

In many parts of the Province the fields by the roadside are almost covered with boulders and stones, there, apparently, for no other purpose than to be carried by the landowner to the road and converted by the use of a portable crusher into road metal. Boulders, though not equal to bed rock for macadam, makes a good road metal, and should by all means be preferred to gravel for strength and durability. Care should be taken, however, to discard boulders of sandstone, granite and limestone which have become impoverished or "weathered" by exposure to the atmosphere.

Absolute cleanliness of material is necessary in building gravel or macadam roads. No "binder" is needed when limestone, sandstone, gravel or the softer and less durable metals are used. Very hard granites and traps, however, need some aid to consolidation, but usually the best binder to use is the "screenings" of these materials. Sand is hurtful to the road when mixed with gravel or broken stone to act as a binder, and clay is infinitely worse.

#### ROLLING.

Rolling a road is especially beneficial in three ways: (1) By affording better surface drainage. (2) By making a more durable road. (3) By making the road at once fit for travel.

A road should be so smooth and compact on the surface as to shed the water readily to the side gutters. If the gravel or other road metal is dropped from the wagon loosely on a soft earth foundation, water is at once absorbed. Wheels passing over the road when in such a condition at once sink into and rut not only the gravel, but the earth beneath. Water is held in the ruts and each succeeding vehicle renders their condition worse.

The road is less durable, since the gravel, being mixed with the dirt beneath, obtains, when finally consolidated, a dusty, easily worn surface, rough in dry weather and muddy in wet, and its life is very much shortened.

The loose material placed on the road at midsummer is avoided by vehicles until forced by autumn rains to leave the dirt side road.

Not only is such a driveway useless for supporting heavy loads, but, it is needless to say, is very disagreeable for light travel. For a portion of the year, in fall and spring, the farming community of the Province is practically cut off from the markets, from business and social life; needlessly so, for the roads are during this period destroyed to such an extent as to render their more careful construction a most profitable investment. Badly built roads are always expensive to maintain. Two years' statute labor and road expenditure are laid out, when with proper tools for doing the work and with proper methods one should suffice.

Road rollers are not for city streets only. Wherever roads are made rollers should be used. Dirt, gravel and macadam roads are all benefited by rolling. When the best material is used there is more need, of course, that every precaution should be taken for its preservation.

The weight of roller used must depend upon various circumstances—the amount of work it will be required to do, the quantity of road metal used, the strength of the bridges and culverts over which it must pass.

A steam roller costs much more than a horse roller, but when it can be kept constantly employed does so much better and faster work that it is the more economical. For this reason when several municipalities can join together in the purchase of a steam roller it should be had. A weight of ten tons does satisfactory work, and is not too heavy for the majority of bridges.