

Road Drainage

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I am going to touch briefly upon some features of my subject that seem to me have been neglected, or overlooked or, perhaps, overstressed in the past.

My contention is now, and always has been, that you can't have a perfectly safe road for motor travel and a completely drained road at the same time.

To have a road completely safe from the safety engineer's standpoint would require that all drainage structures be underground and all inlets of such a nature as to be no hazard to travel. This of course is possible—but at what cost? How many roads would warrant that expense, and would they then be safe and free from accidents? They would not and never will be. Go into your Sheriff's Office or the State Police Office and read from the records where the most accidents occur and their causes. You will be surprised to learn that most of them happen on the so-called "safe" roads of the state and that a very few are caused from persons driving off the road into drains or drainage structures. A high percentage is due to medial friction.

That being the case, don't you think we have stressed the safety design too much to the detriment of good road drainage? On our county roads, I know we have.

In the first place, our county gravel or stone roads, with our narrow rights-of-way, even under the best of conditions can never be more than 35-mile-an-hour roads. Speeds greater than that are dangerous for two reasons: first, the restricted right of way, and, second, the nature of the road material.

I venture to say that 90% of our county roads carry fewer than 100 vehicle movements per day. You rarely pass more than one car or truck in any given mile. You don't encounter long strings of traffic, passing and repassing, as on the more busy state roads. That being the case, a reasonable road ditch is no particular hazard at moderate speed. Even if you happen to slip off the road into one, generally your greatest damage is to your dignity and not your person or your car. I know that it would be very nice to have all roads paved with concrete, 24 feet wide or wider, upon at least a hundred-foot right-of-way, but that is just a dream and probably always will be. In the meantime, we county

road men must get along with the roads we have now and make them as safe as possible without sacrificing good drainage. A poorly drained road can be very unsafe to travel at certain times, even with the best of design as to roadbed, etc.

Nearly all our county roads were built under the Three-Mile Road Law. They were well designed and fairly well ditched at the time. However, very little attention was given to the ultimate disposition of the water. At each low place on the profile, pipe culverts were installed to take the water under the road. Where it went did not deeply concern the engineers or planners of the roads. We have many engineers today who subscribe to that school of thought.

We have spent a lot of time and money in the past few years helping to get that road water into either tile or open drains without too much damage to adjacent property. If we must go some distance off the right-of-way, we work up a compromise proposition with the landowner, each paying for a share of the work and the tile. I don't know how legal this is. So far as I know, there is nothing in the highway act which prohibits it, and up to now no one has tried to stop us. Most people of our county are pretty much ditch minded.

Roadside drains must be constantly maintained. Within a few years they become clogged with silt and debris. We have been using a motor grader, during dry weather, for this reditching. The dirt that cannot be used to reshape the berms is loaded into trucks with our front-end tractor shovel and hauled to washouts around bridge heads and on fills. The haul is generally short and we can ditch a lot of roads in a short time with this tool and three or four trucks.

If the soil is porous, if percolation is rapid, if the frost action does not penetrate to any great depth, tile drainage might be a good thing, *if we could afford it*. The State has tried it to correct mud pumping. One of its engineers recently told me that it was pretty nearly a failure. To be effective at all times, large-diameter tile would have to be used. I think, at \$150 per mile for road purposes, it is obviously *out* for the average county in this state.

My ideal road drain is an open drain along each side of the road. It should have the flattest slope possible toward the road to aid in mowing. Its depth will be governed by topography and the necessity for rapid removal of road water. It should not overflow onto adjacent property unless there is no other recourse. It must be constantly maintained. And, last, the design must be such that it will function fairly well when the ditch is half full of old wire fence, large stone from the adjacent field, bags of used tin cans, glass bottles, parts of old farm machinery, dead dogs and old hens, and, for about 50% of the time,

completely full of grass and weeds. When you get a ditch that works under those usual conditions, brother, you have good road drainage!

Last Friday I inspected the scene of a bad accident of the night before. State Road No. 8 at this point has a bad curve directly off the Wabash Railroad crossing. The alignment is bad there and is up for correction, but you and I know that these thousands of places over the state cannot be fixed at once. About 300 feet from this curve is a reflectorized "Bad Curve" sign. Staring you right in the face as you approach the spot is a circular, reflectorized, red "Danger" sign. Quite close to this is a large reflectorized arrow directional sign. All these signs were there at the time and still are. It was a bright, clear, moonlight night. Yet, in spite of all these precautions, three young people, traveling at a high rate of speed, failed to make this curve and went into a deep road ditch with considerable damage to themselves and the car. How much of this accident can you blame onto the road drainage ditch—even if they did eventually end up there?