

# ROADMAKING WITH OIL

Method of Construction Valuable For Dirt and Macadam.

## PRACTICALLY SELF HEALING.

Oiled Highways Are Not Only Dustless, Mudless and Noiseless, but They Improve With Use—Oil Makes Roads Firm, but Not Hard.

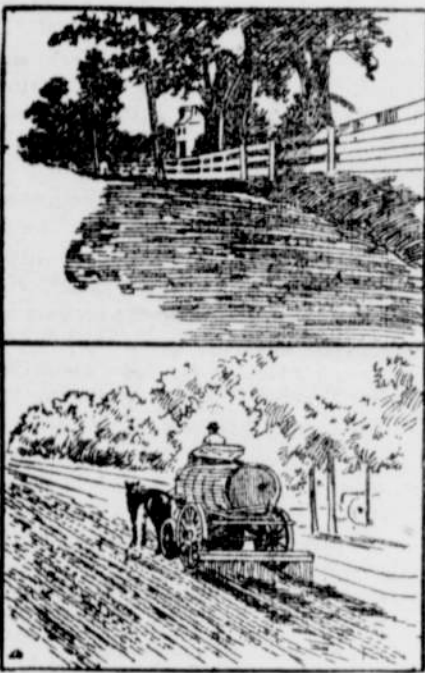
In the opinion of H. T. Snell, who has made a study of city and country roads in twenty states in the last year, more good roads will be built in Kansas during the next twelve months than in any other state in the Union. Mr. Snell investigated road conditions for the Standard Oil company. The big trust is seeking a market for its surplus of oil left after the more valuable products have been taken from it. The surplus oil is now sold chiefly for fuel.

"The company expects to build a mile of good road near the State Agricultural college at Manhattan, Kan.," Mr. Snell said. "We expect to show by the experiment that an oiled road, whether built with earth or crushed rock, is not only the most durable, but in the end is the most economical.

"In every state there is annually spent millions of dollars in building new roads. In few cases is any considerable sum spent on the roads to preserve them. Oiled roads are not only dustless, mudless and noiseless, but they are practically 'self healing'—that is, they improve with use. The dirt and oil roads give horses good footing, while the tires of the vehicles 'iron out' the hoof marks."

Experiments made on Kansas City boulevards and on roads in Jackson county, which were coated with oil, have been watched by men and organizations interested in good roads. The use of oil on boulevards and roads in Jackson county was among the earlier experiments in its use. Adopted for use to prevent dust, it was found that oil also is a preservative. In his report to the board of park commissioners on the use of oils on Kansas City boulevards, W. H. Dunn, superintendent of parks, said the results were "remarkable."

The city paid an average of 77½ cents a barrel of forty-two gallons for



DIRT ROAD AFTER ONE OIL TREATMENT AND METHOD OF APPLYING THE OIL.

the oil. An area equal to 1,010,590 square yards was oiled. The cost of oiling per square yard was slightly more than 1 cent, representing the oil, labor and supplies. The oil subdued dust. Had the same area been sprinkled with water to prevent dust the cost would have been 2.4 cents per square yard. Mr. Dunn estimated that the cost of sprinkling the area oiled last summer would have been \$16,207.32. The expense of oiling this area was \$10,671.44. The direct saving in using oil was \$5,535.88, or 34 per cent. The indirect benefit followed in a marked saving in the cost of maintaining the boulevards and the uniform excellence of their condition.

Good roads naturally are a rural problem. In the cities no progress can be made unless the thoroughfares used for business and pleasure are paved and maintained in good condition. Country towns are concerned as much with good roads as are the farmers who use them. In country towns business practically is at a standstill in rainy seasons. Bad roads keep the farmers at home. If the farmer had a fit thoroughfare to the village he could do his trading on days when he could do no tasks in the fields. It is far more desirable that the farmer should visit his nearest town in the rainy season than at any other time, as the commodities he has to sell command the highest prices when rain keeps him at home.

The regents of the Kansas State Agricultural college were among the first of the governors of agricultural colleges in the United States to realize the vital concern which good roads are to farmers. Not only was there the feature of poor roads following rain, but there was the every day feature of ruts, pools and poor roadbed generally.

The college board of regents named Albert Dickens to take charge of experimental road work in Kansas. Mr. Dickens selected one-fourth of a mile of road west of the reformatory at Hutehinson to use in the first experiment. He reported upon the test as follows:

The soil was a fair sample of the sandy loam of the Arkansas valley. At the date of its selection no rain had fallen for ten days. The sand was several inches deep.



A PORTION OF THE CASCADE COURT.

