

HOW TO TREAT DIRT ROADS.

Dr. Pratt Offers Some Good Advice—Care Should Be Taken With Location—What a Road Drag Will Do—Some Valuable Don't's.

By Dr. Joseph Hyde Pratt, State Geologist, in June Number of Southern Good Roads.

When we stop to consider the number of miles of road in any county and compare this number with the small number representing the miles of specially surfaced road, we can readily see that it will be a great many years—perhaps, generations—before all or even half the public roads are surfaced with macadam, or sand-clay. For this reason it is very important that we should give very careful consideration and thought to the construction and maintenance of the dirt road.

When properly constructed, the dirt road can be kept in good condition throughout nearly the whole year, except, perhaps, during periods of severe freezes and thaws. At the present time we have very few dirt roads but what can be improved, and usually the question of the improvement is not a very difficult one to solve. Fig. 1.



Fig. 1. Dirt road that could be improved 100 per cent. by use of split log drag.

The old idea that anybody can build a dirt road is fast losing ground, and our people are beginning to realize that road construction, even of dirt roads, requires the services of men who have been trained in this line of work. As careful thought should be given to the construction of dirt roads as is given to the hard-surfaced roads; and in those counties which rely on just the labor tax for the construction of their public roads a great advance can be made if this labor tax is utilized under the supervision of an experienced road engineer.

The location of any public road is the only permanent portion of the road; therefore, great care should be taken that when the road is once constructed there should be no question whatever regarding its relocation.



Fig. 2. Road with steep grade (average 10 per cent.) Travel made more difficult by uneven surface of road; large stones project above the road.

In locating a road it should be done so as to permit of an easy grade—none over 4 1-3 per cent.—and should be constructed so that it will readily shed the rainfall. Now often we see a road going up a hill and down the other side, when, by building around the side of the hill, it could have been kept at an even grade, reaching the identical point within the same distance, or but a little greater.

If, in grading a road, we have any grades over 4 1-3 per cent, it will be necessary to construct across the surface of the road a V-shaped surface ditch to turn the water off the surface of the road, for if this is not done the water will, with the grade over 4 1-3 per cent, have momentum enough to seriously gully the surface of the road. No matter how carefully these V-shaped ditches across the surface of a road are constructed, they are very inconvenient to travel, are hard on the wagons, and should be avoided wherever possible. They can be avoided if the grade is kept below 4 1-3 per cent. In fig. 2, is illustrated a steep grade on a road in Davidson county, N. C., which could readily be eliminated by relocation of the road. The surface of the road is uneven, and large rocks are projecting above the surface. "Thank-you-mams" have been made across the road to turn the water off the surface of the road, which is a great deal to the discomfort of travel over this road.



Fig. 3. Surface ditch in dirt road for carrying water from one side to the other. These ditches should not be used, and the water should be carried under the surface by means of a culvert.

The dirt road is more susceptible to damage by water than, of course, any of the specially surfaced roads; therefore, great care should be taken to work out an efficient system of drainage for the road. Water must be kept away from the road, and the rain which falls on the road must be permitted to run off as rapidly as possible, and by a very easy grade. It must not only be taken off the surface of the road as rapidly as possible, but also out of the side ditches. Care should be taken that these side ditches are not too steep, and that every opportunity is seized for turning the water out of the ditches into the adjoining fields.

Many of our country roads are bad because in their construction no arrangement was made for taking care of the water, and thus they are very muddy and filled with ruts and holes. Instead of the middle of the road being higher than the edges, so that the water can readily run off on each side, many of them are flat, or even concave, with the center of the road the lowest point. If the road has been constructed so that it is well crowned, with the slope about 1 in 20 from the

center of the road to the side ditches, and these ditches have been graded so as to readily take care of the water, and yet not steep enough to cause them to cut deep gullies on the side of the road, and if the water is taken from these ditches at every available point so as to prevent seepage of water under the surface of the road, there should be little difficulty in keeping the road in good condition. Very often it is necessary to carry the water from one side of the road to the other; and when this is necessary, it should be carried under the surface of the road by means of either concrete, metal, or terra-cotta culverts or pipe. The water should never be carried across the surface of the road, for it keeps the surface soft, is apt to flow down the surface of the road unless prevented by high rock, and is a great inconvenience to travel. Fig. 3 shows a surface ditch with lower side so high that a heavily loaded team would apt to be stalled. Wooden culverts should be avoided if possible and where necessary to use them they should be made of good timber and all planks securely nailed. They should be examined constantly so that they can be kept in good condition. The surface of the road should be kept as near flush with the surface of the culvert as possible. Fig. 4 is a poor form of culvert.



Fig. 4. A Craven County Culvert, Old Style, Regular Vehicle Smasher.

After the system of drainage has been installed, provision should be made to keep it up, so that the drains and the culverts will not become stopped up.

