

protect them from the direct pressure of heavy loads. The depth of covering necessary, increases with the size of the pipe. At least a foot of earth over the top is advisable in every case, but for culverts of two feet in diameter or over this should be increased to at least eighteen inches.

The earth should be well packed and rammed around the tile to secure a firm bearing, and light soils should not be used immediately over or around the culvert. A heavy clay, a firm gravel, or a compact sand or gravel will answer, but vegetable mould, water sand, and light loams are subject to wash-outs.

At the outlet the culvert should be set nearly flush with the surface of the ground. If set higher than the surface, the fall of water will wash out a depression and in time will undermine the end of the culvert. A too rapid grade will have the same effect, and it is well to cobble-pave an outlet where this undermining action is likely to occur.

Culverts, in many townships are very numerous and necessarily so. Water should be disposed of in small quantities, along natural watercourses, otherwise if gathered in large bodies along the roadside, it gathers force, and headway, resulting in extensive washouts, and is in every way more costly to handle. Water should be taken away from the roads as quickly as possible, for it is excess water that is the great destroyer of roads. Culverts, in addition to being a matter of considerable expense to municipalities, are too often in a bad state of repair, sometimes dangerous, and when not level with the roadway, are an annoyance and interruption to traffic. Good roadmaking is largely a matter of good drainage and culverts are a detail of drainage upon which municipal councils should bestow a great deal of attention, with a view to greater permanency, increased efficiency, and a reduction of the cost.

A Good Beginning

The year has opened very ominously toward statute labor. Already the councils of Blanshard, Orillia and Nelson have passed by-laws commuting it, Ameliasburg has commuted in part, Whitby council is preparing for the change, and no doubt there are others from which we have not heard. The council of Sydenham proposes to raise \$40,000 for road improvement.

The spirit which is spreading throughout the province may be gathered from the following editorial which appeared in the Oakville *Star*.

"The days of statute labor are nearing a close in Ontario. Some townships may cling to this old fashioned means of road-making, but there is a preponderance of the best thought in favor of newer and more advanced methods. Nelson township has set the pace in Halton. At the first council meeting Councillor Richardson introduced a by-law commuting the

statute labor of the township at fifty cents a day. This met with favor from the other members and was passed.

The by-law provides that the necessary road-work will be done under the direction of two practical overseers. These gentlemen are to study the latest plans and methods of constructing and maintaining roadways, and to make the best use of available material. The work will be done largely by contract or day work, preference being given to farmers who have the time to spare. But all will be systematical and with the best permanent results in view."

"Nelson authorities got their plans chiefly from Saltfleet township, where for some years statute labor has been commuted with the most satisfactory results. At first the rate was sixty cents per day, but now it is down to thirty-five, and the council can procure more good work at that low figure than under the old system. Roads have been made of a uniform grade and special attention is given to drainage, the first principle of road building."

"Numerous other townships in different parts of Ontario have abolished statute labor, and the move by Nelson will give a fresh impetus to the good work in surrounding counties. This great unsubsidized family journal and all advocates of road reform have every confidence in great good being accomplished."

"Some few years ago the *Star* vigorously took the initiative in advocating a better system of roadmaking. Then the idea of abolishing statute labor was only countenanced by some of the more prominent gentlemen. But the good work is advancing and spreading and now the general feeling is favorable to a change. Nelson township has made a bright move that shows she is governed by progressive far-seeing councillors, who have grasped the idea of helping along the reform and recognized the great advantages to be gained by commuting statute labor. The old system has done good service, and this country owes a debt of gratitude to the yeomanry who banded themselves together and constructed our highways. But times are changing. Neither business or farming methods of years ago rule to day. So with road-making. There are new and better systems and this is an age of advancement."

The Abolition of Statute Labor.

Erroneous ideas of what the abolition or commutation of statute labor means have not yet been removed from the minds of the people in many sections of Ontario. It simply means that the payment of taxes for the construction and maintenance of roads shall be placed on a cash basis instead of on a labor basis. The payment of a tax in labor instead of money is obviously unjust. One man's dollar is as good as another's; but the day's work of one man is not as good as another's.

If all men tried to do their work faithfully, and honestly there would not be so much objection to statute labor, even if one man were to do more work than another. The strong man, and the capable man, could afford to overlook the shortcomings of a weaker neighbor. The payment of the road tax is a debt resting upon every citizen, but we find men quite as unwilling to pay their debts of labor, as their debts of money. The distinction between the two methods is that the payment of the road tax in money offers no opportunity to dishonesty, while payment in labor affords every opportunity. The result is that the man who performs his statute labor honestly is practically defrauded by his neighbor who does not.

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Added to this is the feeling which has grown up, that performing statute labor is "working for the Queen." Men may not, from a dishonest motive, shirk their statute labor, but they regard it as a holiday, to be spent in the most sociable manner possible, and the result is that the work is not done, the roads are neglected and the man who labors faithfully suffers injustice.

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Statute labor is too clumsy, also, to be properly directed to the improvement of roads in the most economical and efficient manner. Draining may be needed but the men want to haul gravel; gravelling may be needed but the men want to grade the roads; the gravel may be dirty, in need of screening, but the men want to make the best showing for their work, so screening is neglected and they haul as much of the inferior material as possible. Between the two facts, that statute labor cannot be justly collected and that it cannot be applied to the roads in the right way and at the right time, it is a very unwise system. Roads are of much too great importance as a part of the machinery of a farm, to permit such a wasteful method of construction and maintenance.

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Road-work should all be on a money basis and the aim should be to concentrate funds as far as circumstances will permit, so as to secure good and durable work. This does not mean, however, that nothing is to be done to the little travelled roads until the main roads are properly built. It means that every road-beat will receive its proper share of attention.

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As worked out in actual practice, it means that the money collected in lieu of statute labor performs nearly all the work the money and labor tax together formerly accomplished, in keeping all roads in a passable condition, thus leaving the money appropriations from the general funds for permanent work. Each beat should, under any system, receive its proper share of attention to repair the effect of ordinary wear, but provision should be made for a gradual advance towards a completed system of good roads.