

Engineers — And

Tar on Roads

A macadam road, as we all know, is made of crushed stone of varying sizes held in place by filling the interstices with smaller stone, stone dust, or other suitable material as a binder. In the ordinary water bound macadam a cementing action takes place between the crushed stone and the dust as a binder, the degree of this cementing action depending upon the material used as crushed stone and the material used as a binder.

The harder the rock, the less able it is to absorb moisture, and the more difficult it is to bind. For this reason the granites are more difficult to bind than the limestones when used as a road material.

In order to keep a macadam street in good condition it must receive sufficient traffic to furnish more or less dust, and moisture must be provided to aid in keeping the stone cemented. If a sufficient amount of moisture is not present, then the road will ravel and will be rapidly destroyed, especially if very much automobile traffic passes over it.

In order to supply the necessary moisture the method known to all of us of applying water with a sprinkling wagon has been used almost exclusively in the past. The water so applied furnishes the moisture which is absolutely necessary to keep the macadam well bound, and also acts as a dust layer or dust preventive.

Many objections to the use of water as a dust preventive may, however, be urged. If the water is applied in just the right quantity to lay the dust but not in quantities enough to make the road surface unnecessarily muddy, then the service may be considered fairly satisfactory. The difficulty lies, however, in the almost impossible task of having the water applied often enough and in quantities sufficient only to keep the surface moist.

Another objection to the use of water is on account of the injurious effect upon the road material that the frequent application of water has. Any slight depression in the surface of the road will collect and hold water which will soften up the road surface and hasten the formation of still greater depressions. Still another objection exists in case the supply of water is inadequate. The demand upon the waterworks system is usually already great at that season of the year when the sprinkling of the streets is most urgent, and in many cases the heavy demand of the sprinklers seriously interferes with the pressure throughout the system.

For some years past engineers and others interested in road work have been experimenting with various materials and methods of application, designed as a substitute for water as a dust layer. The use of tar or asphaltic oil applied to the surface of the road, or of tar or asphalt as a binder for the upper two or three inches of the road surface is now good practice in many localities.

The cost of the first treatment was 7c per square yard. In this cost is included all the items which should enter, namely, the cost of cleaning the street, the cost of the tar, of heating and applying it, the cost of the screenings and applying them, and the cost of rolling. The second treatment cost 4c per square yard was less.

In addition to applying the heavy tar mentioned above, a lighter tar (Tarvia B) requiring no heating before applying, has been used with considerable

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