

OILING OF EARTH ROADS.*

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THE oiling of earth roads has been practised on a small scale in a number of places for the past fifteen years. California has done more of this work than any other state, primarily on account of its natural resources and climatic conditions. It has used a large amount of oil and has successfully maintained many of its roads by this method, largely on account of the oil that is available at a very low cost, and also on account of the sandy condition of the soil and the light winters that prevail.

All localities cannot expect to accomplish the same results in oiling earth roads. The black, loamy soil, the low and poorly drained conditions of many roads, together with the severe winters and springs, make it a fallacy to expect anything like a permanent road to result from the use of road oil.

It should be kept in mind that continued oiling will not make an earth road entirely satisfactory for all localities or for all conditions of traffic. The oiling of earth roads, like dragging, is a maintenance proposition. The intelligent use of oil, like the continued use of the road-drag, will maintain the earth road so that it will materially improve the present conditions existing on many of the earth roads.

The oiling of earth roads should not be practised promiscuously, but used only where the roads are suited to such work. The intelligent use of oils on many earth roads is unquestionably a justifiable expense. It is the purpose of the following to present as many facts concerning the use of oil as it is possible to secure at this time; also to describe what is shown by experience to be the best method of preparing the road and applying the oil, together with a few suggestions that may be of some assistance to the contractor or individual who has such work under consideration.

The Selection of Roads for Oiling.—Roads should not be oiled until they have a permanently established grade; that is, all hills should be cut down, hollows filled, embankments widened, and all drainage structures established. Low, flat, undrained roads should not be oiled until proper drainage has been attended to. The oiling of a mudhole will not remedy the trouble, but often aggravates it.

Roads that have a preponderance of heavy hauling should not be selected for oiling. The oiling tends to waterproof the road, but it is readily understood that continued heavy hauling, even on perfectly dry earth roads, will eventually rut and dig them out in pot holes. The mixture of oil and earth lacks stability to meet all the requirements of traffic. If something could be mixed with the oil and earth to give it stability and aid it to resist the wear of traffic, it would more nearly meet all traffic conditions.

On moderately travelled roads where there is a greater amount of pleasure travel, the oiled earth roads will give better service.

The Purpose of Oiling.—It should be kept in mind that the main purpose of oiling earth roads is to suppress the dust and aid in maintaining a smooth and waterproof surface. If it is possible to prevent dust from

forming, the surface of the road will remain much smoother and there will be less mud form during rainy weather. By reducing the mud nuisance it is possible to use the road a larger portion of the year. By keeping the surface of an earth road smooth, the traffic is distributed more uniformly over the road, thereby making it wear much longer. The suppression of the dust not only makes the road wear longer, but prevents a portion of the road from blowing into the adjoining fields, washing away, etc. The oil also prevents the encroachment of weeds and sod upon the travelled portion of the highway, thus improving the appearance and producing a more thoroughly compacted road.

The suppression of dust makes an earth road more sanitary and desirable for pleasure traffic. The expense of oiling many roads is in many cases justifiable from the standpoint of the increased comfort to pleasure drivers.

A road that is oiled systematically for a series of years gradually acquires an oil-soaked crust which is more or less impervious to water. The heavy oil-soaked crust, however, will rut if the traffic is not distributed uniformly over the road and it will break through during the continued freezing and thawing of a severe winter and spring. This is particularly true if the road is used by heavy traffic. However, when such roads rut and cut through, they may be reshaped by use of the road-drag at a very slight expense.

The purpose of the oiled earth road, therefore, is not to replace what is generally recognized as a hard-surfaced road, but to keep the moderately travelled earth road in a suitable condition for ordinary traffic a larger portion of the year.

Preparation of the Earth Road.—The mistake is often made of attempting to improve a road without first grading and draining it. When a road is graded for oiling, gravelling, or any other form of surfacing, a permanent grade line should be established. Money spent in properly grading an earth road is not wasted, but has practically its full value when such a road is designated for later improvements. The great advantage of establishing a permanent grade and cross-section before the road is oiled is to utilize the oil soaked crust of earth as a foundation for later improvements, such as gravel, stone, brick or other hard road surfaces. If oil, gravel, or other surfacing material is applied to an improperly graded road, a very large portion of the material will be disturbed and practically wasted when later improvements are demanded. In other words, any money that is spent upon the public highways should be spent with a view of further improvements that will naturally be required as traffic increases.

The Road Surface Preparatory to Oiling.—As the prime objects of oiling an earth road are the suppression of the dust and the maintaining of a smooth waterproof surface, it is very important that the road surface be oiled when it is smooth, free from dust, and in a condition to absorb the oil.

Oil applied on dust will not penetrate the road surface, but will merely mix with the loose material to make an oiled-dust surface that is apt to fly readily and become a nuisance. The surface should be perfectly smooth and free from low places that will retain water. If water is allowed to stand upon an oiled earth surface, a bad mud hole will soon result. A moist subsoil preparatory to oiling is not serious, though best results may be expected when the road is reasonably dry for about two inches on the surface.

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