The Palace of Oriental Exhibits forms one of the twelve mammoth display buildings first completed by the Alaska-Yukon-Pacific Exposition. Its lines are in pleasing contrast to the Agricultural and Manufacturers buildings, with which they are grouped, and their position overlooks the beautiful formal gardens and water display of the Cascades and Geyser Basin.

The exhibit placed within the walls of the Oriental building constitutes one of the most gorgeous displays of Far Eastern art and manufactured articles ever shipped from the Orient, and is bewildering in beauty and extent. Not a country of Asia is without representation, and treasures of old and modern art, never before permitted to leave the lands in which they were created, will be seen for the first time in the land of the Occident. The matter of arrangement of the Oriental exhibit has been placed in the hands of the most competent and artistic men at command and its display will be worthy of the magnificent collection.

About the Oriental building are gathered the great buildings housing the United States exhibit and the Alaska, Hawaiian and Philippine displays. One of the largest bandstands is within close distance, and from its doors the most noted musical organizations of the world will be heard daily.

made an exceedingly heavy load for a strong draft team. A good carriage team required much urging to pull the carriage faster than a walk.

After the grading was completed and the roadbed was well formed where fills were required the entire road, one-fourth mile in length and thirty feet wide, was plowed to a depth of about four and one-half inches and thoroughly pulverized with a harrow and disk. A disk, set straight, was run before the oil sprinkling tank to open small furrows, and a harrow followed the oil sprinkling tank to thoroughly mix the soil and oil.

The oiling was done the first days of October. The oil was not heated. The tank of 500 gallons would cover about 8,800 square yards once. The harrow followed each application. When one gallon to each square yard had been applied the soil seemed nearly saturated to the depth of the plowing, four and one-half inches. After harrowing the last time a heavy float was used to smooth the surface. In a week the road was sufficiently firm to allow rolling. A twelve ton roller was used, going over the road several times until it seemed to be thoroughly firm. After a week the road was used by all kinds of traffic. It was firm, but not hard. A sharp shod horse left the calk marks plainly outlined, but did not tear up the soil even when driven at a quick trot.

One reason for building the road in the fall was to note the effect of freezing weather. The road was not seriously affected. It seemed that the coating of oiled soil kept the underlying soil sufficiently dry to prevent serious heaving by frost.

Mr. Dickens ended the report by saying that the road is in good condition. Under his direction roads also were built near the Agricultural college in black loam; at Maple Hill, in the Mill creek valley, in soil known as "gumbo;" at Garden City, in "as bad a stretch of road as can be found anywhere," being of sand, which absorbed the oil in places to a depth of sixteen inches, and the race track at Manhattan, which was said to have been improved so much that a widely known trainer of horses, C. B. Michael, terms it a "first class training track."

The cost of the roads varied from \$525 to \$1,300 a mile, Mr. Dickens reported. The average cost of a road eighteen feet wide, three miles from the railroad delivering the oil, is placed by Mr. Dickens at \$600. The oil used for roadmaking purposes embodies a quantity of asphalt. The California oil is best for the purpose. Texas oil ranks next, with Kansas third. The eastern oils have a base largely paraffin. They must be treated and asphalt added to make them useful in roadmaking.

With proper construction and the use of oil as a binder for dirt and macadam roads the farmers virtually may have asphalt roads past their homes, declare advocates of this method of road construction.—Kansas City Star.

## GOOD ROADS IN SWEDEN.

Every Landowner Must Keep His Section of Highways Improved.

G. Zerkirst of Climax Springs, Mo., who is especially interested in the Kansas City Star's fight for good roads, says: "Perhaps it would be of interest to know how the roads in Sweden are maintained. There are three classes of roads there—highways, village roads and private roads. The highways run between county seats, and the grades are limited to 2½ per cent. The village roads cannot be in excess of a 4 per cent grade. The cost of building is divided among the landowners according to acreage, whether it is government land or is owned by private citizens, except where one owner has an extremely costly road to build along his land. In that case he gets due allowance in distance for the cost of construction. No village road can be opened until it is built to the proper grade.

"As to maintenance, every landowner must keep his section of the road properly improved. If he does not a government inspector orders the improvement at public expense, and if the landowner fails to pay the cost the government takes a sufficient amount of his personal property and sells it to satisfy the judgment.

"Every man must maintain his own roads in that country under government supervision. One provision of the government law in Sweden also is that the driver is not allowed to ride up the hills on a loaded wagon if it is necessary to use a whip on his horse."

## Road Improvement in Cuba.

One of the beneficial results of the American occupation of Cuba has been the establishment of an adequate system of roads and the beginning of construction. These roads are built primarily for the marketing of crops, but they are used extensively by automobiles as well. They are made uniformly thirty-four feet wide, with sixteen feet of macadam in the center. The surface finishing is placed on a foundation of ten inches of broken rock, and they have no grades greater than 6 per cent. Bridges are of steel, culverts of concrete. Ditches are dug in the low places, and the roadway is generally elevated above the level of the contiguous land. The main road is complete from Havana to San Cristobal and from Pinar del Rio to Esperanza, besides numerous short branches.

