

The Problem of Dustless Roads How They May Be Attained

The Advent of the Automobile Has Introduced a New Factor into the Subject of Road Making--France Has Been the Pioneer in an Attempt to Solve the Problems Caused Thereby, Though Other Countries Have Also Made Some Experiments.

(Scientific American)

Although the problem of dust prevention on public highways is by no means a new one, its importance has been greatly accentuated by the comparatively recent introduction of the automobile. The dust-raising tendency of the latter is due to the destructive shearing action of the tires of the driving wheels and the intense suction and eddying-producing effect of the car body in passing swiftly over surfaces which have been already loosened up by tire action. In the days of the horse-drawn vehicle, the iron shoes of the horse and the tires had a tendency to consolidate, rather than loosen up, the surface of a well-made macadam road, and the comparatively small amount of dust which gathered could be sufficiently laid by one or two daily trips of the watering cart. The advent of the automobile, however, has complicated the problem greatly, and it has become necessary not merely to find a more efficient means for laying the dust, but to provide also a method of road construction which will more firmly bind the road material together, and enable it to stand up under the extreme conditions which the automobile has imposed.

The work which has been done during the past eight or ten years in this direction has provided much valuable data on the action of dust preventives, both as to their temporary effect in laying the dust, and their more important action as permanent binders of the materials of which the roads are built up. Generally speaking, these results are highly encouraging; for it is now understood that the failures which have occurred were due to a lack of knowledge of the quality of the oils and other binders employed, and a failure to grasp the now well-understood fact that, for successful road treatment, a study must be made of the composition, both of the oil itself and of the surface to which it is to be applied.

For the genesis of this work, we must go to France, where, as far back as 1867, the problem was made the subject of investigation. It was not, however, until 1902 that the work was seriously undertaken, and in the last eight years a large amount of theoretical and practical work has been done in Europe, mainly in France and England. In these countries an almost exclusive use has been made of tar; but in the United States, chiefly because of large supplies of oil and its general availability, oil has been the medium generally employed. In both the Old World and the New, the results, as noted above, have been highly encouraging; and the indications are that with our rapidly increasing knowledge of the subject and the general introduction of practical methods and suitable appliances, not only will the

problem of dust laying be thoroughly mastered, but a type of road surface will be developed, which will stand up better under the new and severer conditions of traffic than did the old macadam and dirt roads in the days of the horse-drawn vehicle.

The most valuable quality in any dust preventive is its ability to hold together the finely divided material, which is produced on or near the surface of the road. The value of any oil, asphalt, emulsion or what not, lies, at the last analysis, in its "binding power"; and this quality in any dust preventive is proportionate to the amount of bituminous base which it contains.

The work of dust prevention divides itself, according to the aims and methods employed, under the two heads of permanent and temporary. The first method and the most effective, is to so thoroughly treat the surface that it will be firmly and permanently compacted into disintegration prevented, and the formation of dust rendered impossible. This result is obtained by the use of what are known as permanent binders, consisting of the tars and the heavy oils, which have been so far subjected to distillation that they contain a large percentage of binding base. The second method seeks merely to keep down the dust that is formed upon the road surface, and there is temporary in its action. The temporary binders include certain light oils and tars, oil and tar emulsions, and salt solutions. The temporary binders contain from their very nature, only a small amount of base, and to effectively keep down the dust, they have to be applied with more or less frequency, according to their richness. It should be noted, however, that each application of the temporary binders leaves, or is liable to leave, a certain amount of its bituminous element permanently in the road; thus producing a cumulative effect, which, in many cases, ultimately gives to the road surface much of the qualities secured by the use of heavy oils and tar.

The principal material used in the permanent treatment of roads with tar are coal tar, refined coal tar and water gas tar. They may be used effectively either by applying them to a road already finished, or by incorporating them in the surface material of the road during construction. In applying the tar to an old road, the surface should be thoroughly dry, comparatively warm and free from dirt. Moisture prevents the tar from proper contact with the stone, and a cold surface stiffens the material and prevents its being absorbed. Before the application is made, ruts and hollows should be filled, and the surface brought up to a smooth and even condition. The tar, heated to about 190 deg. F., is spread upon the road

through a hose or by other suitable means, and is then thoroughly broomed in. After this has been done, to secure good results, the surface treated should be closed to all traffic for about twelve hours, so as to give the tar an opportunity to thoroughly sink into the surface. Next, a coat of clean sand or stone chips should be applied to absorb any excess tar, and dry up the surface, as it were. The road should then be rolled thoroughly to bring it into condition.

