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MAKING THE MOST OF EARTH ROADS.

"Road maintenance is like milking and other chores," asserts W. S. Gearhart, Kansas state highway engineer. "It must be done over and over again, and it cannot be neglected without permanent loss."

The hard smooth road which is the dream of every farmer can be attained even in the case of earth roads, if the road is well made to begin with and if persistent intelligent attention is given to maintenance, says an article by M. N. Harrison in Farm and Fireside.

"Practically all the work done on an earth road, except reduction of grades, correction of horizontal alignment, the building of drainage structures, and the elimination of railway grade crossings is temporary, and should be considered maintenance," says Mr. Gearhart. "Doing permanent work is a comparatively easy matter, for when once done, if it is done correctly, it will last for a number of years. The maintenance of an earth road, however, is a never-ending job. For this reason the earth road has a bad reputation. The trouble is not so much with the material of which the road is composed as with our system or lack of system of management. Other types of roads when treated as we treat the earth roads are much more expensive and serve the traveling public little if any better."

According to the Kansas road engineer, the improvement that can be made on our present earth roads by intelligent direction and construction and maintenance is little realized by the public, and the serviceability of a properly maintained earth road is not appreciated when compared with other types of roads as to cost of construction. Successful construction and maintenance of any kind of a road depends upon the recognition by the public and the builders of a few fixed and fundamental requirements.

That one practical, well-paid road builder should be made responsible for the upkeep of a certain system of road and should be employed throughout the year, his tenure of office dependent entirely upon the character of services rendered, Mr. Gearhart recommends as one solution of the problem.

"The graded portion of the road should be elevated and crowned so that the water from every section of the road surface will flow into the side ditches," he says. "The road should have a ditch along each side large enough to carry off the water. These ditches should have a continuous fall from the highest point to the outlet, and outlets from the ditches and all culverts into the fields and natural waterways should be provided whenever possible, in order that the water may be drained away from the roadway. Both the construction and maintenance should be timely."

Drainage is the prime essential in all road maintenance, but it never will be adequately provided for until men who appreciate its importance and who know how to drain the roads are placed in charge of the work. In describing how to secure good drainage Mr. Gearhart makes these definite suggestions:

"The proper width for a highway depends on the kind of soil, the amount of traffic, the drainage and topography of the adjacent fields. Under normal conditions 25 to 30 feet between the centers of the side ditches has proved satisfactory, but in a low, flat country, or where the drainage is not good, the width should be increased in order that the traveled portion may be raised a sufficient amount above the side ditches to drain the road surface thoroughly without making the traveled portion too steep. On heavily traveled roads and where the drainage is poor a width of 35 to 40 feet between the centers of the side ditches will be more satisfactory."

"Such a width will make it possible to maintain the 18 or 20 feet of traveled surfaces with just enough crown to shed the water, and will give a good, convenient surface to drive upon. The fall to the side ditch then can be obtained between the center of the side ditches and the edge of the traveled portion. If the road is narrower and has to be raised considerably above the side ditches, the traveled portion becomes so steep that it is difficult and dangerous to drive upon."

"In the construction of a new road it is always advisable to make them as narrow as practical in order that as large a mileage as possible can be constructed at one time. Then, as the traffic increases, the road can be widened at small cost. On local roads a width of from 22 to 25 feet between the centers of the side ditches will be satisfactory."

"The depth any road should be crowned depends upon the character of the soil, and the width and the location of the road. Each portion of the road is a special problem in itself and should be treated as such. In general the traveled portion of a clay or loam soil should be crowned from three-fourths to one and one-fourth inches per foot, while in sandy soil a crown one-half to three-fourths inches to the foot is ample."

The only object in crowning the road is to cause the water which falls upon the surface to flow to the sides easily without doing any damage. To prevent the surface from breaking through and the frost from disturbing it, the traveled portion of the road must be raised so that the surface will be well above the ground water.

