

Our Roads.

(Continued from last month.)

EXISTING GRAVEL ROADS.

On a number of roads throughout the country, municipal councils have expended considerable sums of money in reducing grades and putting on gravel, but in the majority of these cases gravel has been put on without any attention being paid to the reduction of grades or the proper formation of the roadbed. It has been found that these roads rut deeply in the wet season and consequently are rough and unpleasant to drive on during the remainder of the year.

A remedy for such roads is:

1. Have the road properly drained according to the specifications herein given for the construction of new roads.

2. With the use of a road machine and a gang of men commence at the edge or the gravel and work to the gutters as hereinbefore described leaving the road crown as if building a new one. See that the gutters have proper and uniform fall for the surface water, and that the trenches are made leading to the side ditches.

3. Put on a sufficient quantity of gravel of the best quality obtainable to complete the crown of the road and carefully watch it with a rake until it has become perfectly consolidated by the travel.

4. Never neglect to see that the rake is sufficiently used to prevent the formation of ruts and maintain a proper crown to the road so as to secure the shedding of the water.

5. Where grades are steep and irregular and can be reduced at reasonable cost, it is advisable to make such reduction before expending any further time or money in grading, in which case the present gravel should be taken up and laid to one side so that it may be relaid, but generally, where there are slight changes, it is not advisable to break up the old foundation in order to secure perfect uniformity of grade.

MAINTENANCE.

Earth roads should be kept smooth, hard, up to grade and cross section by the addition of suitable material at frequent intervals and in small quantities at a time on all places out of grade, securing a surface as shall quickly convey the water to the side ditches. The latter should be kept open, of uniform and sufficient slope, free from rocks, ridges, depressions, and continuous to one natural or artificial outlet. As regards the maintenance of a road of this class it seems hardly necessary to say that the way to keep it good is never to let it get bad. In nothing is the old adage more applicable. Every improved road should be watched over by a careful superintendent with material always at hand to level up and smooth over all inequalities as they appear. This is not only the best but it is by far the most economical method of keeping a road in repair, for there is nothing more deeply

demonstrated than that the wear of a road increases in a geometrical ratio as its condition deteriorates. It will, however, sometimes happen where the travel is very heavy and continuous that the road will become so worn as to require a complete resurfacing. The surface of the old bed should be slightly loosened up with a pick before the new material is spread on so that the whole will combine better and form a solid mass. There are now machines for doing this in the shape of a steam roller with a pick attachment which are said to do the work better at a great saving of labor. The advantages of compacting a road with the roller before it is used for traffic is so obvious as to need nothing more to be said on it. If not done with the roller it must be done with travel, which is bad for the road, as it wears away rapidly in the process, and bad for those who use the road to be compelled to do at their own cost what should be done by those having charge of the construction." The friction of resistance to draught on a road with deep ruts and thick mud is four times as great as on one in good order. This shows the importance over a perfectly kept road. An incidental advantage is that the prompt removal of the mud after every shower will prevent the annoyance of dust so generally an objection to roads but not at all their necessary concomitant. A road kept up by daily attention needs no repairs, but if it is put in order only at intervals the injuries to it would have been increased in geometrical progression which render very serious repairs necessary. It will be found cut into ruts, deep holes, and regular depressions, and often lower at the middle than it is at the sides. It must be put into shape and restored to its proper cross section by cutting down the sides and filling up the middle parts. Only a single thin coat of stone should be applied at one time not more than a cubic yard to a rod superficial. The surface of the old roadway may be lightly picked or lifted with strong short picks, merely burying the point one or two inches deep, so that the new materials may be more easily united to the old ones. This is especially necessary on declivities to prevent the stones rolling down the slopes. When the road to be repaired is one which has been originally formed of large stones and of superfluous thickness no new material should be brought into it, but the old stones should be loosened with picks, gathered with strong rakes, to the sides of the road and there broken into the proper size. The surface of the road having been put into proper shape, the broken stones are to be returned to it, being scattered uniformly and thinly over the surface of it. Only a small piece of road should be thus broken up at once, but the whole width. The old plan of repairing would be to fill up the holes with an additional supply of the same large materials. But the methods here recommended make more work for men

and less for horses, and produce a great saving of expense. The best season for repairing a broken stone road is in the spring or early summer, when the weather is neither very wet or dry, for either of these extremes prevent the material from consolidating, and therefore produce either a heavy or a dusty road. If made at this season the roads are left in a good state for the summer and become consolidated and hard, so as to be in a condition to resist the work of the ensuing winter. If several depressions are found very near the surface each other, cover the first, and attend to the rest after the first has become solid. The ruts which are formed should not be filled with loose stones for this would make longitudinal ridges of harder material, but the laborer should work the rake backward and forward on each side of the rut and across it; and if he does it with his eyes shut he will do more good than by taking pains to gather all the stones he can find to place in it.

The number of men required by this system of constant watchfulness may at first seem an objection, but the expenses will be amply repaid by the advantages obtained. Each laborer should have a certain length of road assigned to his special care, and the most intelligent and trustworthy among them should be made inspector over the others for a certain distance. At times unfavorable for working on the work they should be employed in breaking stones. With a reversible road machine, properly managed, five miles of well graded and well drained earth road can be repaired. This operation should be repeated once a month for eight months in the year, and in the case of a properly made and properly drained gravel road ten miles can be repaired in one day. With a stone road, however, the repairs should be made by manual labor, one man being able to rake and keep in proper repair twenty miles of road by working six months in the year.

Why They Moved.

As the result of the adoption of the new county road system, settlers have already begun to flock from Canada and elsewhere. The first to arrive was a party of four families, numbering twenty-four people, on the steamer Cambria, Tuesday morning. They came from the county of Grey, and have taken farms in Pickford township. The newcomers had twelve horses, ten cows, and farming implements of all descriptions.

When asked why they picked out this particular section, their answer was: "On account of the excellent farming facilities which we have found on investigation that this county possesses. We were deferred from coming before by the poor condition of the roads. We learned a short time ago that the county would soon have a good system of roads, and made up our minds to emigrate at once. Many others will follow us."—*Sault Ste. Marie (Mich.) News.*