

will be even greater. Coming to the question of cost, Mr. Davis said the expenditure of money was a matter that required very careful consideration. He ventured to say that the masses of the people would not readily approve of any scheme which would mean largely increased taxation upon them. He believed that the present expenditures could be put to a much better advantage than they were at present. In this connection Mr. Davis commended the scheme of Mr. Campbell to improve the present roads as a good one.

Mr. Davis urged very careful consideration of any request which might be made to the legislature, and concluded by saying that anything the Government could properly do in the interests of all the people of the province to aid them in the work, they were prepared to do.

Mr. A. W. Campbell, Provincial Road Commissioner, then delivered an address of an hour and a half's duration. He rejoiced that the present convention raised the good roads question from a purely local one to the importance of a national issue. He referred to the magnificent roads of Hastings County, which were as smooth as billiard tables, while in many other places such as the "Metropolitan County of York" mud was ankle deep on the highways. In Ontario, we were spending annually 1,100,000 days of statute labor. Under this extravagant and inefficient system the roads were supposed to be kept up, but in addition to this labor every county expended from \$3,000 to \$6,000, or even \$10,000 a year, or in the whole province \$3,500,000. In the last ten years in labor and money about \$42,000,000 had been expended on the roads in Ontario. He had no hesitation in saying that such an expenditure properly used would gravel and macadamize every road in the province, including back concessions. Continuing, Mr. Campbell spoke of the statute labor law as having done excellent work in pioneer days in clearing the forests from the highways, but in its present form it had outlived its usefulness. It must be either commuted or abolished. It was disregarded by too many persons, and he urged that proper overseers take the work in hand and look after the larger sections of the highway. Mr. Campbell then gave a series of hints for guidance in making roads, and concluded by saying that the remarks of Hon. Mr. Davis almost looked as though some offer would be put forth for assisting the different counties in building the important roads.

THURSDAY AFTERNOON.

At the opening of the afternoon session a number of delegates questioned Mr. Campbell on the points raised, after which Messrs. F. W. Wilson, of Petrolia, and Warden Schell, of Oxford County, spoke briefly on the situation in their counties. On motion of Mr. Wilson a resolution was passed providing that the railway companies be asked to make freight rates

on road material as low as possible for the benefit of these counties which had to procure stone, gravel, etc., from distant points.

The convention then went into committee of the whole on the report of the committee on resolution. Upwards of two hours were spent in discussing the form in which the sentiment of the convention should be recorded. The general feeling was strongly in favor of State aid, and this point almost overshadowed the main question at issue, that of county control of roads. Finally a resolution was carried, all but unanimously, that the convention endorses the principle of provincial aid for the maintenance of highways assumed by the counties.

The second resolution favored the assuming by the counties of the main roads within their borders, and also commended Mr. Beam's paper read on Tuesday.

A resolution was passed favoring by-law to make wide tires compulsory on wagons drawing a ton or over. Another resolution provided that: "The time has arrived in the interests of good roads that the provincial legislature should intervene in cases where electrical railways fail to agree as to the terms and conditions of ingress and egress to and from markets, and pass such legislation as shall impose such fair conditions as shall avert the present lockout of radial railways seeking markets of this province."

The following were appointed a committee to lay before the legislature the views of the convention, to forward the cause of good roads and make arrangements for another convention of municipal representatives at such time and place as may be deemed expedient: Messrs. C. E. Lundy, Jas. Graham, M. Richardson, D. H. Moyer, J. F. Beam, W. H. Pugsley, M. P. Buchanan, and J. A. Richardson. It was decided to ask the department of agriculture to have the report of the convention published.

The convention was concluded after a hearty vote of thanks had been passed to Messrs. Wood, Pattullo and Campbell for their admirable addresses.

Sewerage.

Wherever human beings dwell, the need arises for sewerage of greater or less extent. It is possible, where the best judgment is used, to so care for all sewage as to render it free from danger, and inoffensive in every way. Sewerage systems are constructed for single farm houses, and from this they ascend in extent to the systems that serve large metropolitan centres.

The first step in planning a sewerage system, is to first obtain a topographical map of the area to be drained, showing the grades of streets, the depths of cellars, and the general conformation of the land. Usually the system can be so planned as to permit the sewage to flow by gravitation

to some point where it can be discharged into a stream, or treated so as to render its disposal possible without creating a nuisance.

The general topography of the area known, the next step is the design of the system of sewers; and of the sewage disposal plant, if one is to be employed, other than the simple discharge into running water. The treatments, in addition, are the broad irrigation method of flooding the sewage, for fertilizing and irrigation purposes, over a sewage farm; another is the use of smaller filter beds, whereby the solids are collected and the liquids discharged, after aeration in sand beds, comparatively pure. Or chemical, or septic treatments may be employed.

The scheme having been devised and plans and records prepared, it should be approved of by the local authorities and by the Provincial Board of Health. The work may then be let by contract; or the municipality may employ an experienced engineer, to carry on the work by day labor. Experienced laborers for brickwork, manholes, catch-basins and pipe-laying are also advisable.

The cost of preliminary surveys, plans, estimates and specifications vary greatly according to the reputation of the engineer employed and the work to be undertaken. This may range for towns of ordinary size from \$200 to \$500, according to circumstances. The sewer itself would cost—for say, a twelve-inch pipe, laid eight feet below the surface—\$1.00 per lineal foot, while manholes and catch basins may be placed approximately at from \$30 to \$40 each.

Municipal Public Works.

The range of information demanded by a complete knowledge of municipal public works in all branches and details, is a liberal education, if to the merely practical and local application we attach such an acquaintance with the progress and development of each as is necessary to a thorough mastery of the subject. The student of municipal improvements has a wide field before him, as a brief glance over a list of subjects of purely provincial and practical application will disclose.

A general classification of the various roadways most commonly used will include ordinary dirt roads, under all conditions of sand, clay, loam, etc., each presenting peculiar circumstances. Proceeding from the dirt road, but influenced by it as the foundation for all others, we have gravel roads, broken-stone roads on the Macadam and Telford systems; vitrified brick, asphalt, ced r-block, scoria-block and stone-block pavements. Of all these there are various modifications. The foregoing is a general list of the materials ordinarily found in Ontario, but a complete enumeration of paving materials would be very lengthy.

Sidewalks may be of gravel, plank, flag-stone, mixtures of tar and gravel or broken stone, and cement-concrete. The last is