

The organization which should exist is very simple—that of a joint-stock company. The ratepayers are the stockholders; the council, the board of directors; and there should be one permanent manager (or road superintendent) carrying out the wishes of the directors. This centralizes responsibility, while the growing experience of the superintendent will be of increasing value. So long as municipal councillors rotate in office from year to year, their services in actual supervision of roadwork can be only a series of experiments in which they gain their experience at the expense of the people. If there is need for a permanent clerk or treasurer, much more is there need for a permanent road superintendent.

Cities and large towns, as a rule, have such a system in the employment of a city engineer who can supervise, through foremen and inspectors, all work of either day labor or contract. County councils, in carrying on systems of county roads under the Highway Improvement Act are required to have a road superintendent or engineer; while their steel truss bridges must be constructed under a qualified engineer who can see that the plans and specifications are properly carried out.

The duties of a road superintendent will vary in detail according to local circumstances, and the municipality in which he is engaged, whether township or county. In general, he should attend all regular meetings of the council to receive instructions from the council, or give information regarding work proposed or in progress. He should report to the council in the spring as to work he considers advisable, which report the council may adopt or amend. He should report at the end of the year showing a full statement of work carried out and the cost. It will be his duty to purchase all ordinary supplies; and make such recommendations to the council as may be desirable regarding machinery or other equipment needed.

All men, teams, foremen and inspectors should be employed or discharged by him, and should be subject to his direction only. A councillor should never give instructions as to work except through the road superintendent. A contractor never gives directions to laborers except through a foreman or superintendent, and the same principle should be rigidly followed in municipal road work. To do otherwise destroys the superintendent's prestige with the men, undermines his power to preserve discipline and to secure the best work. Every man should feel that he owes his employment to the superintendent only, and that no "pull" can save him if the superintendent wishes to dismiss him.

The superintendent should keep an accurate record of men employed and the work done, furnishing to the council at regular intervals, accounts and pay-sheets. The methods of payment and the keeping of accounts should be complete and above suspicion, requiring the certificates of foreman, the superintendent and chairman of the road committee, and should have the approval of the council. Wherever possible the certificate of two men should be on every account and pay-sheet presented to the treasurer.

Sufficient of the duties of the road superintendent have been suggested to show the object of having a road superintendent—to make it one man's business in every municipality to have direct charge of road-work. If he is thoroughly practical and a man of business, he can prepare plans and organize the work so as to get the greatest results for every dollar expended. The council and people will hold him responsible for so doing. He will study the best methods of road construction, of operating machinery, and of organizing the work. He should have, what few men possess, the ability to manage men so as to get full results from them. In

the last analysis, upon the ability and energy of the man in charge, will depend the success or failure of the municipal road expenditure. Road improvement is a work not of one year, but of many years, it should be planned as such, and the first necessity is a man who will give it continuous attention for a term of years.

On works which he does not personally oversee, the superintendent should place a foreman. The foreman will receive his instructions as to how the work is to be done from the superintendent, and the foreman's essential qualification will be his ability to organize and control the labor to the best possible advantage. A first-class foreman is the most valuable part of any contractor's equipment. For a thoroughly efficient foreman, a contractor will pay the highest market price, for he knows that the cost of the work may easily be one-half under one foreman of what it is under another. As with the superintendent or engineer, these foremen should be retained as permanently as possible, so that their growing experience will make their services of increasing value to the county.

So long as work is carried on in short patches, the need for expert supervision is not felt throughout the country. To build roads profitably, they must be constructed in long sections, involving a very different degree of experience. A reeve recently pointed out to me, with pride, "the first continuous mile of road to be built in the township." This is not an isolated case. Many townships in the Province have yet to build their first continuous mile of road.

What part the engineers of the country will take in the road work of the future, must remain for the profession to determine. That every municipality would be benefited by having an engineer as road superintendent is undoubtedly the case. They have the knowledge as to how a road should be built and can procure foremen to carry out their directions and manage the labor. I would urge that engineers take a more active part in the movement for better roads, and that they go more frequently before the public with practical advice in this matter. Engineers have been too apt to stand aloof, take no part in the good roads agitation, and when a superintendent is sought, may wonder why they have been overlooked, and a layman chosen instead. Had they "cast their bread upon the waters," would it not have been more apt to return to them? My own view of the case is that there is too great a tendency for engineers to "hide their light under a bushel." When an up-to-date merchant has goods to sell, he displays them to the best advantage. If the engineers "have the goods," they should show them. Engineers will be employed in this work in county and township just as soon as the public are convinced that their services will be profitable. But the people of Ontario are not yet accustomed to the services of engineers in road work.

That the supervision of road work on each system,—township, county, city, or Province—should be centralized is a principle that has been found valid wherever the best roads are being built. In France, Germany, England, and the American States advanced in road building, the centralizing of responsibility is recognized as a vital necessity. In this way expert knowledge is directed to the design of roads; and the forces available are directed by businesslike methods adapted to any other form of construction. The country roads, looked at as a purely local quantity, do not impress with their importance; but as a part of the great transportation system spreading as a vast network throughout the Province, the aggregate forms a work of magnitude, and the results of neglect will seriously retard the material development of the country.