Road Metal.

The best road metal is that which is hard, tough, and not affected by the weather. For the lighter traffic of country roads, gravel or stone from local sources must generally be employed, as the cost of transportation will, at the present stage of roadmaking in Ontario, preclude the use of more durable stone from a distance. For heavier traffic in or near large towns the best material at almost any price is the most economical, as the decreased cost of maintaining a good metal (under heavy traffic) quickly makes up for the greater original cost of construction.

In this Province the roads may be roughly classed as (1) dirt, (2) gravel and (3) crushed stone (or macadam). Dirt roads give the least satisfaction, and are usually almost impassable for several months of the year. By greater attention to the drainage, however, their condition might be vastly improved. Roads of a very light sand may be improved by placing on them a coating of clay; and stiff clay roads are improved by a coating of sand. These means should be adopted only where gravel or crushed stone are not available. This treatment of clay and sand, however, is beneficial as a foundation for either gravel or stone.

Gravel should be screened so as to remove all stones over two and one-half inches in diameter, and all sand and earthy matter. Any material over two and one-half inches and under four inches may be used as a foundation layer upon which to place the finer material. Stones over four inches in diameter should be broken. If the township has in its employ a rock-crusher with screen attachment, it can be used to excellent advantage by placing it in the pit and putting all the gravel through it. By this means the dirt and sand are removed, the stones are coursed according to size, and those which need it are broken, all by the one operation. River or lake gravel is generally better than pit gravel on account of its freedom from dirt. Clean material is absolutely necessary in forming a durable roadbed.

Broken stone is beyond question very much better than gravel. The hardest and toughest is the best since it forms a more durable surface, diminishes the resistance of loads upon it and is more cheaply maintained. Limestone is the most common stone in the settled portions of Ontario. It varies in quality from that which is almost useless to that which in point of economy cannot be surpassed. What is lacking in durability is largely made up by its binding characteristics. But some limestone of doubtful quality, which is porous or slaty, decaying readily on exposure to the atmosphere, moisture or frost, should be used with caution. Some idea of the wearing qualities of rock can be had by performing a few simple tests: wearing on a grindstone, breaking with a hammer, scratching with a nail, compressing in a blacksmith's vice, etc. By comparing the results of these tests on different stones a fair opinion can be reached, but no test is conclusive except actual wear on the road.

Sandstone is obtainable in some parts of the Province, but as it readily crumbles and wears to sand, should be used only for lighter traffic on country roads. Granite is frequently of inferior quality, and, like the sandstone, readily crumbles under wear from the brittleness of the felspar which it contains; and gneiss, of which there is an abundance in northern Ontario, is no better.

Trap rock occurs in the vicinity of Kingston and Ganancque, and it is also imported by American cities from Poole Island in the northern part of Lake Superior. This is an exceedingly durable stone, and should be employed where traffic demands a more expensive pavement than that which can be obtained from local sources.