

ENGINEERING DEPARTMENT.

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Recent Road Legislation.

The State of Massachusetts is one of those which have taken advanced steps in road improvement. On petition of a county, the State Road Commission may, with the assent of the Legislature, adopt any road within the county as a state highway. Except that the grading and bridging is done by the county, the work thereafter, both construction and maintenance, is under the authority of the State Commission. Also on petition of two or more cities or towns, a road between them may be made a state highway. The State Commission is composed of three commissioners, who compile statistics, make investigations, advise regarding road construction and maintenance, and hold public meetings for the discussion of road matters. One-fourth the cost of construction is paid by the county, the remaining three-fourths being paid by the state. In 1894 the state spent \$300,000 in this way, in 1895 \$400,000 and in 1896 \$600,000. It is intended that ultimately about one-tenth of the entire road mileage will be built as state highways.

In Michigan, upon a majority vote of the ratepayers in any county, a county road system may be adopted. A board of commissioners, five in number, are elected by the people to lay out and construct certain of the leading roads, to be paid for and thereafter maintained by a county rate.

A bill has just passed the New York State Legislature providing that, on the petition of a county council, certain roads may be adopted as state roads. The petition is first presented to the State Engineer. If he approves of the section of road thus sought to be improved he prepares plans, specifications and estimates. These are presented to the Legislature, and if approved by that body fifty per cent. of the cost of construction is paid by the state.

The New Jersey highway law provides that, on the petition of the owners of two-thirds of the land bordering on a road, the State Commissioner of Public roads will cause the road to be improved in accordance with plans and specifications prepared by him, subject to the approval of the Legislature. The owners of the land affected by the improvement pay one-tenth of the cost, the county pays six tenths, and the state three-tenths.

Connecticut has introduced a plan of highway improvement providing for the appointment of three State Commissioners. When a township votes in favor of constructing a road under the provision of the State Highway Act specifications are prepared and submitted to the State Commissioners. If the commission approves the township council lets contracts for the work, to be performed under the super-

vision of the State Commissioners. One-third of the cost is paid by the state, one-third by the county and one-third by the township. The expenditure by the state in this way is limited to \$75,000 annually.

The State of Rhode Island has appointed a Commissioner of Highways. When a council represents to a commissioner the need for improving a certain road an examination is made by him. If he considers the work necessary he prepares plans, specifications and estimates, and reports to the municipalities affected; also to the State Legislature as to the proportion in which the expense should be met by the state and the municipalities benefitted. If the State Legislature approves the work is performed by contract.

Vermont and California also contribute largely in the form of state aid, while Indiana, Kentucky and others contribute to a less degree. Only the bare outlines of the systems have been stated, with the object of showing the prominence the question of road improvement has attained of recent years. All the foregoing laws have been adopted within the past five years. In all these systems safeguards are placed to prevent the expenditure exceeding, for any state or any locality, certain reasonable limits, according to the requirements and ability to meet the payments. In most of the states the tax is so levied that the towns and cities pay the greater portion of the cost of state road construction; for example, in the State of New York it is estimated that the people outside of the towns and cities pay only ten per cent. of the cost.

A Report on Road and Street Construction.

The second annual report of the Provincial Instructor in Roadmaking has just been issued from the Ontario Department of Agriculture. As last year, the aim has been to place before all interested in municipal affairs a practical and workable digest of the principles which should be read carefully by every councillor, municipal officer and every citizen who takes an intelligent interest in public matters. The report opens with a plea for good roads. Following this is an article dealing with practical country roadmaking. A feature of interest comprises extracts from statements received from municipal clerks, engineers and councillors of cities, towns, villages, townships and counties. Town streets are dealt with in a report to the city of Guelph, extracts from a report to the city of St. John, N. B., and a form of a by-law for the frontage tax system. Beside numerous pen drawings, the report contains eight pages of photo-engravings illustrating country roads, and broken stone, asphalt and vitrified brick pavements. Copies may be had on application to A. W. Campbell, C. E., Provincial Instructor in Roadmaking, Parliament Buildings, Toronto.

Municipal Ownership.

The private or toll road, the well or spring, the private cistern, the tallow dip or oil lamp, develop in a modern city into great public needs, which can be handled only in an organized way. Among the facilities—answering to such needs are streets, sewers, the supply of pure water for drinking and for steam, and of other water for flushing and for fire use, lighting by gas or electricity, telegraph and telephone communication, the supply of power through conduits, street transportation—surface, elevated or underground—pneumatic tubes and postal, messenger or parcel service.

Good roads, it is conceded, must be provided by the commonwealth, as also sewerage; water is usually, though not always, considered a municipal function; lighting, communication and transportation are on debatable ground; there are few in this country who approve of public bakeries or storehouses, although bread is a necessity of life. Somewhere within this range is the point where democracy becomes socialism. It is important to limit the function of the municipality at that point, and not to be misled by the phrase that "a city is a business corporation."

The real key to what is called a municipal industry is in this fact: As the whole arterial system of the human body radiates from one central supply station, the heart, so the supply of water, gas, electricity, telephone communication, etc., in a great city, to be constructed and operated at best advantage and at least cost, must radiate from one or more central sources of supply, using the streets as arteries. Here competition involves duplication of investment, increased waste, multiplication of operating expenses; in short, economic loss instead of gain. A unified street railway system, with its advantages of transfer has the same economic advantage over independent lines. The inevitable trend in all these cases is, therefore, toward consolidation instead of competition. It is often cheaper to throw parallel systems out of use than to continue the waste of double operating. Competition in such cases does not act to reduce prices, except by the cut-throat competition of rate-cutting, which involves a final loss instead of a public gain. If three gas mains exist where but one is needed there is three times the investment cost and three times the operating expenses, and therefore prices are higher; and in the end usually one survives and the other two are a dead loss.

"This paper says," observed Mrs. Chugwater, "that Mr. Jones was then nominated by acclamation."

"Well?" said Mr. Chugwater.

"Who is 'acclamation,' and why don't they print his name with a capital A?"

Mr. Chugwater looked intensely wearied, but restrained himself and said nothing.