

Road Maintenance and Repair

THERE is no phase of the road problem more important than that of maintenance. The general impression that there are certain types of roads that are permanent is erroneous. No permanent road has ever been constructed, or ever will be, according to the road specialists of the department. The only things about a road that may be considered permanent are the grading, culverts and bridges. Roads constructed by the most skillful highway engineers will soon be destroyed by the traffic, frost, rain and wind unless they are properly maintained. But the life of these roads may be prolonged by systematic maintenance. A poor road will not only be improved by proper maintenance, but may become better in time than a good road without it.

The first and last commandment in earth road maintenance is to keep the surface well drained. To insure good drainage the ditches should be kept open, all obstructions removed, and a smooth crown maintained. Except for very stony soil the road machine or scraper may be used very effectively for this work. The machine should be used once or twice a year, and the work should be done when the soil is damp, so that it will pack and bake into a hard crust. Wide and shallow side ditches should be maintained with sufficient fall and capacity to dispose of surface water. These ditches can in most places be constructed and repaired with a road machine.

Keep Weeds Off.

All vegetable matter, such as sods and weeds, should be kept out of the road, as they make a spongy surface, which retains moisture. Clods are also objectionable, for they soon turn to dust or mud, and for that reason roads should never be worked when dry or hard. Bowlders or loose stones are equally ob-

jectionable if a smooth surface is to be secured.

A split-log drag or some similar device is very useful in maintaining the surface after suitable ditches and cross section have once been secured. This drag can also be used to advantage on a gravel road as well as on an earth road. The principle involved in dragging is that clays and most heavy soils will puddle when wet and set very hard when dry. The little attention that the earth road needs must be given promptly and at the proper time if the best results are to be obtained.

Dragging the Road.

In dragging roads only a small amount of earth is moved, just enough to fill the ruts and depressions with a thin layer of plastic clay or earth which packs very hard so that the next rain instead of finding ruts, depressions and clods in which to collect, runs off, leaving the surface but little affected.

The drag should be light and should be drawn over the road at an angle of about 45 degrees. The driver should ride on the drag and should not drive faster than a walk. One round trip, each trip straddling a wheel track, is usually sufficient to fill the ruts and smooth the surface. If necessary, the road should be dragged after every bad spell of weather, when the soil is in proper condition to puddle well and still not adhere to the drag. If the road is very bad, it may be dragged when very wet and again when it begins to dry out. A few trips over the road will give the operator an idea as to the best time to drag. Drag at all seasons, but do not drag a dry road.

The slope or crown of an earth road should be about 1 inch to the foot. If the crown becomes too high, it may be reduced by dragging toward the ditch instead of from it.

Fraudulent Radioactive Waters

DR. G. W. TAPE, manager of Hot Lake Springs, has just received a copy of the "Weekly News Letter to Crop Correspondents," issued by the U. S. Agricultural Dept. at Washington, D. C., with a "warning" from its Bureau of Chemistry marked with a big pencil, and he doesn't understand quite how to take it. While freely admitting that if he was unprincipled enough to impose on the credulity of the suffering world, he could easily make a fortune, because the waters of Hot Lake Springs are acknowledged by those same bureau experts to possess the highest radioactivity of any waters in America, he declares he has never had the slightest notion of bottling them, and doesn't see why it should be necessary to warn him. For the benefit of those likely to be imposed upon by this fraud, the "warning" is here printed in full:

Attempt Fraud.

There are indications of the beginning of an attempt to perpetrate a great fraud on the American people through advertising certain mineral waters as possessing radioactivity. These waters, in some cases, are taken from springs the waters of which as they come from the ground do possess certain radioactive properties. Examination of many of these waters by the department's specialists indicates that whatever radioactivity they possess at the spring is due almost entirely to radium emanation rather than to the presence in the water of any substance possessing radioactivity.

These emanations in the form of gas quickly disappear from the water and as a result, after the water has been bottled a short time, it will possess practically no radioactivity. The belief long held by many people that some mineral waters used at the springs are more effective than when bottled has been explained by some authorities on the ground that the beneficial effect of these waters is due to radioactivity. As the radioactivity disappears soon after the

water is taken from the spring, any effect due to the radioactivity must be lost in a short time. If the radioactivity of a water in a spring is 100, four days after bottling it will be only 50, and 12 days after bottling 10. In a month it will be practically nothing compared with the original radioactivity of the water at the spring.

The public, therefore, is warned to regard with suspicion any water advertised as possessing radioactivity. As far as the Government's specialists have been able to ascertain, no bottled water, no matter how radioactive it may have been at the spring, retains this radioactivity for any length of time.

The department is now investigating a number of the so-called radioactive waters with the object of securing evidence that can be made a basis of prosecution for misbranding. In the past, before the food and drugs act was enacted, a number of mineral waters made claim to curative properties which they did not possess and succeeded in creating a misplaced confidence on the part of the consumers. This was particularly true of a number of imported waters which were sold extensively in the United States with a statement on the bottle that they were wonderful or magical cures for all sorts of incurable or chronic ailments.

The Treasury Department, acting in co-operation with the Department of Agriculture, now refuses admission to the country of foreign waters labeled so as to mislead consumers as to their real or curative properties. The department fears that unless the public is warned the fraudulent trade in so-called radioactive water will develop, just as the fraudulent trade in other mineral water was developed, to the point where people with strong imaginations will supply their bottlers with all sorts of testimonials asserting that these supposed radioactive waters have effected wonderful cures.

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