciate the refinement of design which has gone to make this result will understand also that it is in the line of an architect's training rather than an engineer's. Mr. Daniel Burnham's usefulness in this direction is recognized by the United States Government. Mr. Burnham is now engaged upon the project of transforming Manila into a modern capital at the cost of many million dollars. He is said to have declared his intention of following the plan which was originally proposed for Washington but was not carried out.