

A SUBSTANTIAL ROAD OF DIRT

Illinois Commission Builds One Without Use of Stone.

CONSTRUCTION METHOD EASY

The Severe Wear Caused by Automobiles Has Made It Necessary to Find Something Stronger Than the Macadam Road—Experiments With Mixture of Dirt and Oil Show Results.

Macadam roads have been the world's standard for many years, but under conditions of modern traffic they have so quickly worn away that in the country which boasted the enduring military roads of Napoleon a congress of the road engineers of the world was called to discuss means of preventing them from going up in smoke or dust! The iron tire of the horse drawn vehicle rolled and compacted the limestone road. The pneumatic tire of the motorcar sucks up the dust and draws it into the air to blow away. It was formerly compaction by traffic, now it is suction.

This fact has been strikingly demonstrated by the work of the state highway commission of Illinois. One of the best miles of macadam road ever constructed, and surface bound with a gravel of peculiar cementing quality, has been ripped up and blown away down to the large, sharp pointed rocks that constitute the basic course. Other experiments with oil and tar have proved the binding and protecting properties of those substances.

Value of Oil.
The value of oil of heavy asphalt base—the residuum after refining out the volatile oils—as a binder for rock roads led to experiments with it in the construction of dirt roads without the use of stone. The idea was to compact and bind the dirt so that it would be waterproof and as wearproof as possible—in other words, to bind the particles of dirt together so that traction would produce little dust. One of the most striking experiments with oiled black mud was made at Bement, in Platt county, and herewith we return to our illustrations. The Bement section ranks among the richest in central Illinois. It is rich because it is fairly bottomless. It was low lying and swampy in the olden days before the coming of the steam dredge and the tile and its roads were as impassible as that type of land affords.

It is usable all the year round for maximum loads. It is practically dustless, it requires no dragging or scraping, and it has a resiliency that saves horse and vehicle and adds much to the comfort of the occupants of wagon or carriage. After more than a year's test, the experiment must be pronounced a great success, and the best men about Bement, who have made a study of roads for many years, regard it as the solution of the problem of building mudless roads in the black prairie soils.

The method of construction was simple. The road was plowed six inches deep and the dirt scraped to each side. In the bed thus made a layer of oil was sprinkled, the oil in this experiment being what is usually called 80 to 85 per cent asphalt oil. After the oil was applied two inches of dirt were scraped back into the roadway and oil and soil were thoroughly disked together.

Use of Tamper.
Then followed a tamper, an implement like a large field roller, each section of which bears closely set prongs about ten inches long, somewhat like the spikes attached to the wheels of a steam roller to tear up the road, only longer and rounded on the end. This tamper does the work its name indicates—it completes the mixture and the oil and dirt and tamps it down. After its use more oil and dirt were added until three layers had been applied, and then the steam roller completed the work.

About two and a half gallons of oil were used to the square yard. This oil sells, according to quality, at from 4 to 7 cents per gallon. Taking 5 cents as an average and building a road sixteen feet wide, which is wider than is necessary for the oil, we have a cost for oil of about \$1.175 per mile. The labor cost is to be added to that. It is certainly the cheapest mudless road that has yet been devised, as the rock roads run quickly into large money when the material must be carried in by rail.

Repairs are readily made in this form of road construction. The top is plowed up, more oil added, tamped and rolled, and the surface is as good as new. It is not a road that does not need repair. No such road is built. Even the city's granite blocks wear out under the creaking wheels of its heavy traffic. The fundamental fault of American country road builders is their idea that a road will stay built. It won't. It is not in the nature of things. The best of roads need repair, and wise is that commissioner who has learned that in road maintenance a stitch in time saves nine. Unfortunately not many of them have learned that fact.

Evidently the black mud regions, far from gravel and limestone, need not sit helplessly marooned in mud. A way out has apparently been found—over a solid, substantial bridge, built of oil and dirt.

SHORT SERMONS ON GOOD ROADS.

No farming section which has once had good roads would ever go back to bad roads.

High freight rates are not nearly as heavy a tax on the shippers of stock and other farm produce as bad roads are.

Only a very rich county could afford the tremendous financial drain of bad roads.

A good road is to a country district what a paved street is to the city property that adjoins it. It makes business for that neighborhood.

A farmer living on a good road is a free man. He is not dependent on weather conditions. He is able to sell his stock and grain and fruit at the best market prices. The railroads have to serve the man who can get his stuff to a shipping point any day in the year.

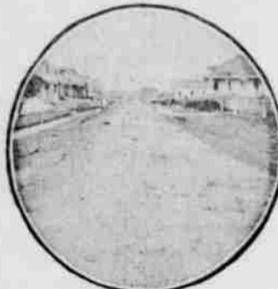
Money spent for good roads is as good an investment for improving the farm as is money put into stock sheds, grain cribs, fences, seeds or anything else that makes the farm pay. Trails are as essential as money and muscle in roadmaking.

OILING SHELL ROADS.

The Successful Results of Trials of Houston, Tex.

