

## MUNICIPAL DEPARTMENT

### ROAD MACHINERY.

Mr. A. W. Campbell, Instructor in Road-making for Ontario, in his annual report, says of road machinery.

Improved and modern road-making machinery is as necessary in the construction and maintenance of highways as are self-binders in the harvest field. Roads cannot be well or economically constructed without suitable tools and implements. If a workman is known by the condition of his tools, a very damaging reflection is certainly cast upon the majority of townships. Not merely are improved machines seldom employed, but the scrapers, plows, wagons, etc., used in the performance of statute labor are rarely on hand as needed, and the utmost carelessness is observed with regard to them.

**GRADES.**—Road-grading machines are now very commonly used by townships. Their greatest value is in the shaping of dirt roads. The crowning of the roadway can be done very rapidly by their use, and for this work alone every township requires at least one grader. Some townships using as many as four feel that they are needed. On gravel roads there is a marked tendency for ruts to form in such a way that the metal is forced upward and out from the wheel tracks, and a road grader can be very profitably used to level the ruts by scraping this gravel back to its place. Another important quality in the maintenance of gravel roads is the facility with which the shoulders of the roadway can be cut off. These shoulders usually consist of square corners left in the original construction of the road, augmented by dusty material washed down from the centre. They obstruct the flow of water from the travelled portion of the open drain. When cut off by the grader, the material should be thrown outward and across the ditch and used in levelling the side of the road. The stuff from the shoulders and from the ditches should never be drawn to the centre of the road, a practice which has ruined a number of excellent gravel roads. It is a mixture of dust, clay, horse droppings and sod. Placed on a good gravel foundation, it may afford a temporary benefit in summer, but in wet weather it works the destruction of the entire road. The shoulders having been formed, the proper treatment, as stated in the section on "Existing Roads," is to crown the roadway with clean gravel.

**ROCK CRUSHERS.**—The rock crusher is one of the most important of modern additions to the list of road-making machines. By their use stone can be crushed so much more cheaply than by the old method of hand breaking that, so far as cost is concerned, stone roads are within the reach of every municipality having

suitable rock in the vicinity. In the treatment of gravel a crusher is frequently most valuable, since, if containing many large stones and boulders, it will be possible to place a crusher in the pit and pass all the gravel through. A rotary screen attached to the crusher and driven by the same power will screen the resulting metal, removing sand and clay. Whenever a crusher is employed the rotary screen should be used also to separate the road metal into grades according to size. The most common type of rock crusher is that in which the breaking is done by the opening and shutting of strong iron jaws arranged so that they can take in large stones, and, by successive openings and shuttings, fracture the stones until the fragments are sufficiently small to drop between the lower margins of the jaws. The fragments are there caught in a chain of pockets, or elevator, and passed up to the rotary screen, which is so designed as to separate the product into grades according to size. Rock crushers can be readily moved from place to place, and where boulders are plentiful in the fields along the road, may be set up so as to crush stone for short sections of road as required. Municipalities in which boulders are plentiful will find the property owners willing to provide, at the crusher, all the stone that can be gathered from the fields.

**ROLLERS.**—Road rollers are of designs to be operated by horse or steam. Horse rollers usually consist of one main roll in two sections. The standard diameter is fifty inches, with each section twenty-six inches wide, giving a total rolling width of fifty-two inches. The standard weight is about four tons, but may be increased by loading to six or eight tons. The reversible type, whereby the tongue may be revolved from one side to the other, is to be preferred. Steam rollers generally weigh from ten to twenty tons, the most popular being of ten, twelve or fifteen tons. For country roads a weight of ten tons will be sufficient, especially on gravel roads and in view of the strain on culverts and bridges. In towns twelve tons, with the ability to load more heavily for surface consolidation, will be satisfactory. If it is proposed to rent it for township work, ten tons will generally be better, and will give excellent results. The lesser weight, while requiring more repeated operation to compact the road metal, is believed by some to do more

durable work. Steam rollers are all very much of the same type.

**SELECTION OF MACHINERY.**—In all kinds of machinery, the most important points to observe are simplicity of design, quality of material and workmanship, ease of operation, lightness of draft and adaptability to the work for which it is intended.

**OPERATOR.**—Graders, crushers and rollers should not be passed around from section to section for everyone and anyone to operate, but capable men should be employed for this purpose and should always accompany them. It is further necessary to see that the operator is a man who knows something of road-making and machinery, and has good practical judgment. A machine of itself possesses very few of these qualities, and unless the operator does, dissatisfaction and failure will be the result.

**PURCHASE OF MACHINERY.**—With regard to the purchase of these machines, it is desirable that every township should possess at least one grading machine, and as many more as circumstances may require. The extent to which broken stone will be needed, and the location of the quarry, will suggest the best policy to pursue with respect to the crusher. When one crusher to provide stone for the main roads of a county is sufficient, it may be advisable for the city council to own it, arrangements being made with the various towns and township municipalities either for the rental of the machine or for the purchase of the crushed metal. Circumstances may render it advisable for a private citizen to provide metal at a fixed price per cord; thus a man owning a threshing machine, and having the steam engine idle for a portion of the year, might be readily induced to consider such a proposition, to the advantage of all parties concerned. If water is available within reach of a quarry, it will afford a cheap means of obtaining the requisite power.

### GOOD ROADS CONVENTION.

The second annual convention of the County of the District of Bedford Good Roads Association will be held at Sweetburg, Quebec, on Thursday, December 30th. There will be present a number of prominent speakers to deliver addresses on the subject of improved country roads. Among them will be the Ontario Government Roads Commissioner, Mr. Archibald Campbell, C.E., whose valuable addresses were the feature of last year's convention. Mr. Campbell has already accepted the invitation of Judge Lynch, president of the association, to be present. It is expected acceptations will be received from several other well-known public men shortly.

The good roads movement received the attention of the Quebec Legislature recently, when a bill was passed authorizing councils to purchase road rollers, rock crushers, etc., for the use of the various townships and villages in the county.

## JOSSON CEMENT .. Manufactured at. NIEL ON RUPELL

Is the Highest Grade Artificial Portland Cement and the Best for High Class Work. Has been used largely for Government and Municipal Works.

TO BE HAD FROM ALL CANADIAN DEALERS

**C. I. de Sola, Manager in Canada .. 180 St. James Street, MONTREAL**

**BELLHOUSE, DILLON & CO., 30 St. Francois Xavier St., Montreal**  
Sole Agents for the Compagnie Generale des Asphaltes de France (Rock Asphalt).

## PORTLAND CEMENT NORTH'S CONDOR

Paving and Fire Brick a Specialty

SITTING LION and WHITE CROSS Brands

NORTH'S "CONDOR" BRAND AWARDED FIRST PRIZE AND GOLD MEDAL AT THE ANTWERP EXHIBITION