

but altogether unable to do so for double that amount. Thus, if waste of water is not checked, conditions may arise which contribute to an inferior quality of the supply and sometimes failure of adequate pressure to provide proper sanitary facilities or to afford safe fire protection. Again, even if the entire system is metered and pressure and quality are maintained, the meter rate between the large and small consumer is sometimes so framed that the small consumer pays an inequitable rate in comparison with the large consumer and this may tend to an objectionable restriction of consumption.

Our larger cities are spending enormous amounts of money to procure more and more water, and sometimes almost before their latest extensions and improvements are completed, they are facing other and larger expenditures and still further increases in capacity with apparent per capita consumptions which in many cases are ridiculously high. The water ratepayers and taxpayers have somehow to meet these ever-increasing costs, and if due to waste, the consumption is vastly greater than the necessities warrant, they are paying just that much more than they need to pay on account of this waste.

Meters will materially decrease water consumption by preventing waste. High quality, and satisfactory and reliable pressure and reserve capacity are easier to secure with moderate consumption, and these things are certainly more to be prized than excessive amounts of waste water. Still, because of this common waste, pressure, reserve capacity and quality have frequently to be sacrificed, and the taxpayers and water ratepayers are often paying a great deal more for a poor and unreliable unmetered service than they would have to pay for a very good metered service.

Usually when the suggestion is made that they should pay less as a whole for a better service by metering their supply, there is a general protest. This arises out of prejudice and ignorance, and the fear of restricting a water consumption is too prominent in the minds of many who look at this question from a purely sanitary viewpoint, since they forget that reasonable restriction as to quantity is extremely important to the far more vital questions of maintaining the necessary pressure and quality.

It is the belief of the committee that the elimination of useless waste of water would in many cities greatly decrease and delay vast expenditure in increased capacity and would leave funds for much-needed improvements in quality and reliability of service. Further, that the general adoption of meters can reach this result, and that meter rates and methods of raising the necessary revenue, in which each beneficiary of any portion of the water-works service pays for the benefits which he receives in proportion to his participation therein, form the most acceptable basis upon which people will adopt the universal meter system.

Since 1906 the Alaska Road Commission has constructed 901 miles of wagon roads, 557 miles of winter sled-roads, and 2,216 miles of trails. The average cost of construction of the wagon roads has been \$3,000 per mile; of the sled-roads, \$325 per mile, and of the trails, \$100 per mile. The practical value of this road construction is shown by the fact that the cost of transporting freight over the Government-built and maintained roads in 1912 was \$1,243,735, while it is estimated that without these roads the cost of this work would have been \$3,385,412 a saving in one year of \$2,141,677, or approximately the total amount spent by the Federal Government in the construction of the entire road and trail system of the Territory.

## STREET TRAFFIC PROBLEMS.\*

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**A**MONG the most difficult problems presented to road builders and road planners is that of street traffic. The increase in the volume of this traffic has been almost sensational during recent years, especially since the use of the motor vehicle became general. While this increase is quite obvious in all cities, the statistics in street traffic in London are unusually complete, and the reports of the London traffic branch of the Board of Trade bring out some remarkable facts. The number of horse-drawn cabs licensed by the metropolitan police decreased from 11,404 in 1903 to 2,385 in 1912, while during the same period the number of motor cabs increased from one to 7,969. During the same period the motor omnibuses increased from 13 to 2,908, while the 3,623 horse-drawn omnibuses in 1903 have entirely disappeared. Some remarkable statistics are given as to the number of vehicles passing certain points at certain hours and during the day, but the surprising feature of these statistics is that the total number of vehicles licensed in 1912, including tramway cars, was actually 203 less than in 1903. No better illustration is afforded of the enormous increase in the service rendered by motor vehicles owing to their higher speed and greater flexibility.

On certain streets of all busy cities the number of vehicles is so great and the resulting congestion is so serious that students of this problem have become much alarmed and are discussing the need of more effective traffic regulation. The easiest solution of this problem appears, however, to be the better diffusion or distribution of traffic, and this can in no way be more effectively brought about than by a better and more uniform standard of improvement of the roadways of both urban and rural highways.

Why is it that so many drivers of vehicles tend to use the same street when many different possible routes could be followed? Undoubtedly the chief reason is that they wish to use the streets that are best paved. In the case of the motor vehicle a slight detour with corresponding increase of distance is of little consequence and time will actually be saved by the avoidance of traffic congestion, but those who are riding, especially for pleasure, prefer to follow the streets that are most attractive, those on which the abutting property has been improved to a higher degree and in a little more slightly manner. When our streets shall have become uniformly well paved and when the property along them shall have been improved according to better standard—not necessarily with palatial homes, but with good taste—when tree planting is taken up more seriously and when the space not needed for roadways and foot paths is devoted to grass plots or planted with shrubbery, those with whom time is not the important element, will follow these streets, now given over wholly to the delivery wagons of the milkman, the grocer and the butcher, and appreciable progress will have been made in the solution of the traffic problem.

There is, however, a very serious problem which has grown out of the use of motor vehicles, namely, the increasing weight, the increasing wheel loads and the increasing size of these vehicles. The motor or the tractor

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