The application of oil to the shell roads which are more or less common in the south, as well as in some of the northern coast cities, has apparently been tried successfully in Houston, Tex., the mayor stating that the results were so satisfactory that he hoped to be able to treat all the shelled streets in that city in the same manner.

The material used was an asphaltic oil which was heated to something



SHELL ROAD BEFORE AND AFTER OILING.

over 200 degrees before application. It was shipped in tank cars fitted with steam coils, by means of which it was heated by a portable boiler and allowed to run into distributing wagons. The roads were first cleaned of all dust and the oil applied at the rate of about one gallon a square yard. The street was allowed to soak up as much of the oil as possible, the surplus being absorbed by sand or dust spread over the street and then swept off, exposing the original surface.

The average cost of hauling one ton of produce one mile in the United States is 23 cents; in Europe it is 8 cents. With equally as good roads as the French peasant enjoys the American farmers could save \$250,000,000 a year.

Roads Need Attention.

Perhaps nothing has been exploited to a greater extent than the King road drag, and perhaps there is no implement that is more generally neglected. Whether past experience shows that the road drag is not the useful and valuable implement its champions would have us believe or whether it is simply neglecting the use of a good thing is not apparent, but the result is the same. The roads need attention and they need it more frequently than they get it. If the road drag is not the thing then something else should be used. But use something.

High freight rates are not nearly as heavy a tax on the shippers of stock and other farm produce as bad roads are.

Tar on Roads Disinfects.

Medical authorities have announced that in addition to its dust laying qualities a tar preparation is highly beneficial to the community using it on its roads, owing to its disinfectant properties. According to the health authorities of Battersea, England, infant mortality has largely decreased in that populous district since its streets were surfaced with tar macadam.

SHADE TREES PRESERVE ROAD

Their Value in Making Highways Durable.

The value of shade trees in preserving roads is pointed out by an enthusiast in a letter recently printed in the Manchester (N. H.) Union. The writer deprecates the misdirected activity of the average selectman and advocates the planting of shade trees rather than their removal, asserting that they are a help to the roads.

"Perhaps no other agency," he says, "has contributed so much to the desolation of naturally beautiful districts in New England as what is in up country parlance called the seelectman. He is a big man in his town and, with his brothers on the board, controls the finances, schools, roads and all matters of town government and improvement.

"His one great achievement while in office is to cut down all the shade trees or whatever might grow to be shade trees along the roads. He, as a rule, knows nothing of road building, and believing that the only way to get rid of water is to dry it up instead of constructing his road of material



A SHADED ROAD—CAN YOU SEE THE BENEFIT OF TREES?

[Courtesy Good Roads, New York.]

other than garden loam, crowning it to shed water, grading his ditches to avoid the usual pools left to soak into the road, opening sluices to let the water run away from the side ditches, he simply cuts the trees down and waits for his mud bed to dry up. In the course of time it does dry up, and then, except during or immediately after rains, when it is a mass of mud, it is a bed of dust and all summer is a hot and stifling desert road, an exhibit of ignorance and incompetency.

"The best preserved country roads that have to bear the heavy motor traffic of the present day are those with ample shade. If a road cannot be oiled it needs moisture. The shade, except in very dry periods, will retain sufficient moisture to preserve the elasticity of the road surface. There is no danger of mud if the road is properly constructed.

"If you can't build your roads with asphalt or oil, plant some shade trees. Make your town comfortable for yourself and your family and so attractive by its good roads and shady ways that the stranger will buy the worthless half of your farm for twice what any farmer would pay for your entire property, land, buildings, stock and mortgage.

"Then the rest of your life you can sell the purchaser anything you raise on the fertile part of your farm that you retained and get employment for your tenants and your boys helping him to spend his money on the old stony pastures you sold to him. Meantime he will pay the town more taxes in five years than your place previously paid in twenty-five. But you will never catch him in a town that cuts the trees and bushes from the roadsides."

It is said that the most perfect road in the world is the coral rock road of the West Indies, being porous, elastic, dry and never dusty.

To Farm a State's Roads.

Governor Carroll of Iowa has proposed that the width of that state's roads be cut down from sixty to forty feet and that the strips of land thus saved be turned over to the farmers for cultivation. He believes that forty feet is wide enough for a country road, that such a road will be better and more easily cared for than the wider one and that the twenty extra feet now all owed is simply wasted. The title to this land, if the plan is carried out, naturally vests in the owners of land adjoining the roads, as the state's right to it is simply for highway purposes, so the measure will be popular with farmers. It is estimated that 8,500,000 bushels of corn can be added to Iowa's crop and \$3 per capita to her wealth if this land is farmed.—Youth's Companion.

Interest Money Built Roads.

The county commissioners of Shawnee county, Kan., have built nearly forty miles of good roads with the money formerly used for paying interest on bonds.

As rapidly as the bonded debt was reduced the money which formerly had been used to pay interest was expended on macadam roads. There was no additional burden on the taxpayers. Instead, the tax levy was decreased in most instances and good roads lead into Topeka from nearly every direction as a result.

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