

MUNICIPAL DEPARTMENT

TO MUNICIPAL OFFICERS.

The CONTRACT RECORD is desirous of publishing, as far as possible, advance information regarding projected works of construction in all parts of Canada, such as sewerage and waterworks systems, railways, street pavements, public and private buildings, etc. Municipal officers would confer a favor upon the publisher by placing at our disposal particulars of such undertakings which are likely to be carried out in their vicinity, giving the name of the promoter, character of the work, and probable cost. Any information thus furnished will be greatly appreciated.

THE USE AND MISUSE OF WATER.*

Every member of the British Association of Waterworks Engineers is concerned with the use and misuse of water, and while every member desires to promote the public health by encouraging the use of water for every legitimate healthy and sanitary purpose, I take it that he is very anxious to prevent as far as possible the waste of water.

FALSE IDEAS WITH REGARD TO WASTE.

People frequently leave their taps open under the impression that it is good for the drains. The idea is quite a wrong one. Small droplets of water can have no cleansing effect upon drains, but a thousand taps left open for this purpose would have a material effect upon the water supply of a town, and enhance the difficulty of the local authority in dealing with it at the outfall works.

QUANTITY OF WATER REQUIRED.

It is difficult to fix a quantity of water per head which shall satisfy the requirements in the several towns, because so many factors enter into the consideration of such a question. For instance, w.c.'s and baths are becoming general in some towns, and in the future there is every probability that the artisan will want his bath—and why should he not have it? The author has measured the consumption of water at different sized houses, and whilst admitting that no two towns are alike nor any two houses for the matter of that, some idea of the quantities generally used may be gathered. Meter readings showed the consumption of water in cottages to vary from four to seven gallons per head; in larger houses seven, eight, ten and sixteen gallons. In houses with two w.c.'s it often came under 20 gallons.

The question arises: How much water per head for domestic use must be

* A paper by R. E. W. Berrington, C. E., F. G. S. (Wolverhampton) read at the Nottingham Meeting of the British Association of Water Engineers.

allowed for in the future? The demand for manufacturing purposes must, of course, depend upon local circumstances. During the last few years it has become apparent that a water carriage system of drainage will be universally adopted in all populous towns, and this means that the waterworks engineers must allow for the general use of w.c.'s. With a view of minimising the consumption of water for sanitary purposes, the sink and other waste water is being effectively used in w. w. closets. In the opinion of some engineers, these appliances are not considered economisers, but it is certain that the three-gallon flush direct from the tipper is not effectual in its work, and in most cases the waste water is quite sufficient, and therefore clean water is unnecessary. A modern w.c. is cleaner than a w.w. closet, and is the only appliance applicable to outdoor use. Another increase in the future consumption of water must be looked for in the fixing of automatic flushing tanks both in connection with main sewers and private drains of public institutions. Public baths are also increasing, and there is much more street watering than formerly. There is little doubt that, under strict supervision, an efficient supply for domestic purposes may be given with ten to fifteen gallons per head. The amount of water going to waste in the course of a year in this country must be enormous, and if a monetary value were placed upon it we would view such waste as a "national calamity."

HOW AND WHERE WASTE OCCURS.

A good percentage of the waste occurs underground, and therefore its tendency is to produce damp subsoils, wet basements and ill health. In colliery districts mains are subject to sudden subsidences, and although a special form of joint has been adopted it is not always successful. Service-pipes should be laid sufficiently deep to protect them from frost, and in doubtful ground should be surrounded with a soil known to be harmless to such pipes.

A frequent source of waste arises from defective ball-taps, and as there are hundreds of overflows which still communicate with the drainage system by unseen channels, it is only by careful inspection that these leakages are discovered.

Much waste often results from the ball-tap being insufficiently fastened down, and as the water in the cistern rises it lifts the ball-tap, and the water passes down the overflow for hours together. Of course, this could not happen in a properly-fitted modern cistern.

SYPHON CISTERNS.

There are still some bad types of syphon cisterns in the market, and careful selection of the best is necessary to prevent waste of water.

TWO OR THREE GALLONS?

What is to be the future discharging capacity of w.c. cisterns? Given a well-laid drain, a properly-made closet basin, a cistern not less than 5 ft. or 6 ft. above

the basin, a down-pipe of not less than 1 1/4 in. diameter, and then a two gallon flush will effectually do the work, but the work will be much better with some basins than with others. I do not include the wash-out basin so much in use a year or two ago amongst good basins. I do not believe that anything less than a three-gallon discharge will flush a wash-out with any degree of certainty. The syphon system is a most unsatisfactory appliance for a hotel, lodging house, offices, or indeed, for any position where the basin is much used. Although a two-gallon flush is sufficient, I believe a three-gallon flush will ultimately become general, because in sanitary matters nothing short of absolute certainty and entire reliability is acceptable. Everybody would feel confidence in the efficiency of a three-gallon flush, but there are many cases where a two-gallon would not inspire such confidence.

SEVERE FROSTS.

Perhaps one of the greatest enemies to the waterworks engineer is a severe frost, and the winter of 1894 must have cost the country thousands of pounds in damage to mains, services, meters, &c. In the author's opinion, the practice of shutting off the water or reducing the pressure at nights is the cause of much injury to the local authority or company as well as to the consumers, and it is a retrograde step in the matter of public health. There can be no doubt that taps in open courts or other exposed positions cause endless worry, but the tendency now is to provide a tap for each house, and if care be exercised in laying the service, and if the consumer be taught to see that—at all events where the works are the property of the local authority—he is an interested party, we may expect good results. Even in a severe winter, with a judicious use of stop-taps and gas-jets, one can neatly, if not quite, get through without a burst pipe, and of course I mean without wasting water.

WASTE-WATER METERS.

The value of waste-water meters in detecting waste is beyond question. Other methods for detecting waste, however, must not be ignored or overlooked. Systematic house-to-house inspection followed up by the plumbers is very effective. The author some years ago undertook an inspection of this kind in a large town, and the consumption was reduced by three gallons per head as a consequence of one inspection. What might it have been if regular and continuous inspection had followed? The introduction of the Deacon meter has in several instances reduced the consumption 50 per cent., but it would more than justify its use if it reduced the consumption by 20 per cent. in any ordinary-sized town. It will be said that some towns have done much better than this with the meter, but in these the consumption was abnormally high to begin with. In new works it is easy to arrange for the waste-meter system, and it is desirable to make such provision.

(To be Continued.)