This question of giving the tarred surface a twelve hours' rest involves the difficulty of interference with the traffic. In many cases, the county authorities, after spreading the tar, throw over it a top dressing and permit traffic to make immediate use of the road. This not only prevents the tar from thoroughly impregnating the road surface, but it results in an immense amount of inconvenience and unsightly disfigurement to automobiles and other swiftly vehicles. The best way out of the difficulty is to treat one-half of the roadway at a time, reserving the other half for traffic. Even where a road is so narrow that traffic would have to be slowed down to a walk, the users would willingly submit to this lesser inconvenience in order to avoid the discomfort resulting from present methods. In cases where it is impossible to close one-half of the roadway care should be taken to apply sufficient sand or crushed stone to prevent the tar from sticking to the wheels or vehicles; but this, it must not be forgotten will spoil somewhat the quality of the bond secured on the road surface.

In applying the tar in new construction the road should be formed and consolidated without the use of water. The voids should be filled with fine stone chips free from dust, and care must be taken not to roll the surface too heavily, or the tar will not adhere properly. Hot tar may be applied through all of the courses as they are laid and rolled; but occasionally the upper course only is so treated. After tarring, a top dressing of material is laid on and the surface is thoroughly rolled. The tar spreading may be done either by hand, in which case an excess above what is necessary will probably be used, or it may be spread on by an apparatus mounted on wheels, the tar being discharged under pressure at the road surface by specially designed spraying nozzles.

If the work be properly done, a tarred road, after being open to traffic for a short time, takes on an appearance closely resembling asphalt, being smooth and firm, practically noiseless, and more resilient, than asphalt. It is largely waterproof, practically dustless, and the resistance to traction is less than that of an untreated macadam road.

THE YOUNG PRINCES WILL TOUR CANADA

King George Wants His Sons to Know the British Empire as He Does, Therefore He Will Send Them on a Year's Tour of the World.

London, Aug. 30.—Unless there is a change in the plans the Prince of Wales and his brother, Prince Albert will visit the United States during their tour of the Empire, which is now being arranged. King George, while Prince of Wales, travelled more extensively than any of his predecessors and finds the intimate knowledge he thus gained of his "dominions beyond the seas" is of great value to him now. It is his purpose to give his sons an even wider knowledge of the great empire one of them in the course of time will be called upon to rule.

The tour of the princes will last at least a year, perhaps more. They will visit South Africa, India, Australia and Canada, spending some time in each of these great empires within the empire.

While in Canada the present idea of the King is to arrange the itinerary of the princes so that they will be able to see some of the great American cities. Just which American points will be touched it is, of course, impossible to say yet. While King George does not hold the individual American in as high esteem as did his late father, he is fully alive to the political importance of fostering the most friendly feeling possible between the two great branches of the Anglo-Saxon race. He is convinced that a visit to America by the little princes will do much to advance this friendship, and it is for this reason he plans the American trip.

On their return the Prince of Wales will go to one of the universities and afterwards enter the army. His brother will prosecute his studies at the Naval College, Dartmouth.

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\$4000 WORTH OF JEWELS STOLEN FROM PASSENGER'S STATEROOM

New York, Aug. 30.—Jewels valued at \$4,000 were stolen from the state room of Mrs. Ethel May Davis of Chicago on the steamer Kaiser Wilhelm II early last Friday morning during the steamer's voyage from Bremen to this port. The robbery was revealed on the arrival of the liner here today. No trace of the valuables has been found.

Everybody is willing to help somebody else at the expense of somebody else.

PROBATE COURT COUNTY OF SUNBURY

Wednesday, the Sixth Day of July, A. D. 1910.

In the matter of the Estate of Henry Nevers, late of the Parish of Lincoln, in the County of Sunbury, Farmer, deceased.

Let the heirs, next of kin, creditors, and all others interested in the Estate of the said late Henry Nevers, deceased, be cited to appear before me at the Court of Probate to be held at my office in Oromocto, in the County of Sunbury, within and for the said County of Sunbury, on Wednesday, the fourteenth day of September next, at eleven o'clock, in the forenoon, to show cause, if any they have, why license should not be granted to Martha True, Administratrix of the Estate of the said late Henry Nevers, deceased, to sell such of the real estate of the said deceased as may be necessary for the payment of the debts of the said Estate.

Given under my hand and seal of the said Probate Court, this sixth day of July, A. D. 1910.

(Sd.) JOHN W. GILMOR, Judge of Probates

(L. S.) County of Sunbury

(Sd.) EMMA E. ESTABROOKS, Registrar of Probates in and for the County of Sunbury.

GREGORY & WINSLOW, Proctors for Petitioner.

LOBSTER SEASON THE BEST IN YEARS

Sackville, N. B., Aug. 29.—The lobster season in Bothford Parish is reported the best in eight seasons.

A cheap disinfectant to use when scrubbing or washing utensils in a sick room is made by adding a teaspoonful of turpentine to every pailful of hot water. Turpentine is a powerful disinfectant, and will dispel all bad odors.

