

increases the convenience in cleaning over those boilers having round hand-hole plates, which require that they be worked hand-over-hand amongst the stay bolts.

In all respects the new Robb water tube boiler, which is made by the International Engineering Works, Ltd., fulfils the requirements of the rules formulated by inspection and insurance companies and government officials. Although rated at 10 square feet of heating surface per boiler H.P., they have proved under severe tests to have a capacity 50 to 100 per cent. over rating without injury.

### AMERICAN ROAD CONGRESS IN DETROIT.

How to systematize the purchase of road equipment and materials will be explained in a paper to be read by Henry G. Shirley, chief engineer of the Maryland State Roads Commission, at the American Road Congress which will be in session during the week of September 29 at Detroit, Michigan. This paper deals with one of the many important subjects to be treated by experienced engineers, public officials and road contractors at the big meeting. On account of the fact that the Maryland Commission has been working out the problems of good road administration in a most painstaking and thorough manner, Mr. Shirley's paper should be a most welcome contribution.

Col. E. A. Stevens, state highway commissioner of New Jersey, will have a paper at the Congress on treatment which he has found most effective for worn out or raveled macadam surfaces. New Jersey was the first State to adopt the State aid plan for road construction and consequently had a large mileage of water bound macadam roads prior to the advent of the motor vehicle. The problem of the State highway department has therefore been particularly along the lines of adopting the old roads to new traffic conditions.

The merit system in road administration will be aptly presented in an address by President John A. McIlhenny of the United States Civil Service Commission and will undoubtedly attract nation wide attention as it is a notorious fact that political favoritism and indifference characterize the administration of our public roads so generally as to cause a loss estimated by some experts as high as \$40,000,000 a year. No more serious drawback to the progress of road improvement exists than the incompetent management of the roads and it is hoped that Mr. McIlhenny's address will help in securing much-needed reforms.

Other addresses and papers will be given by Capt. P. St. J. Wilson, State Highway Commissioner of Virginia; W. S. Keller, State Highway Engineer of Alabama; A. R. Hirst, State Highway Engineer of Wisconsin; Frank F. Rogers, State Highway Commissioner of Michigan; and many others prominent in the practical field of road construction and maintenance.

The Congress is held under the presidency of Logan Waller Page, director of the United States Office of Public Roads and comprises the conventions of the American Highway Association, the American Automobile Association, the Michigan State Good Roads Association, a large session under the auspices of a committee from the American Bar Association and other special sessions held under the auspices of the leading organizations identified with the road movement. The attendance at the first congress held in Richmond, Virginia, 1911 was 1,200; at the second congress held at Atlantic City in 1912, 2,000. This year the ratio of increase will be supplemented by an attendance of at least 2,000 at the State Good Roads Association, so that the man-

agement conservatively estimates the attendance this year will be over 5,000 delegates and members.

The National Association of Road Material and Machinery Manufacturers will be represented by a great commercial exhibit of road machinery and materials and arrangements have already been made for an exhibit of the remarkable collection of road models owned by the United States Office of Public Roads and for interesting exhibits by many of the States, cities and educational institutions.

### MAINTENANCE OF PURE WATER IN SASKATCHEWAN BY PROVINCIAL BUREAU OF HEALTH.

As the present excessive death rate from typhoid fever in Canada is admittedly due to neglect in protecting surface waters from pollution, it may be interesting to record what measures are being adopted by the Saskatchewan government, through the Bureau of Public Health, towards the conservation of the purity of provincial waterways.

The Bureau of Health has continued to impress on all municipalities the grave lesson to be learned from the lack of foresight of older communities, and the towns and cities have been quick to realize that a system of sewerage is not a convenience but a sanitary necessity, and that the very object aimed at in its installation, namely, the protection of the public health, may be defeated if some efficient treatment is not provided to render the effluent incapable of supporting the germs of disease.

As a result of this policy, there are at present eight sewage disposal plants in operation in Saskatchewan. In seven of these installations, the sewage is treated by biological filtration, in addition to sedimentation, and a filter is being added to the remaining plant this year. Further, plans for ten additional sewage disposal installations for various towns have been submitted to the Bureau, and these works should be in commission before the end of the year.

This means that at the close of the present year the sewage from all the cities and thirteen towns in the province, representing about one-third of the total population, will be rendered practically harmless before being discharged into the water courses. When it is considered that in 1912 there were only five sewage disposal plants in operation, capable of treating sewage from a population of 16,500, it must be evident that municipalities are co-operating with the Bureau of Health in the improvement of the condition of provincial waterways.

Systematic supervision and inspection is made of the existing sewage disposal works by the engineering officials of the Bureau, and suggestions offered, which are calculated to give a higher standard of efficiency in each new installation. The Bureau of health has, up to the present, concentrated its efforts in the prevention of stream pollution by municipalities, but now that the towns and villages are alive to the consequences of neglect in matters of sewage treatment, it is the intention of the officials to direct their energies towards the large section of the population who, individually rather than collectively, contaminate surface water supplies. There are numerous settlements, camps and villages along the streams and creeks, which have no system of disposing of their sewage, but simply use the nearest watercourse as a common sewer. Such streams being subject to direct pollution from fecal matter entering the water from isolated houses or camps, are capable of carrying disease through the large areas of the province which they traverse, and is largely responsible for the outbreaks of typhoid which have occurred in the province. The possibility of some such direct pollution being present in a river, which is supplying unfiltered water to one