

other of his pockets and trying to persuade him he has obtained something.

Every cent that a water system costs, whether paid direct as a tax or rate or to the private plumber for repairs to fittings, is part of the cost of the water provided.

The more simple the method of water supply the less complicated by mechanical appliances, such as meters, the more efficient the supervision of plumbing work by the municipality in connection with new buildings or repairs to old, the less will be the total cost to the individual for a free, unbounded supply of water for all purposes represented at a per capita figure of about thirty gallons per day.

NOTES ON THE METER QUESTION.*

"A few years ago an Assistant Commissioner of Health of the City of Chicago placed himself on record as opposed to the introduction of meters in dwelling houses by the following statement: 'The City Health Department,' he said, 'is uncompromisingly opposed to the installation of meters in dwellings, but favors putting them in factories, business blocks and all other buildings where water is used for commercial or ornamental purposes. The opposition of the department is based on sanitary grounds and the general protection of the public health. Running water is one of the greatest of all sanitary agents. It absorbs foul and noxious gases, is a dilutant of filth and a carrier away of excreta. If the flat buildings and tenement houses of this city should be equipped with meters, resulting in a decreased use of water, as would be the case, there would be an instant and heavy rise in the death rate. There can be no such thing as a waste of purifying agent like water in a dwelling house, and with Chicago's unlimited and inexhaustible supply there should be no limit placed upon the amount to be used for domestic purposes.'"

As this statement was of rather a radical nature, and quite at variance with well-known facts, it was deemed advisable by the Review to submit it for the opinions of a few water-works engineers and superintendents. Here is, in part, what some of these gentlemen had to say. They very explicitly controverted the statement of the Assistant Commissioner of Health at the time, and will serve now as a supplemental answer to the publication named:

'I most positively disagree with the views that the metering of tenement houses would cause a heavy rise in the death rate of Chicago. In the first place, it would not follow that the placing of meters as above stated would cause a decrease in the use of water; it would undoubtedly reduce the consumption, but that is a different matter.

'I am at a loss to conjecture what he bases his opinion upon. He certainly cannot find any support for such an opinion in the experience of cities that have meters in general use. Water is, of course, a purifying agent, but no one who has given the matter much study believes that the constant running of water from a leaky fixture has any cleansing or purifying effect; rather, on the contrary, the belief is that such streams have an unsanitary effect inasmuch as they merely stir up the foulness in the drainage appliances causing the emanation of injurious gases therefrom, which have been known to cause illness in more than one instance.

'As to there being 'no such thing as a waste of a purifying agent like water,' there certainly can be, and what is more, there is surely a grievous and deplorable waste of this great purifying agent, for which it is applied for the purpose of cleansing in any other way than by what is known as 'flushing,' it fails in its effect and is wasted.

'Every man engaged in the maintenance of public sewers knows that, notwithstanding the number of small streams constantly pouring into them, if they are not occasionally flushed out they would become eventually clogged up tight. Furthermore, it is well understood that water mains carrying water at their full capacity under great pressure have to be 'blown out' in order to remove sediment, etc., which accumulates on the bottom and sides of the pipe.

'A very common mistake is made by people not having a practical knowledge of waterworks matters in assuming that meters are intended to curtail the legitimate use of water instead of being aimed at the monstrous, unjustifiable and unsanitary waste of an extremely valuable commodity.' —Robert J. Thomas, Superintendent Waterworks, Lowell, Mass.

'In response to your inquiry as to the detrimental effect of water meters on the public health of a community, I would say that in all my direct experience and study of the subject, I have never encountered any valid sanitary objection to the use of such meters, when the same are made of insoluble or non-corrosive materials and according to a national design. In some cases, complaint has been made of noisy action, in others stoppages have occurred in consequence of the formation of rust when the premises have been unoccupied for a considerable period of time, and occasionally the brass work becomes slightly affected; but none of these causes has ever been sufficient to injure the health of the persons who use the water which passes through the meter.

'The assumption that the installation of water meters in a city will result in 'an instant and heavy rise of the death rate,' is wholly unwarranted and cannot be regarded seriously. Not the slightest foundation for making such a statement can be adduced if the water itself is wholesome. The only vestige of a reason for such a deplorable consequence is that by reducing useless leakage and waste in the water fittings of a household, the drain pipes will not discharge as much liquid as before, whence the inference is covertly conveyed that the drains will not be properly flushed or rinsed. This inference, however, is entirely wrong, as the dribble from a leaky faucet has no flushing power whatever, and is incapable of absorbing any appreciable quantity of foul gas, or of diluting or carrying away any filth that may have been lodged on the inner surface of a drain pipe.

'Efficient flushing can be done only when the volume of water is large enough to nearly fill the pipe, and pass through it rapidly like a piston. A few such flushes will clear the pipe as well as if the water were running constantly at the same high rate, just as one thorough washing of a dish makes it as clean as if it were kept thereafter continually in a flowing stream. In all modern sanitary appliances, care is taken to provide ample flushing capacity for keeping the pipes clear, and the use of water in excess of this becomes waste. Furthermore, the quantity of such flushing water cannot usually be controlled by the householder, but is fixed by the maker of the appliance, whence it follows that the legitimate consumption is not reduced by having a water meter in the premiss.

'The constant dribble from a single leaky faucet may easily become, in the course of twenty-four hours, more than the legitimate use of an entire family. By actual measurement, the quantity of water thus escaping ranges from 100 to 300

*The Water and Gas Review (December, 1909).