Montreal is the fourth French city of the world as established by the number of the population speaking the French language in the following places: Paris, 2,700,000; Marseilles, 495,000; Lyons, 472,000; Montreal, 350,000; Brussels, 300,000; Bordeaux 251,000.

vow to use nothing but farthings, or it is simply that the small shopkeepers in the poorer quarters find it the most convenient "worth" of goods to sell?

SENSATIONAL AEROPLANE FLIGHT OVER PARIS

Paris, Aug. 29.—M. Bielevucci made a sensational aeroplane flight above Paris today. He twice circled above the Eiffel Tower at a height of 2,500 feet.

DRINK THE CAUSE.

Donald, the village barber, had been sadly intemperate of late and very irregular in his attendance at Kirk. One day the minister went into the shop for a shave and Donald unfortunately "nicked" him. "You see," said the minister, severely, as he wiped the blood from his face, "you see what the drink does." "Aye," replied Donald, slyly, "it does make the skin verra tender."

The United States Bureau of Forestry plants millions of tree seeds every year, in pursuance of its policy of replanting logged and burned-off timber lands. This year ten tons of seed are being put into the ground.

MYSTERY OF THE BRITISH FARTHING

The figures given in the report of the Mint are sufficiently curious to deserve attention, says the London World. That the five-shilling piece should disappear it is easy to understand. No one will regret it. That there should have been only half as many three-penny bits coined in 1909 and in 1908 is equally easy to understand. One's only surprise is that the Mint should have found it necessary to issue as many as four millions of a coin which the public unite in condemning for being as much too small for convenience as the five-shilling piece was too large. But why were 8,960,000 farthings coined in 1909, more than twice as many as in 1908 and where do all these farthings go? It is impossible to get a farthing change in a shop and yet last year nearly nine million farthings came modestly and mysteriously into the world. Is there some secret and self-supporting community hidden away in one of the corners of London which has taken a

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No. 317—Suburban for Gibson and Marysville, 6.15.
No. 321—Suburban for Gibson and Marysville, 11.15.
No. 323—Suburban for Gibson and Marysville, 16.20.
No. 301—Express for Loggieville, Chatham, Campbellton, Quebec, Montreal, etc., 18.30.
No. 327—Suburban for Gibson and Marysville, 18.40.
No. 329—Suburban for Gibson and Marysville, 22.00.

ARRIVALS

No. 306—Suburban from Marysville 7.45.
No. 302—Express from Loggieville, Chatham Junction 11.25.
No. 308—Suburban from Marysville 13.30.
No. 304—Mixed from Loggieville and Chatham Junction, 16.00.
No. 310—Suburban from Marysville 19.15.
No. 316—Suburban from Marysville 21.55.

CANADIAN PACIFIC

DEPARTURES

6.20 a.m.—Express for St. John, Portland, Boston, Woodstock, etc.
7.55 a.m.—Mixed for Woodstock and points North. Leaves St. Marys at 8.35.
9.45 a.m.—Express for St. John and points east.
4.45 p.m.—Mixed for Woodstock, via Gibson branch on Tuesdays, Thursdays and Saturdays.
5.50 p.m.—Express for Montreal, and Boston, Woodstock, St. Stephen, etc.
9.05 p.m.—Express for St. John and points east.

ARRIVALS

9.10 a.m.—Express from St. John and points east.
11.20 a.m.—Mixed from Woodstock via Gibson branch, Tuesdays, Thursdays and Fridays.
11.35 a.m.—Express from Montreal, Boston, etc.
7.50 p.m.—Express from St. John, and points east.
9.05 p.m.—Mixed from Woodstock, and points North.
10.50 p.m.—Express from Boston, Portland, Woodstock, St. Stephen, etc.

STAR LINE S. S. CO.

Steamer Victoria leaves for St. John every Monday, Wednesday and Friday at 8 o'clock a.m. Arrives on Tuesdays, Thursdays and Saturdays at 4.30 p.m.

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Steamer Elaine leaves for St. John every Tuesday, Thursday and Saturday at eight o'clock. Arrives every Monday, Wednesday and Friday at 4.30 p.m.

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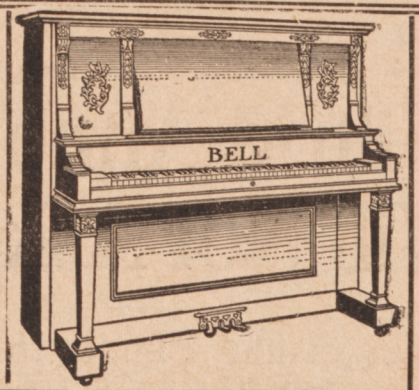
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The cities of Detroit and Milwaukee were almost equal in population 10 years ago—285,704, or the former and 285,315 for the latter. Now they stand 465,776 for Detroit, a gain of 63 per cent. in 10 years, and 373,857 for Milwaukee, a gain of 31 per cent. The Michigan city's record is rather remarkable and is explained by the fact that the automobile manufacturing industry has largely centered there. That has flourished even more than beer brewing.