The surface of a dirt road should be kept of dirt, and whenever any holes or ruts have developed in the road, they should not be filled up with stone, or brush, but with dirt, and with dirt as nearly as possible of the same character as the dirt composing the surface of the balance of the road. If, on the other hand, holes or ruts are filled with rock, gravel, or brush, the wearing effect will be uneven, and the wheels will begin to scoop and cut out holes just beyond or on the opposite side of the road from the hole filled up. If there are stumps or rocks in the road, they should all be removed, so that the dirt surface can be smoothed over and brought to an even slope from the center to the ditches. Fig. 5, represents a road that it is impossible to maintain properly on account of the stumps. After the road has been well constructed and the right slope and surface obtained, it can be kept in this condition very readily by judicious application of the split-log or King drag. Fig. 8. This simple road machine, if used regularly after a rain when the roadbed is wet, will smooth and shape up the road, so that as soon as it has dried out it will be firm and hard. The drag will fill up the ruts and holes and will keep the dirt road in first-class condition, with hard surface, throughout nearly the whole year.

As moisture is very detrimental to a dirt road, the sun should be permitted to strike the surface of a dirt road as much as possible; and, therefore, care should



Fig. 5. A road where surface contains a great many stumps. Such a road cannot be maintained properly.

be taken not to have too much shade along a dirt road, and, where necessary, the trees should be cut away so that the whole surface of the road is exposed to the sun for at least several hours during the day. Shade is good for a macadam road, but bad for a dirt road.

In repairing a dirt road the same thought must be given as in the construction of the road, and, when cleaning out ditches, the material should not be thrown into the middle of the road or on any part of the surface of the road, but it should be thrown into the adjoining fields, for this material is usually composed largely of fine silt and vegetable material, which holds



Fig. 6. Old way of throwing dirt from ditches on side of road preventing drainage from road into ditch. This same is in Craven County.

moisture like a sponge and becomes very difficult to dry out, and is entirely different in character and consistency from the dirt surface of the road. How many times we have seen the dirt road repaired by this material being thrown up into the center or just beyond the edge of the ditch, thus preventing the surface water from flowing into the ditches, and often turning it down the road.

In the maintenance of our dirt roads they should be divided into sections, with a foreman or overseer in charge of each section, whose duties should be to go

over every mile of his section after every rain and at least every two weeks, and wherever he finds a portion of the road needing repair, he should have it done. After each heavy rain he should run a road drag over the road in order to bring it into shape and to fill up any ruts or holes that might have been started. We must bear in mind that roads will not maintain themselves, and that repairing a road simply once a year will not keep it in good condition.



Fig. 7. Wayne county farmer using the public road for a turning place for cultivator, thereby damaging the road.

The cost of maintenance of the public road is often increased by the farmer using the road as a turning place when plowing, harrowing or cultivating their fields. County and township road commissioners should not permit this as the farm implements carry a certain amount of soil into the ditches and onto the road. Fig. 7, illustrates this use of the public road which should be prohibited.

In repairing a dirt road: Don't fill up the holes and ruts in the dirt road with brush, but fill up the hole with dirt of the same character as the balance of the road.

Don't throw all the refuse from the ditches into the middle of the road, thus softening the surface and destroying the solid, firm bed that you have obtained by previous work; but throw this material out on the opposite side of the ditch.

Don't leave the center of the road the lowest point; but make it the highest and give the surface of the road a slope of about 1 in 20 to the side ditch.

Don't carry the water across the surface of the road from one side to the other; but carry it by means of culverts underneath the road.

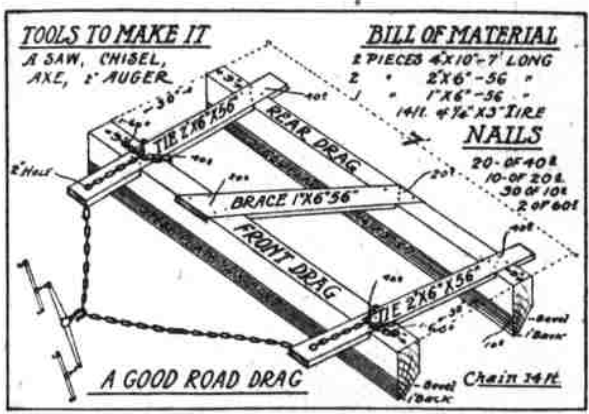


Fig. 8.

Don't have grades on your road over 4 1-3 per cent; for if you do it will be necessary to build V-shaped surface ditches or "Thank-you-mam's" across the road.

Don't, in working out the labor tax on the roads, try to make a holiday of it; but give an honest day's work on the road. Let us eliminate what is often seen in those sections where the roads are maintained by the labor tax—ten or twelve men and an overseer, a little gray mule, a small plow, six dogs, three or four guns, and a few tools which often are not considered worth using at home. This road force is not only hard on the rabbits, but also hard on the roads.



Noth Carolina Culvert Company's Culvert at Nelson, D. C.

