

drains are flat, stopped up, and he does not consider whether the water will run up hill or down. His gravel is chiefly sand or clay. So long as the teams are busy hauling it, he has a hope that on the road it will turn to gravel or stone. From beginning to end his road construction has been marked by stupidity and waste.

The name of the gentleman whose work we have been discussing is, as has been said, well-known, and will be recognized by all. It is "Anybody," and he is frequently assisted by a near relative—"Everybody." The latter gentleman does not do very much work himself, for what is Everybody's business very quickly becomes "Nobody's" business. These three have been making roads in Ontario for too long a period.

"Anybody" still has his admirers, who proclaim, as though it needed no argument, that "Anybody can build a road." Perhaps anybody can build a road, but many communities are finding to their regret that he is a very expensive and unsatisfactory contractor. His work and materials are inferior, and a competent man can do better work for one dollar than "Anybody" can do for two.

Road-making is a matter which requires thought and attention. It is a great and important public work upon which a large expenditure is every year being made. It has become necessary that, in order to achieve success, skill, good practical judgment and economy must be carefully combined. The man who thinks that Anybody can build a road does not know how much there is to learn about road-making; he has not taken time to study the question, but is content to plod along in the mud, learning nothing from his own experience nor from the experience of others. Neither "Anybody" nor the man who thinks that Anybody can build a road, is a proper person to be in charge of this important work.

LANARK COUNTY ROADS.

The work of improving and constructing the Lanark system of County Roads has made fair progress during the past season. This system was assumed about the close of last year under the Act to Aid in the Improvement of Highways, whereby one-third of the cost of the work is contributed by the Ontario Government. The system comprises, in all, 98 miles of road, including about twenty miles of toll road, purchased by the County and freed from tolls at a cost of \$19,346.60.

The roads purchased from the toll road companies were, for the most part, in good condition, having been well macadamized and kept in fair repair. Of the other roads designated as part of the county system, about thirteen miles has been gravelled or macadamized during the past season, so that one-third of the system is now constructed in a durable and efficient manner.

The principal stretch of road treated is one running westerly from Carleton Place to Innesville, where a distance of seven miles has been graded, drained, and metalled with gravel or broken stone. The general plan has been to first plow up the sides of the road, then to round or crown the roadway with a grading machine to an average width of twenty-four feet, from water-table to water-table. In doing this work the curve of the roadway falls regularly to the bottom of the side drain, so that the necessity of excavating a drain by hand is overcome, and the entire earthwork is done by machinery. On the centre of the grade thus formed the gravel or stone is evenly spread to a width of eight feet and a depth of six inches. A roller is not used in this work, but as a partial equivalent, care will be taken to draw the metal back, and to level the roadway when wheel tracks have formed.

While this is the general plan, it has been interrupted to a certain extent by the outcropping of bed

rock on the surface of the roadway, and the numerous large rocks and boulders on the road allowance. It was regarded as of prime importance to provide free and constant surface drainage, and in opening the side drains a large amount of rock had to be blasted and removed. The amount of rockwork necessary has, therefore, tended to increase the cost of road construction. Numerous hills and knolls have been cut down, and where these have been of rock the cost has also been greater than for ordinary work. The amount of rock piled at the roadside is, in many cases, forcible testimony of the amount of work done. The rock removed is of variable quality, some being the hardest of granite, and in other places, a tough, blue limestone.

Where gravel of a suitable quality could be had within a convenient distance it was used on the roads, but where it could not be had within about two miles crushed stone has been employed. The gravel is, as a rule, somewhat fine for best wear, but is inclined to be gritty rather than earthy.

Broken stone has been used on only one section, near Carleton Place. The stone is a hard, blue limestone of a good quality, breaking well into cubical, rather than flat, fragments. The stone is broken in a crusher belonging to the County, and was purchased last spring.

The crushing outfit consists of a 17-horse-power engine, a wagon equipped with a water-tank, a crusher which will turn out from ten to twelve cords per day, a rotary screen attachment, and bins and chutes to receive the stone and carry it to the wagons. The county uses two special dump wagons for hauling stone.

Where to haul from the crusher to the road does not exceed 80 rods, and apart from the cost of quarrying, the daily cost of crushing is approximately as follows:

Foreman.....	\$ 2 50
Engineer.....	2 50
Two teams hauling away.....	6 00
Team hauling water, etc.....	3 00
Feeding—two men.....	3 00
Wheeling to platform—four men....	6 00
One man at bin.....	1 50
Man spreading on road.....	1 50
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	\$26 00

In addition to this, are expenses for fuel, repairs, and incidentals.

Additional road-making machinery owned by the county consists of a grader, wheeled and common scrapers, pick-plow, and minor implements.

The entire roadwork on the county system is under one overseer, and foremen are employed by him on works which he cannot personally superintend. In addition to the main work near Carleton Place are scattered stretches of from one to two miles each in other parts of the county. A camp outfit was employed by the superintendent on his own work, in order to keep the men close to the work. The camp comprises half-a-dozen tents for horses and men, and this was moved to convenient points along the work from time to time. The usual wages were \$1.25 a day with board for labor, and \$2.50 a day for man and team—the teamsters supplying oats, but not hay, for their horses.

In several cases the road allowance has been straightened or changed to a more suitable location, while throughout there has been an effort to bring the travelled roadway to the centre of the road allowance. The roads assumed by the county were among the most heavily travelled thoroughfares, but at the same time, among the most neglected within the county. In many instances they are trespass roads, narrow as is usual in such cases,