Engineering Department

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GRADING THE ROAD

Good grading is the basis of permanent roadwork, for good grading implies at least good surface drainage. Grading is the cheapest part of roadmaking, yet it very often is badly done or neglected altogether. In grading, points requiring emphasis are :

(1) See that the longitudinal slopes follow the flow of the water.

(2) Never gravel or stone the road until the grading is properly done.

(3) Old gravel or stone roads will usually derive more benefit from c u t t i n g away high shoulders, and rounding the road off from the top outward, than from additional coatings of stone or gravel.

(4) Always

grade away the sides of old roads before putting on new metal. Never draw this soft material to the centre.

(5) Grade to a high crown, as the constant tendency is for the road to spread and flatten. A newly graded road roads are not graded and crowned before the metal is placed on them. Before gravel or broken stone is put on the road, the roadbed should be put in right condition by using the grading machine. The water-tables should be given regular slopes to natural outlets crossing the road. Hollows should

Gravel and broken stone are largely wasted when the

not be left on the roadway or in the open drains, in which water will stand. Drains from which the water does not flow away are merely elongated ponds to hold water, permitting it to soak into and soften the roadbed. They make mud underneath the road, where it does more harm than on the surface ; the dry crust is easily cut through.

Properly Graded Before Being Macadamized—When Roads Are Properly Graded Before Broken Stone or Gravel is Put on, the Durability is Vastly Increased.

Sound and succession

See that the road is so graded that there is a constant fall along all open drains or water-tables to natural outlets.

Old roads, with a good bed of gravel or stone, are usually too wide and too flat in the centre, with square

settles rapidly in the first year. If not made too high at first, it will soon be too flat.

(6) Do not make the graded roadway wider than is necessary, and straighten crooked roads so as to have the roadway in the centre of the allowance.

(7) Useagrading machine for this work.

Do not try to form a gravel or stone roadbed till the grading has been proper-



DEFECTIVE GRADING.—Broken Stone is Scattered Along an Ungraded Roadway in Alignment nearly as Crooked as the Rail Fences. There is no Crown, no Drainage, and the Stone Can Only be Lost in the Mud.

ly done. It is a "penny-wise and pound-foolish" policy. Grade the roadway, cut down the knolls, fill the hollows, conform the slopes so as to drain to natural watercourses, crown the road with a good fall from centre to side. When this is done, gravelling and stoning will be a matter of permanent benefit. sufficiently high, it should be restored to shape and crowned by a new covering of metal. If not high enough, it should be plowed or picked up, then graded and crowned with the machine, and new material spread on top to the desired depth. It is a mistake to make the graded roadway too wide. Twenty-four feet is ample;

shoulders at the sides. These shoulders are of s oft material, earth, dust, sod, and should be cut off and turned outward, never brought to the centre to cover the hardened drain; and if the roadway is too wide, as many old roads are, the grading machine will do all the work, carrying the shoulders outward and

shaping the wa-

ter-tables. When

this is done, if

the roadbed is

153