"The side ditches should be made wide and flat instead of V-shaped, to reduce the erosive action of this water," says the expert. "Sod will form in flat ditches and the grass will retard the flow of water. The outside of the ditch should be sloped off to prevent the sides from falling in and filling the ditch. The outside can be made easily if the cut is not more than three feet deep, by placing two wheels of a grader in the ditch and the other two on the bank, and setting the grader blade at 45 degrees."

"These side ditches should have a continuous fall from the highest point to the lowest point or outlet. Outlets should be provided as often as possible as to take the water off the roadway. Special attention should be given them, as water is often found in pools along the side ditches, when if a true grade had been maintained or outlets provided the bogs and mires would have been avoided and the otherwise well-made roads would be excellent highways of travel."

Mr. Gearhart believes that road maintenance can be timely if the patrol system or section system is adopted, where one man is given charge of a section of highway and devotes all his time to the work on this one section.

PORTLAND LADY PRAISES TILLER

LETTER RECEIVED BY S. C. BARTTRUM GIVES SOME IDEA OF THE PLEASURE EXPERIENCED BY MRS. A. J. WINTERS OF THAT PLACE

DEER ARE VERY PLENTIFUL

Mr. Winters Says His Wife Came Near Opening the Deer Season a Few Days Ago When She Encountered Three Bucks

S. C. Barttrum, of the Roseburg forestry office, this morning received a very interesting letter regarding the recent trip of Mrs. A. J. Winters, of Portland, who is now residing over the "Boaring Bill" ranch, near Tillier. Mr. Winters is a prominent resident of Portland, and recently erected him a summer home in southern Douglas County. The letter follows in part:

"Mrs. Winters has discarded her Ford for the present and has taken to the jungles—I mean Tillier. The women folks are having the time of their lives. Mrs. Winters says that every woman in the world should take the trip which she and her maids enjoyed. Mrs. Winters took her three pack horses and maids and went to the ranger's cabin on the Rogue River slope, then over the trail via Beaver Lake, Bunch Grass, Green Prairie, Whiskey Camp and on to Grassy. They were gone two days, stopping over night at a ranger's cabin near Butler's Butte. She said she saw more than 40 deer on the trip. The riding and pack horses she has renamed. One of them is slightly deaf and she calls him "Wooden Ear." The other two are somewhat lazy and one of them she calls, "Sleeping Sickness," and the other "Hook Worm." The driving horses have been named Hans and Fritz. She came near opening the deer season this morning. She usually takes a five or ten mile hike over one of the pack trails before breakfast and this morning she saw three old bucks—one of them with unusually large horns. She took aim at him with her 25-35 carbine, but refrained from shooting. She said she would almost have been willing to pay \$50 for those horns."

Mrs. Winters usually carries her 25-35 or 30-30 carbine on her trips in order that she may protect herself against coyotes, bobcats, wolves, bears or other mountain game. She also has two pistols. Mrs. Winters and her maids are planning to take a trip to Fish Creek shortly. She heard there were a few mosquitoes there, hence she is waiting for some setting. My 14-year-old son and myself have not been very lucky hunting varmints. We recently hunted four days and only bumped into one pack of wolves. We encountered them just before dark and guess they would have gotten one of my kid's Airdale "rais" had they not and an encounter with a vicious skunk. I think the skunk came out victorious. The kid has to chain his dog away from camp nights and hang his clothes on a line. We saw during a four-day trip nearly 200 deer, some bear and wolf signs, and found where wolves and coyotes had killed two deer. We also saw some panther tracks, but it is so warm the dogs could not take up the scent. The wolves were between Squaw and Cow Camp. The kid stood the trip fine, and carried a heavy load. He also crashed a little at night, claiming that while he was warm on one side the other was freezing. He also complained after eating 15 or 20 trout that the fish tasted of smoke. Speaking about smoke taste, I would just now give \$1 for about five of those smoky highballs. One here really needs a flying machine. The women folks have been practicing high diving in the deep pool at the mouth of Beaver Creek near the south fork of the Umpqua. There is a large boulder about 10 feet high at the head of the pool and they can all dive from this rock. Trout fishing in the south fork will not be at its best until some time in August. There is too much snow water now. Trout take a spring very good but not the fly. Other creeks in this vicinity are fine for the fly. The boy caught all he could carry out of Squaw Creek in 20 minutes. The deer are looking better than usual at this time of the year, especially the does and fawns. Old bucks did not shed as early as usual this year, but they are in fairly good shape. It is the first time I can recall not seeing the does looking ragged at time of the year. For some reason or other the bucks' horns do not seem to be as large as at this time last year. I have never seen the jungles so dry, even in the middle of August. If I were you I would take extra precautions against fires, for just as sure as a conflagration gets started the devil himself cannot stop it. The range is fast drying up. There will not be much grass at Whiskey Creek or on Grassy Range unless we have rain soon. When you come up this way just drop in."