## Bills For Better Roads.

In the Iowa legislature two bills have been introduced in the interests of better roads. One provides for the doubling of the county road tax levy, for the development of the most important roads which radiate from the principal market town in each county. The other bill places a tax of \$5 on all automobiles under thirty horsepower and \$10 on thirty horsepower and over, the proceeds to go into the state good roads fund.

## Good Road's Great Value.

A good road is a convenience and a necessity. It helps both the buyer and seller of farm produce. It is invaluable to farmer and merchant alike.

## Wrought the Change.

"What ails old Jabbs?"  
"Just a trifle eccentric."  
"They used to say he was crazy."  
"He inherited money since then."

## HAILSTONES.

The Part Electricity Is Said to Play in Their Formation.

The formation of hail through electrical action, according to the theory of scientists attached to the weather bureau at Washington, is an interesting and even wonderful process.

The wind draws out a cloud into a long, narrow strip. In that form, owing to the great amount of surface exposed to the air, the cloud evaporates rapidly, and the rapid evaporation produces intense cold. Dry particles of snow are then formed, and these, by friction with the water drops, quickly become charged with negative electricity. But the water drops themselves carry positive electricity, and, since negative attracts positive, a film of water is formed upon each snow particle and is instantly frozen into a layer of ice.

At this thickness its outer surface remains moist, the water not freezing there so rapidly, whereupon the electrical charge changes from negative to positive, and the particle is repelled by the water drops and driven to the outer parts of the cloud. Here the increased cold covers it with snow again, and friction charges it anew with negative electricity. Repulsion is now once more changed for attraction, and the particles rush back into the cloud, receiving upon their surfaces another film of water, which is turned into second ice layers.

Thus the growing hailstone darts zigzag through the clouds, piling up its alternate layers of snow and ice until gravitation gains control and sends it, with a jingling crowd of its fellows, spinning to the ground.—Minneapolis Journal.

Least Resistance.  
Teach your boy to respect.  
Practice is so hard.  
Stand of an example.  
Bring him up by card.  
Tell him that the only  
Way to struggle through  
is the way you tell him.  
Not the way you do.

Posting as a model.  
Every blessed day  
Isn't easy sledding.  
Nor exactly play.  
But it isn't very  
Straining, you'll allow.  
Or fatigue inducing.  
If you tell him how.

And if he depended  
For his etiquette  
On your daily conduct  
He would lose the bet.  
But if you will only  
Point to him the way  
Plain and clear he cannot  
Greatly go astray.

Being prim and proper.  
That the boy may see  
Isn't easy going.  
As you will agree,  
But it is a trifle  
Small for any one.  
To inform the youngster  
How it should be done.

## Just Her Way.

"How you getting along with Mabel?"  
"She never would take me seriously."  
"No."  
"Gave her a pair of gloves once, and she told me to quit kidding her."



Frank Anyway.  
"What would you do if you found \$100?"  
"Look for the owner."  
"To give it to him and receive a reward?"  
"No; to dodge."

## Enforced.

"He seems to be a level headed fellow."  
"Still, he never looks at the moon over his left shoulder."  
"Superstitious as that?"  
"He is blind in his left eye."

## For Safety.

"What is your business?"  
"I am a book agent."  
"What do you consider the most necessary qualifications in that business?"  
"To know how to hypnotize dogs."

## Results to Show.

"You look as though you were all in."  
"I was in a collision this morning."  
"With a street car?"  
"No; with my wife's disposition."

## Found a Way.

"Had your maid long?"  
"Dear me, yes. A year."  
"How can you keep a girl so long as that?"  
"Because she is no good."

## For Others.

"Do you believe in punishment?"  
"Sometimes."  
"For instance?"  
"When I am sure I am not going to be found out."

## Modern Millinery.

"What is all of this furry about?"  
"I can't find the waste paper basket."  
"Probably one of the girls is wearing it."

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Bandon	Coquille
7:00 a m	8:30 a m
Coquille	Bandon
11:00 p m	3:00 p m
Dispatch	Bandon
7:30 a m	10:00 a m
Favorite	Bandon
1:30 p m	4:00 p m
Leaves	Arrives
Coquille	Bandon
Favorite	Bandon
7:30 a m	10:30 a m
Coquille	Bandon
3:30 a m	11:30 a m
4:00 p m	5:30 p m
Dispatch	Bandon
1:00 p m	5:00 p m

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