Don't reject the split-log drag because it is a cheap road machine, but use it constantly, for it is the most efficient road machine that we can use in maintaining the dirt road. Fig. 8.

Good Roads and Poultry.

At Stone Mountain next Saturday the people of DeKalb county will hold a good roads rally and a poultry show. These two enterprises, at first glance seemingly diverse, will be conducted at the same place, almost at the same time, and they will each enlist the same interest.

This is altogether fitting. For the development of poultry culture, like that of truck gardening, farming and other activities of mutual concern to country and town, is vitally dependent upon the development of good roads. The people of DeKalb have emphasized this practical truth by combining their highway convention and the poultry exhibition.

Gov.-elect Hoke Smith declared in a recent address that Georgia is now particularly in need of three things: Good schools, good farms and good roads. This is eminently true and these three needs are furthermore intimately related. As each of these interests advances, the other two will progress. Whenever a county turns its attention to the building of smooth and durable highways, its effort will bear rapid and golden results for agriculture and education.

A good road links the farm to the school house and the town. It lessens the cost and labor of marketing commodities. It puts the rural community directly in touch with the life and movements of large centers of population, and every farmer past whose fields it leads reaps a benefit.

Some time ago DeKalb county set a splendid example by virtually making up its mind to issue bonds in order that its roadway improvements might be broadened and hastened. This movement has been temporarily alkeneled until some of the legal details of the existing bond set may be modified and perfected. In time, however, the bonds will doubtless be voted and this county will carry out its big purpose. In the meantime such meetings as that to be held Saturday at Stone Mountain are full of encouragement and are, therefore, definitely valuable.—Atlanta Journal.

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Good Roads and Better Schools.

Good roads and better schools, the two go together, the one leads to the other. The sentiment for better schools has so grown that there are some forty or more special local tax districts, and that which the county needs to be aroused on more now than ever before is the question of good roads. Many good roads advocates can be found here and there but as a rule there is too much indifference. The people need to be aroused and to see the benefits to be derived from good roads.

The following from the Concord Tribune preaches the good roads doctrine in a convincing manner.

There has been a very noticeable increase in sentiment during the past year or two, and especially during the past few months for better and longer term schools and better public roads in this section, and, for that matter, of the state. The people have begun to realize something of the real value of good roads and of good schools.

Good roads easily double the value of farming lands. This has been demonstrated in every place in which modern highways have been built. And not only do the good roads double the market price of lands, but they greatly increase the value of the products of the soil. In remote sections the transportation of the product to market is quite a considerable expense. In fact, many farm products for which there is a market never reach market for the simple reason that the cost of transportation is so great that they are not marketed at all.

Schools stand for an intelligent citizenship, progressiveness and happy homes. Good schools linked with good roads and improved and intelligent farming methods will stop the immigration of the boys and girls of the rural sections to the cities and nothing else will stop them.—Asheboro Courier.

Plumber Who Took the Plum. "You're wanted," said the small boy. "Who wants me?" demanded the plumber. "Number 127; the house you've just come from."

"Do they think I can work all hours of the day?" retorted the plumber. "You'd better come," persisted the small boy, stoutly, "or I'll be too late. Ma's got hysterics, and pa's gone nearly mad, and—"

"Look here, sonny!" asked the plumber. "What's up?" "Well, I think you've connected the wrong pipes or something," replied the boy. "Anyhow the chandelier in the parlor is spraying like a fountain and the bathroom tap's on fire!"—London Answers.

Province of the Newspaper

To be sure, many changes might be made in newspapers if newspapers were to be reformed with a view to making them purely educative and regenerative in their effect. It is not, it must be admitted, the aim of the press to supplant the pulpit, rob the Sabbath school of its function, remove the need of the high school and devote itself wholly to spiritual and temporal preaching and teaching. What the effect of a newspaper made to fulfill the ideals of persons who view the press of the times with alarm because it publishes a dangerous comic supplement can be best judged by the wide circulation of worldly dailies and the narrow scope of the circulation of those that most nearly approach those ideals. Circulation is not the sole consideration, but without it no educative or mislatory work can be done. The most useful newspaper is one whose general effect is improving, and not one so virtuous and pious that those standing in need of mental or spiritual tonic will have none of it. It is as the layman friendly to the projects of the school, the university and the pulpit, and not as a militant paragon, that the press may be useful. The newspaper must be human or unuseful. To be widely read it must make a broad appeal. It is, therefore, we believe, who asserts that it is right to unbind upon fitting occasions. And there is a well known couplet about nonsense being occasionally relieved by the best of men. The comic supplement may not be absolutely necessary to the welfare of newspapers, but that it is inimical to the welfare of any class of newspaper readers, has not been convincingly argued, and it gives enjoyment to many lovers of humor.—Louisville Courier-Journal.

Willie: Say, pa, you ought to see the men across the street raise a building on jacks. Pa (absently): Impossible, Willie. You can open on jacks, but a man is a fool to try to raise on them—or I mean it must have been quite a sight.—Puck.

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