(Sutherlin Sun.)
In the boys' swimming race, Earl Smith, of Sutherlin, won first prize, while his sister, Miss Ruth Smith, won second prize in the girls' swimming contest. Frank Holgate, won second prize in the boys' swimming contest, and Lorenzo Brower won second prize in the boys' foot race. All report a good time at Oakland and it certainly was a prize-winning day for the Sutherlin people.

(Sutherlin Sun.)
This is the sort of weather that changes the old "swimming hole" from a tender memory to a poignant regret for those who cannot reach it. Mr. and Mrs. Walter Slack, of San Francisco, who recently spent several days here with Mr. Slack's parents, Mr. and Mrs. A. P. Slack, returned home last week.

FORFEITED LANDS NOT OPEN TO LOCATION

(Sutherlin Sun.)
It is utterly useless for any person to attempt to acquire any preference right upon the lands of the Oregon & California grant lands, which have been declared reversioned in the United States by Congress and the act upheld by the United States Supreme Court, according to a circular sent out by the Department of the Interior through the United States Land Office and received at the Roseburg postoffice for posting.

The circular goes on to say that no disposition can be made of the lands reversioned in the Government until after due classification and the payment of the taxes. Neither is there any method of filing on the lands.

The department says the public will be given notice in due time and will be given definite terms upon which the lands are to be disposed of. Warning is also given against

locators who claim to give preferential rights to lands.

Manager Frank Norton has the new addition to the local Everfresh plant well under way, and with continued fair weather, will have the building all enclosed within a few days. The machinery at the plant has been overhauled during the past several weeks and the plant is now in first class shape to handle the loganberry crop as soon as the berries begin to come in.

Mrs. E. H. Rothwell delightfully entertained about a dozen members of her Sunday school class at a picnic in Lem's Grove last Friday afternoon. The young folks report a most delightful time.

I hereby warn all attorneys, each of you separately and all together, not to give my mother, Mary A. Findler, advice, legal or otherwise, or acting for her in any way.

MRS. JENNIE BROWN, Guardian.
Roseburg, Oregon, July 12, 1917.



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A stop in this city is always a pleasure. The cool summer climate, the air of bohemianism, the fine hotels, restaurants, parks and boulevards, all contribute to the enjoyment of the visitor.

Along the "Road of a Thousand Wonders" from San Francisco are many delightful beach resorts. Some of the most enjoyable are Santa Cruz, Del Monte, Monterey, Pacific Grove, Santa Barbara, Long Beach and Venice, where the care-free throng bask in the California sunshine.

A round trip ticket, with stop-over privileges will enable you to visit all of these places, making a delightful summer outing.

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Send for Booklet, "How Does it Benefit Me?"

(Sutherlin Sun.)
Due to the fact that two brothers points of view, it appears to us that married a mother and daughter in it is a much easier matter for a man Stockton, California recently, one to keep on the job and pay his bills, brother became stepfather to his than to be laying awake nights for brother. Also one bride is her daughter's mother-in-law, where he may be able to avoid paying his just obligations.

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