

Points in Favor of Road Rolling

W. A. McLean, C.E., Provincial Engineer of Highways, Toronto.

Rolling is essential to the construction of a good stone road. It is impossible to build a stone road cheaply and durably without a roller, and the same is true with regard to the best class of gravel roads. Roads built of loose stone take from one to three years of traffic to consolidate them. During that time the roads so treated are a serious obstruction to traffic. On short patches this is not so noticeable; but on long stretches of one or two miles, it is distinctly objectionable and much dissatisfaction arises. Before traffic can, with comfort, use the metal of roadway the earth sides are cut up, drainage is blocked, and the entire roadway is frequently rutted or worn out of shape by vehicles traveling along one side of the stone.

Councils in selecting a steam roller should choose the best; and respective merits should be carefully studied. A saving in first cost may be many times offset by the additional cost of operating or maintaining an inferior machine. Maximum results and fewest spots for repair are all-important in seeking true economy. Rolling is not an added expense to the cost of a stone road. The cost of rolling is more than made up by the saving that results in several ways. Coarser stone can be used in a road that is rolled so that the cost of crushing is reduced. Between stone crushed fine enough to be used without rolling and the coarser stone suitable for a rolled road, there may readily be a difference in cost of from eight to 10 cents a ton. This alone will nearly pay the cost of rolling.

Ruts built without rolling demand a great deal of attention for several years that is not given to rolled roads. The stone has to be raked to place from time to time; the earth sides have to be levelled where they have been cut up and destroyed; new material has to be added to fill hollows and ruts. Rolled roads are more durable, and in consequence the cost of repair and maintenance is greatly reduced. With coarser stone in the road it is stronger to resist wear; and it is more securely bonded than where it is first rutted and mixed with mud. Less stone is required on a rolled road, as loose stone

is largely forced down into the mud or is knecked to the ditches by traffic.

A good road should have a foundation of uniform strength, surfaced with a well-bonded coat of stone of uniform thickness. By rolling the sub-grade, weak spots are developed that can be filled with earth and again rolled to produce the uniform foundation. Earth for this purpose is cheaper than stone. When weak spots are brought to grade in this way, the uniform coat of stone can be applied and rolled to its permanent place.



A Rolled Stone Road along which it is a pleasure to drive

The illustration shows another of the splendid stone roads in the Prince Edward County Road System. This road when photographed had just been completed with a steam roller. The road is in perfect condition for travel.

In addition to less cost, a stone road built with a steam roller is a complete work. It is in the best of condition to drive on as soon as rolling is finished. Rolled roads are a delight to those who have been accustomed only to old-time methods, and have done much to popularize county road systems.—Highway Improvement.

The smuts of cereals are of such a nature that they confine their attack to one particular crop.



A New Road in Marked Contrast to the one finished with a Roller

The ruts on this country road in Oxford are largely the result of using too much top dressing. The road is made of crushed gravel, but a "dust jacket" should have been used on the rotary screen to remove part of the sand.

Neither of the barley smuts will attack anything but barley and similarly with oat and wheat smuts; consequently an affected barley crop will have no influence on wheat and oats next season.—J. W. Eastham, B. S. C., O. A. C., Guelph.

Don't forget to renew your subscription.

Considerations in Wintering Bees

The important considerations in wintering bees are to have plenty of young bees, a good queen, plenty of stores of good quality, sound hives, and proper protection from cold and dampness.

If, as cold weather approaches, the bees do not have stores enough, they must be fed. Every colony should have from 25 to 50 pounds, depending on the length of winter and the methods of wintering. It is better to have too much honey than not enough, for what is left is good next season. If feeding is practised, honey may be used, but syrup made of granulated sugar is just as good and is perfectly safe. If honey is purchased for feeding, great care should be taken that it comes from a healthy apiary, otherwise the apiary may be ruined by disease. Never feed honey bought on the open market.

The bees should be provided with stores early enough so that it will not be necessary to feed or to open the colonies after cold weather comes on. Honeydew honey should not be left in the hives, as it produces "dysentery." Some honeys are also not ideal for winter stores. Those which show a high percentage of gums (most tree honeys) are not so desirable, but will usually cause no trouble.

OUTDOOR WINTERING

In wintering out of doors the amount of protection necessary depends on the severity of the winter. In the Southern States no packing is necessary, and even in very cold climates good colonies with plenty of stores can often pass the winter with little protection, but packing and protection make it necessary for the bees to generate less heat, and consequently they consume less stores and their vitality is not reduced. Dampness is probably harder for bees to withstand than cold, and when it is considered that bees give off considerable moisture, precautions should be taken that as it condenses it does not get on the cluster. An opening at the top would allow the moisture to pass out, but it would also waste heat, so it is better to put a mat of burlap or other absorbent material on top of the frames. The hive may also be packed in chaff, leaves, or other similar dry material to keep out the cold. Some hives are made with double walls, the space being filled with chaff; these are good for outdoor wintering. The hive entrance should be lower than any other part of the hive, so that any condensed moisture may run out. The hives should be scud and the covers tight and waterproof.

Entrances should be contracted in cold weather not only to keep out cold wind, but to prevent mice from entering. There should always be enough room, however, for bees to pass in and out if warmer weather permits a flight.

CELLAR WINTERING

In the hands of experienced bee keepers cellar wintering is very successful, but this method requires careful study. The cellar must be dry and so protected that the temperature never varies more than from 40 to 45 degrees F.; 43 degrees F. seems to be the optimum temperature. The ventilation must be good or the bees become fretful. Light should not be admitted to the cellar, and consequently some means of indirect ventilation is necessary.

Cellar wintering requires the consumption of less honey to maintain the proper temperature in the cluster and is therefore economical. Bees so wintered do not have an opportunity for cleansing flight, often for several months, but the low consumption makes this less necessary. Some bee keepers advocate carrying the colonies out a few times on warm days, but it is not fully established whether this is entirely beneficial and is usually not practised.

The time for putting colonies in the cellar is a point of dispute, and practices in this regard vary considerably. They should certainly be put in before the weather becomes severe and as soon as they have ceased brood rearing. The time

chosen
hive,
The
lower
trance

Mr. A.

AW

awards

will into

the Pr

day is

not ta

of thir

seen o

Mr.

which

and le

the

years.

venient

every r

nishing

Terrill,

At th

number

fection

tion

close a

is a ca

On the

at the

at the

at this

The v

venient.

a soft w

water fo

disposi

On th

carriage

A lumber

a few r

mer mil

on one

chions,

milked.