

FLAT ROADS

One of the most common defects in country road making is the failure to give the road a sufficiently high crown. A road always settles rapidly for the first year after construction; and this settlement continues in a less degree for all time.

A road when first built should be too high in the center. If not, in a year's time it will be too low to properly shed the water; and in three years the road will require reconstruction. It will be flat and cut into a series of ruts.

Roads are now usually graded with road machines, and are given a uniform curve from the bottom of the open drain to the center of the road. A width of twenty-four feet between the bottom of the drains with the central eight feet metalled is ample in most cases. When made of this width the center of the road should be two feet higher than the bottom of the ditch. This gives a rise of two

If the old road has become too flat, and the grading of knolls does not offer a solution, it may be necessary to loosen up the old material with a pick plow, grade it to the center, and then place new material.

To draw soft material from the sides of the road, place it on an old stone road, and then over this spread new metal, is absolute folly. In the first wet season, the new metal will be forced downward, and the mud will ooze to the surface. The hard surface of the old road will not let the water drain away. The soft earth over it is converted into muck. The new metal on top of the muck is soon lost. The work of rebuilding old roads is often more difficult than making new roads. But to attempt to crown them by spreading sod and clay over them before placing the new metal, is to waste time and money.

There are communities wedded to the idea of making roads with a wide flat grade; with a gravel or stone track



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inches to the foot from the bottom of the drain to the crown of the road.

This will no doubt draw criticism from those using the road when it is first built. There will be gloomy prophecies of up-sets and over-turned loads. The sanity of those who built the road may even be questioned. But one year of experience will turn the tables. The road with the high crown is the one that is smooth when others are rough. It is the road that will last when others are worn out.

In addition to a high crown, the side drains must be graded with a fall to free outlets. Drains without outlets are not drains. They are merely elongated ponds and are worse than useless.

Old stone or gravel roads when being reconstructed should and can be given a high crown. In doing this, do not draw in the sod and earth from the shoulders. These shoulders should be cut off and turned outward. The crown can, in many places, be made up by putting on new material. If, in low places, this cannot be done, knolls on each side can often be cut off and the old stony material used in the low places.

on one side, and a clay track on the other. Such roads are neither good in theory nor in practice. The earth track becomes cut up and rough. Having insufficient crown, surface drainage becomes impeded, the whole road soon becomes flat, rutted and shapeless. It is not a type of road that will last.

These are not fanciful ideas. They are simple statements of fact; the result of years of wide and careful observation. They can be verified by anyone who wishes to do so. To refuse to accept them is on a par with the wisdom of the ostrich that finds safety by hiding its head in the sand. Don't be an ostrich.

An eminent engineer at a recent meeting of The Western Ont. Municipalities Power Union, stated that limited hour contracts were preferable largely to storage batteries. The latter were not feasible in alternating currents. He thought that it would be better to replace the motors at the beginning rather than try to use an alternating motor on a direct current. The latter was at best an expediency. For a small consumer the best plan was to put in a small motor to run the plant. He declared that the continuity of the service could not be interrupted. Branch lines might be put out of order, but it would take a hurricane or disturbance of most unusual violence to disturb it.