

the various townships trying to insist on too much work being done in their sections. This may make it difficult for the train to make as rapid progress as is desirable.

#### Prevention of Water Waste.

The question of waste prevention is so complicated with that of the methods of assessing and collecting rates that they must be discussed together in some of their phases. If meters are in use the question of water waste takes care of itself. Each customer is at liberty to waste as much as he is willing to pay for, and if the rates have been fixed properly he will be the only loser. The water department must then look out for the excess of pumpage over consumption, locating and repairing leaks in mains and public connections which waste undue amounts of water.

If meters are not in general use, several courses of procedure are open. The first one usually suggested is the introduction of meters, and in many cases this is the proper one, practically as well as theoretically. It is undoubtedly true, however, that occasionally a few large users or wasters of water being placed on meters as exceptional cases, the remainder of the consumption is within reasonable limits, and the saving in cost of pumpage by metering all services is too small to pay the expense of installing the meters, reading and maintaining them. In the case of small plants, the only saving probable upon a reduction of consumption is in the amount of coal used. This is not apt to be proportional to the reduction in pumpage, for, either the pump must be shut down, and kept in readiness for use at any moment, or it must be run at a rate farther below its economical rate, so that it will use more coal per million gallons pumped. When the consumption approaches the limit of the capacity of the smallest pump in a plant, this argument will have much less force. It is not always a certainty, therefore, whether the saving in coal would pay the cost of reading and maintaining meters. Close study of the exact actual condition would be necessary to determine this point definitely.

It will be possible to reduce the cost of pumping quite materially to make a close inspection of the system and stopping waste where found, and to add something to the income by putting meters on the connections of some large users whose cases are not covered by the regular schedule and who are now paying at too low a rate for the quantity of water they are using.

Waste may usually be stopped by a simple notice. The following form is in successful use in Erie, Pa.:

"1. Water takers must not permit their pipes or fixtures to remain in a leaky condition, or waste the city water otherwise, or allow it to be wasted."

"2. Every stop and waste must be readily accessible to the party for whose use it was designed, easy of operation, and provided with a key approved by the department, which shall either be attached to the stop or kept in a place where it will be convenient for use."

"3. Water takers must keep their pipes and fixtures in good repair and protected from frost at their own expense, and will be held responsible for any waste or damage that ensue from defective pipes and fixtures."

"4. For each and every violation of the by-laws, rules and regulations of the water department, the offending party shall, on conviction, be fined not less than \$5 or more than \$50 for the use of said department. The water commissioners may, also, at their own option, turn off the water from the premises of the party."

On an inspection of premises No. . . . . street, occupied by . . . . . it is found that . . . . . My instructions require me to notify you to have the same placed in proper condition on or before . . . . . next, at which time another inspection of the premises will be made.

. . . . ., Inspector.

The character of the provisions of the ordinance quoted in notice will vary according to local needs and opinions. The board of water commissioners should have the privilege of recommending the rules, the council or town board of trustees putting them into the form of an ordinance without power to alter or add, but having power to strike out provisions they consider undesirable. Inspections of premises must be provided for and should be made at irregular intervals at least once a year and wherever waste, willfully or otherwise, is suspected.

#### An International Good Roads Congress.

The National Good Roads Association of the United States has issued a call for an International Congress for Good Roads, to be held in Buffalo from Sept. 16th to 21st inclusive. Such a convention should, and we trust, will be well attended by representatives from Ontario. Occurring as it is during the Pan-American Exposition, an excellent opportunity is afforded of attending the Congress, while at the same time devoting sufficient time to the present unusual attractions of the Rainbow City. All who are interested in road and street improvements, or who may wish to be interested in the matter, will gain valuable information on the subject from the many experts who will be there, and they will discover the wonderful enthusiasm which this important movement has aroused.

The National Good Roads Association, in co-operation with the Illinois Central Railroad, has just completed a very successful good roads campaign in the states of Louisiana, Mississippi, Tennessee, Kentucky and Illinois. Over twenty (20) miles of earth, gravel and stone roads

were built and several large, enthusiastic conventions held. Thousands of people flocked to see the practical work of the "Good Roads Train" and to participate in the deliberations of these conventions. This work has aroused great interest and enthusiasm throughout the country for better roads, and the Buffalo Congress will further promote this interest.

The subject of Highway Improvement is demanding the best thought and action throughout the nations of the world. The National Association, recognizing the great importance of arousing attention, promoting discussion, stimulating scientific investigation, making practical demonstrations, collecting and disseminating information relating to the best methods of road construction and maintenance, have invited the various general governments of the United States and of the various nations of the world, the governors of the several states of the Union, mayors of all municipalities, presidents of Boards of Trade and Road Associations, and all other societies and bodies working for the improvement of the common roads, to appoint delegates to the Congress.

All sessions of the Congress will be held during the Pan-American Exposition. It is designed to devote a portion of the time included in dates above named to demonstrate the scientific methods of modern road construction by building sections of the various classes of roads including earth, oil, gravel, stone, tarmacadam, vitrified brick, etc. A splendid road train equipped with modern road-making machinery will be on exhibition, and practical road experts and engineers will have charge of the work.

The scope of the deliberations of the Congress will include general discussion and exemplification of the science of road construction and maintenance, together with experimental tests and experience of the several countries of the world and states of the Union, and the solution of the problems of roadmaking. Addresses will be made by prominent statesmen and officials, competent engineers and scientific experts from the various nations of the world.

The Agricultural and Postal Departments of the various governments, the Agricultural Departments of the several States, the Industrial Divisions of the great railway systems, the National Highway Commission, and Automobile and Bicycle Associations, the manufacturers of all classes of road machinery, vehicle manufacturers, and other interests are invited and solicited to participate in this Congress.

This will be the first International Good Roads Congress ever held. It is designed to have an interchange of knowledge and experience between the Old and the New Worlds on the subject, and thus attract universal attention to road improvement.