MUNICIPAL DEPARTMENT

NARROWER PAVEMENTS.

Commenting on the tendency in many cities and towns to reduce the width of the paved portion of the streets, the Engineering Record says:

In the city of Toronto, under the direction of City Engineer Edward H. Keating and his assistant, Mr. H. D. Ellis, the present practice is to reduce the width of the paving on residential streets to 24 feet, and this is found sufficient for all purposes. In Albany, N. Y., we are informed by City Engineer Horace Andrews that a width of from 24 to 30 feet is found ample, and in repaving the old streets a reduction of 5 or 6 feet in their paved width has improved the appearance of the streets and given great satisfaction to its residents. In Albany householders are allowed to have stoops projecting 6 or 8 feet into the sidewalk so that an increased width of sidewalk is desirable, regardless of a grass strip. In cities where the snow is allowed to accumulate in winter, the additional space between the sidewalk and curb is a great convenience, as when the sidewalk and gutter are adjacent, there is no place for the snow to go but into the gutter, where it piles up, blocking drainage in times of thaw and making traffic extremely dangerous. Moreover, in summer time there is just so much less dusty pavement to be cleaned and sprinkled. No man likes to clean the pavement before his house, but give him a chance to have a neat grass plot between the sidewalk and curb and his attitude is immediately changed to one of active interest in keeping it neat and attractive. Where surface railways run through the streets an increased width is necessary, but this extra width should not be paved until actually needed, and then the expense should be borne by the corporations obtaining the franchise.

Another phase of this desire to get the best returns for money expended is the use of old pavements as a foundation for the new In New York City in several instances the Department of Public Works has put down an asphalt pavement on streets first paved with granite by simply covering the granite blocks with the asphalt and avoiding all expense for foundation. So in the narrowing of the Toronto streets above referred to, Mr. Ellis recommends that the old foundations of the cedar block pavement be used for the foundation of a new brick pavement, and that the brick pavement be so laid as to allow it to be covered with asphalt at any time the property owners may desire.

It is unfortunate that our system of laying pipes in streets does not admit of more of this utilization of old pavements. The first pavement in a street is usually macadam of some sort, and this if well cared for should serve as a foundation for asphalt, brick, stone, or wood, without necessitating the use of concrete. At present when a new pavement is ordered the first step is to put all piping under the street in good condition to save tearing up the new pavement. With our single lines of sewer, gas, and water pipe, except in the broadest streets, and cross-trenches for the house connections, this practically destroys the old pavement, and a concrete foundation for the new pavement is a necessity. On streets where there is room for strips between the carriageway and sidewalk it would seem cheaper in the end to have lines of pipe on each side of the street and put them under those strips or under the sidewalks and not under the paved portion. This system is quite common in Europe and is gaining a foothold here.

FILTERING MUNICIPAL WATER SUPPLIES.

Two methods of slow filtration are now advocated—the continuous and intermittent—says Mr. Rudolph Herring, in an article on this subject in the Engineering Magazine. The former is the more common. It implies a constant application of the water until the efficiency of the filter is so much reduced as to require the cleansing or washing of the upper layers of the sand; this may be once a month or less often, depending, of course, on the turbidity of the water. The intermittent method requires a cessation of the filtration at intervals of one or two days, so that air can penetrate the pores of the sand and assist in the destruction of the organic matter.

In continuous filtration, as the air is at once permanently driven out of the sand, the purification depends, so far as air is concerned, entirely upon that which is dissolved in the water itself. Yet this is sufficient in many cases for all the oxidation that can take place while the water is passing through the filter. In intermittent filtration the water drains out completely after every application, thus allowing air to be drawn into the pores and to come in better contact with the water of the subsequent application.

Generally the water passes more rapidly through an intermittent filter than through a continuous one. Therefore its straining action is less perfect, and, because of the more frequent disturbance of the sand grains at every fresh application, the water is less clear. But the oxidizing efficiency of the intermittent filter is greater, and the affluent water therefore contains slightly less organic matter. So far as we know at present, there is practically no difference in the efficiency of the two processes in removing bacteria.

The preference will have to be decided according to the circumstances in each particular case. Where the water is but slightly polluted and contains a high percentage of oxygen in solution, continuous filtration is generally preferable. Where the water is greatly polluted, intermittent filtration may be the only means of making it safe for a water supply. In a bad case it may be necessary to resort to a double treatment.

The cost of filtering water by the slow method depends very greatly on the local conditions and on the character of the water. To give a general idea of the cost, however, it may be said that filter basins, when open, can be built in the United States for an amount ranging from $30,000 to $60,000 per acre, and, when covered, from $50,000 to $90,000 per acre. One acre may be roughly considered as necessary to filter 2,000,000 gallons per day. The cost of operation, including interest on the cost of the plant, depreciation, etc., may vary from $6 to $15 per 1,000,000 gallons.

WATER METERS.

The water meters with revolving vanes (inferential meters) labor under the disadvantage that they fail to record when little water is consumed in the unit of time. This defect naturally increases with the size of the meter. It has hence become customary to combine the large sluggish meters with smaller meters, and insert a valve between the two in such a way that the small meter registers the total consumption, whilst the large meter remains inactive until a certain difference of pressure has been reached. This plan answers under certain conditions, but by no means always, as experience teaches. Friedrich Lux discusses the merits of the different types of valves used for this purpose, loaded valves, valves with an elastic spring and hydraulic valves, in the "Zeitschrift des Verienes Dentsches Ingenieure." For constructive and other reasons the hydraulic valves are preferable to the others; but as regards the point in question, they are not reliable either. Theim recently proposed a double valve, with one balanced and one unbalanced part; but this valve, though superior in certain respects, can also fail, and it is, moreover, complicated. The solution which Lux finds is surprisingly simple and hardly new, we should think, though probably not applied with this object. The pressure acts first on a small piston or disc, which has a short travel. As soon as this has been raised a little the valve disc proper comes into play, and the whole valve is pushed forward; a small difference of pressure hence suffices to start the valve. This construction has proved entirely successful, and secures correct records, whilst the other apparatus register less water than has actually passed through the meter.

The City Engineer of Toronto, in reply to questions, has stated that, taking block pavements at 70 cents per square yard, the foundation would cost about 26 per cent. and the blocks 74 per cent. In streets where cedar blocks are laid and worn out, the cheapest pavement would be the renewal of the blocks, at a cost of about 55 cents per square yard. Bricks on present foundation, with about three inches of new gravel added, would cost $1.20. As examples, the engineer reported that a new cedar block pavement, 24 feet wide, on gravel foundation, would cost approximately $2.40 per lineal foot, or an assessment to the property owners on each side of the stteet of $1.20 per lineal foot frontage. A cedar block pavement relaid on the old foundation, with new wooden curbing, would cost, approximately, $1.94 per lineal foot, or an assessment to the property owners on each side of the street of 97 cents per foot frontage.

A brick pavement on concrete foundation, with stone curbs, would cost about $6.60 per lineal foot, or an assessment to property owners on each side of the street of $3.30 per foot frontage.

A brick pavement on gravel foundation, with wood curbing, would cost about $4 per lineal foot, or an assessment of $2 per foot frontage.