

eighteen is sufficient for most country traffic. A wide roadway looks well and is more convenient for traffic—if kept in good condition. But a wide, well-built, well-kept roadway means money. A narrow roadway in good condition is better than a wide, but poor road. Near towns and cities, where travel concentrates, it is well to provide a roadway suited for two lines of traffic so that vehicles can pass without going off the metal and sinking in the mud; but away from the town, eight feet of metal for a single line of travel is sufficient.

The graded roadway should be straight and located in the centre of the road. Ontario roads have grown up largely from pioneer conditions, when it was necessary to wind in and out to escape stumps and logs, sloughs and boulders. These conditions no longer exist, and before any road can be permanently made, before the first step to permanency can be taken, the roads must be straightened.

To delay straightening the roads merely means that much of the work now being put on them will be thrown away, will be torn up when the straightening of the road is undertaken. Keep the metal straight and in proper alignment. From the appearance of work done in some townships, one would think the roadmakers were trying to follow the crooks of the rail fences along the road.

#### SKILLED ROADMAKERS

It would seem almost unnecessary to discuss the value of skill in any kind of work; but there are certain classes of work which seem to the ordinary observer so simple and easy that we are apt to fail to appreciate the skill and effort required to accomplish them. In looking up the question of good roads and trying to determine what is the cause of the present condition of the roads in this State, any one who studies the subject seriously will come to the conclusion that the main trouble is the lack of skilled supervision. Certainly we all know that roads may be built and kept in much better shape than are our present roads with the expenditure of the amount of funds that is now put upon them. This being the case, we see that there is something wrong with the system, that there is something lacking in the proper control of our road work; and this fact has become so generally known and appreciated by the people that it has caused a lack of public confidence in the management of road work, and makes very difficult the appropriation of any money or the expenditure of any funds for the purpose of road improvement. We can accomplish very little in road improvement until we have such a system and such management of the roads as will inspire confidence on the part of the people. When we have that, the funds necessary for the work will come.

The construction of a road is an engineering problem, very much like any other kind of construction in many particulars, and requiring of the men who have charge of it a knowledge of the ordinary methods of construction used for such work, and a knowledge of the materials of construction, of the methods of using materials, and good judgment and horse sense.

This element of good judgment and horse sense is the most important as well as the most rare quality that we find in the ordinary man who undertakes such work. For instance, if we take up the question of road drainage—the question of when to drain a road and when not to—it is a question of economy, of course; that is, if your road needs draining, then it is a waste of money to build a road without the drainage; if the road does not require drainage, then it is a waste of money to put under-drainage in, because not needed.

All these questions are questions of judgment and skill, a knowledge of conditions and ability to judge con-

ditions and know when to do certain classes of work and when not to. Now, we are too much inclined always to follow some set rule and to do the same thing everywhere. The idea is that a man who is skilled, who becomes familiar with work of this character, will do the things that are needed and will leave undone things that are not required in particular parts of his work. No two pieces of road will be exactly alike, and need the same treatment. A man must know the ordinary methods of construction and know when to apply them.

There is another point that I might put in here, and that is, that I am not intending to criticize the men who have had charge of our roads; there are a great many good men among those who have been in charge of our roads. But road work—particularly with earth roads—in order to be effective, must be continuous, and a man in order to handle such work and do any effective work in the way of supervision, must have the power to do the work when it is needed and to keep the road work in shape.

It is this element of being able to control the situation and being able to get the work done when the work is needed that is most important in this kind of work; that is, we must not only have skilled men, but those men must have the power to do the work in the right way and at the right time.

The question of how we are to get skilled men trained for this purpose comes up here. Could we start right out with a new system and have everywhere trained men for handling the work? Of course it is evident that we must adopt some system by which we can train the men up to the work; that is, the thing that we need is to get men who have been trained by experience in the work until they are skilled. We could not start out at once with a lot of skilled men, because we haven't the men.

When we take up the question of higher class roads, the building of rock roads, we find that we need good judgment in the selection of materials. There is often the question arising as to the value of various materials for different kinds of construction. You will often have to compare material close at hand with that which is imported from a distance. There will be differences of cost, and the question of which material should be used must be decided.

Then the first step is to secure some organization which will develop a class of men in charge of roads who will give their time to road work and will study the subject of road improvement, and then to give those men control of the work. When we have succeeded in establishing such a system and have such a class of men in charge of our road work, the confidence of the people will come to that system and management, and to those men in such a way as that road improvement will have removed from it the greatest obstacle that it now meets.

—From *Proceedings Missouri Good Roads Convention.*

#### PETERBOROUGH GARBAGE DISPOSAL

Peterborough City Council has under consideration a by-law providing for the systematic collection and disposal of ashes, refuse and garbage within the city limits. In its preparation the Brantford garbage by-law was used as a guide. The Brantford measure, at its commencement, was as a test put in force in one district only, but at the end of a year was found so satisfactory that it was adopted for the whole city.

The service is an exceedingly useful one, and could profitably be employed by other municipalities of Ontario which have not yet adopted it. It is of value not only to the individual citizen, but to the community at large, tending to cleaner and more sanitary conditions.

Under the proposed Peterborough by-law, the city