

## Letter to the Editor

### Detecting Leaks in Underground Pipes

Sir,—I was interested in the paper by David A. Heffernan before the New England Waterworks Association on the above subject, a copy of which appeared in your issue of November 28th, for the reason that it covers some of the ground which I have frequently metaphorically travelled over. There are two or three points to which I would like to refer.

Mr. Heffernan stated that "it is a matter of patriotism for every superintendent to use every means at his disposal to combat the wasteful and needless use of water." Much is being urged in the name of patriotism, but why stop there? Good and efficient administration of waterworks at all times and under all conditions is the best form of patriotism. Patriotism is a permanent virtue and needs to be always kept before the public, both individually and collectively. It is an excellent motif for public authorities to prevent public money being spent on supplying water which is being misused. No merchant would prosper for long if he allowed leaks to continue unchecked in his business, and he only endeavored for patriotic reasons to reduce them to a minimum. The prevention of waste is good business.

"The responsibility for this waste lies in two places, with the consumer and distributor." I would be disposed to place the distributor first because he is furnishing the supply that is being misused, and he has the power and authority to prevent waste and he is the trustee of the public welfare, whereas the consumer disregards the common good and is evidently callous to waste; why, therefore, should he be permitted to receive the same consideration as a frugal consumer?

A waterworks system is not complete without the means of knowing what quantity of water it supplies at all hours and how it is being used. Electric and gas departments always have ample equipment for ascertaining the quantity of electricity generated or gas manufactured and delivered. Daily records are kept throughout the year and the cost of production is easily arrived at. In short, practically all electric and gas departments are operated on up-to-date business lines, even in small towns and villages. But waterworks are more often operated with a strange conception of efficiency. The records of the Ontario waterworks, as published in the annual reports of the Ontario Railway and Municipal Board, will show that the business-like care of electric and gas departments is not always evinced in the waterworks department. We could live without electricity or gas but not without water, and yet the service we want most is abused the greatest.

With a satisfactory bulk or district meter it is possible to make frequent surveys of the area supplied and to find out what is occurring there. Inspectors should make periodical visits to houses and premises to examine the water fittings, and here I would like to refer to the need for standard quality of fittings. There is good reason to believe that the taps, tanks, pipe, etc., in the houses are not what they should be. A house is being erected, plumbers are asked to quote, and as a measure of competition they have to install equally cheap fittings or lose the job, whereas if standard designs, weights and qualities were fixed by the authorities, plumbers could then put in proper fittings. Electric fixtures have to comply with

regulations because of the element of fire. Why not regulate for waterworks fixtures as a function of health preservation. Where individual meters are installed the consumers will soon learn that cheap water fittings are not good investments.

It is satisfactory to note that waste in all its phases is being carefully considered and discussed. Engineers are interested in the subject, for it is one of their functions to design, construct, produce and administer efficiency.

R. O. WYNNE-ROBERTS

Toronto, Ont., November 29th, 1918.

### DEVELOPMENT OF CONCRETE ROAD CONSTRUCTION\*

By A. N. Johnson

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IF a proper understanding is to be had as to why a particular type of road should have come but recently into common use, the general development of highways must be at least briefly considered. We will, therefore, touch first upon some of the broader economic aspects of the development of roads in general and the manner in which these economic conditions have affected the use of concrete as a road surfacing material.

The outstanding fact of recent highway development is the immense increase of motor traffic. As will be seen by the following table, showing the registration of motor vehicles in the United States, the number has increased from about 48,000 in 1906 to more than 5,000,000 in 1917.

#### Automobile Registration in the United States

Year.	Number.	Year	Number.
1906.....	40,000	1912.....	1,013,975
1907.....	85,000	1913.....	1,258,062
1908.....	120,000	1914.....	1,711,339
1909.....	250,000	1915.....	2,445,664
1910.....	300,000	1916.....	3,512,996
1911.....	710,000	1917.....	5,148,063

It has been estimated that in 1915 the railroad passenger trains produced 30,000,000,000 train passenger miles, while the motor vehicles produced 45,000,000,000 passenger miles. When we take into account the fact that there were but little more than 50 per cent. as many motor vehicles registered in 1915 as in 1917, we begin to gain some faint idea of the enormous increase and vast proportions of this new traffic upon our highways.

The problem is a growing one and one that has gone far beyond all precedents. Past experience affords but slight foundation upon which to plan for the future. If adequate highways are to be built for to-morrow's traffic, the highway engineer must be possessed of vision as well as the courage which will make him ready to abandon those methods of construction which we have now outgrown, although of long standing.

The most important factor in connection with motor traffic is the possibilities that lie before us in the extended use of the motor truck. Almost daily we have brought to our attention new and remarkable accomplishments.

Time will not permit us to dwell at this point upon what must be seen clearly as the outcome of our changed traffic conditions. This is the absolute inadequacy of our

\*Excerpts from one of the "J. E. Aldred Lectures on Engineering Practice" at Johns Hopkins University.