MUNICIPAL DEPARTMENT

AMERICAN vs. ENGLISH ASPHALT PAVEMENTS.

Editor CANADIAN CONTRACT RECORD.

SIR,—I note in your December number of the ARCHITECT AND BUILDER your article on "Asphalt," stating that the number of accidents in London, Eng., on asphalt was much larger than on granite and wood.

I thought you might be interested to know that the London, England, pavement is an entirely different material from what is used in Toronto and the American cities. The London material is a limestone which is impregnated with asphalt and then ground up, being almost as fine as flour. This pavement when subject to traffic becomes highly polished and almost as slippery as glass, so in many of the London streets the pavements have to be constantly sprinkled with sand.

The Toronto pavements, on the contrary, are composed of 75% of sharp sand, the asphalt cementing the sand together. If the streets are kept moderately clean, these grains of sand are always protruding and afford a splendid foothold for horses. It is only when the streets are allowed to accumulate mud and when the horse's shoe slips on this mud that accidents occur.

Superintendent Franklin, of the horse-car railway, has said that there were fewer falls of his horses on the Bloor street east pavement, which has asphalt between the rails, than there was on King street, which was then block paved, and it was a well known fact from parties using the Sherbourne street route, where there is granite between the rails, that the horses soon got to know that they had a better foothold on the flat, even-surfaced asphalt than on the granite, and the outside horses on the heavy grades almost invariably pulled off from the granite to the asphalt.

Yours sincerely,
W. G. MACKENDRICK.

FIRE ENGINE AND STAND-PIPE TEST.

To test the height to which a stream of water could be raised through an exterior stand-pipe to reach a fire in a tall building, "a sky scraper," an experiment was made on 28th November, in Chicago. It was shown that an ordinary fire engine connected with a stand-pipe could throw an inch and a quarter stream 316 feet above the ground with force enough to reach another building half a block away. The Engineering News describes the test as follows :—"A 3-inch stand-pipe was connected with the engine 150 feet away, by two lines of 2½ in hose, and to the top of the stand-pipe was attached 50 feet of 2½-in hose, with a 1¼ in. nozzle at the end. The total distance from the engine to the nozzle was 523 feet, made up of 150 feet of hose at the base, 323 feet of stand-pipe, and 50 feet of single hose. A water-gauge was attached to the base of the stand-pipe and another to the nozzle on the roof, and pressure readings were taken at the nozzle with different pressure at the engine. The following were the results obtained :

		lbs.				lb.
Press. at	engine,	100,	gave	press. at	nozzle	0
"	"	150,	"	"	"	5
"	"	175,	"	"	"	12
"	"	200,	"	"	"	18
"	"	225,	"	"	"	20½
"	"	240,	"	"	"	54

"The engine weighed 8,500 lbs. It had double cylinders and plungers 7½ x 8 inches and 4¾ x 8 inches respectively. The diameter of the boiler was 36 inches, and it had 212.03 feet of heating surface. The area of grate surface was 6.23 feet. As it was, the tests demonstrated conclusively that with 200 lbs. pressure at the engine a good fire stream can be secured at the top of the tallest buildings yet erected. In view of the recent newspaper talk about the inefficiency of present apparatus for fighting fires in tall buildings, this test is of much interest."

That is satisfactory, and seems to reduce sky-scraper hazards, says the Insurance Chronicle, but how about men being raised to the top of a 21 storey building, 316 feet high? Unless firemen are on hand to direct such a stream it would be a mere waste of force and water.

WATER-WORKS SECURITIES.

Speaking of the safety of investments in the above mentioned securities, the American Investments cites the distressing culmination of such enterprises which have been built almost entirely on future possibilities. Although when many of the franchises were given conditions seemed to justify the construction of the plants, as soon as the hard times came, private consumers fell off, being "unable to accommodate their pocket-books to the demand of city luxuries," consequently, it is claimed "many plants are unable to earn enough to pay the interest on their underlying securities and actual running expenses." It is natural that the question should be asked "what are the lessons to be learned from this condition of affairs?" Evidently the first and most important one is the factor of permanency in the demand for water and the ability of the community to meet the expense necessary to furnish the supply. And the task of determining this is by no means small. It involves a knowledge of existing conditions and future possibilities of growth.

"Another very important thing for purchasers of water-work securities to observe, is that of ascertaining whether or not the works have been completed and accepted by the city or town in which they are located.

"Still another point worthy of observation, is that purchasers of water works securities owe it as a duty to themselves to ascertain beyond any question of a doubt, that the communities granting the franchises have signified that the works have come up to the requirements stipulated in the franchises. Otherwise the hydrant rentals will be held back, depriving the water works company of its principal source of revenue.

"Investors buying these securities from reputable bond dealers have a good measure of protection, for these details are carefully looked after before the bonds are accepted for disposition. But where purchases are made direct from the company or its authorized agent, there needs to be great caution used that these points are well guarded. Taking it all together, the buying of securities of the class of water works without the intervention of some third and perfectly reliable and competent party, is indeed a ticklish one, requiring a high degree of intelligence, discrimination and wisdom."

SEWERS AND SEWER GAS.

The excellent article in the August number of Paving and Municipal Engineering, by Wm. Paul Gerhard, C. E., suggests to me the pertinency of a few remarks on sewer building and sewer gas. I do not propose to go into an elaborate technical treatment of these subjects.

There is nothing that so much concerns the health of a city as perfect drainage and disposition of sewer gas. As yet, there is not a city in the world that can show a perfect system of drainage, so that sewers (with few exceptions) have been built too small, often badly built and with insufficient grade or "fall" to carry off the water. I need not cite instances of these facts. They have been too common to to escape the notice of intelligent people. Some of the main troubles are that the city officials undertake to figure out just exactly the needed capacity of a sewer. If we grant that science can forecast the storms, God only can know just how great the wind or water will be ; so that it is mere futile assumption to say just how much water will fall on a given space of ground, and therefore calculate the needed capacity of a sewer. The only way to even approximate the needed size of a sewer, to be right, is to multilply the unit of ascertained size based on ordinary rainfall by at least three, then see that the materials and workmanship are perfect, and this will reach the best economy and efficiency.

As to sewer gas and mephitic air in sewers, man-holes in sewers, and gas, traps for water closets, are some of the most fruitful breeders of disease in cities. Various attempts have been made to dispose of this trouble. Disinfectants and filtering have been scientifically applied, all to no practically good result. The only feasible and sure economical way to dispose of sewer gas is by cremation. If a furnace with a sufficiently large smoke-stack be kept in constant operation, at the highest point or grade of sewers, and suitable pipes be laid from the sewers, to connect with the smokestack, all the gas in the sewers within a long distance of the smokestack will be drawn to it by its vacuum and consumed.

I have tried this plan of disposing of gases in houses and found it efficient and perfect. As to the chemical disinfectants usually employed to cleanse water for family use, they can never be applied to large reservoirs : they would be too uncertain and expensive. Aluminous earth or pure clay is nature's cleanser. If pure clay, in solution or in a dry, pulverized condition, be stirred in foul water in a short time all animal and vegetable filth will be precipitated to the bottom, and the water will be comparatively pure. The waters of the Mississippi river magnificently illustrate this fact.—J. W. Crary, Sr., in Municipal Engineering.