It may be said, then, that 400 cu. yds. is run about every 4½ days. The labor cost for this is, therefore, 4½ × $67.20 = $302.40, or 76 cents per cubic yard.

The use of the movable tower is the main feature of the concrete work, and this has no doubt saved considerable money to the contractor over the cost of handling the work by any other method.

## METHODS OF ROAD CONSTRUCTION AND THE PROBLEM OF DUST SUPPRESSION.*

**By Frank B. Earl.†**

To the average citizen the condition of the streets seems to have been of little interest, but with the advent of motor-driven vehicles and the increased importance of highway traffic, we have come to realize that our highways are our arteries of travel and that when congestion exists the whole body of politic is made to suffer. From the moral standpoint, we have begun to recognize that, in providing a smoother path for the feet of men and by improving their method and means of communication with each other, we are making this world a better place to live in.

In conversation with the mayor of a certain city, the speaker outlined to him the general conditions of the streets

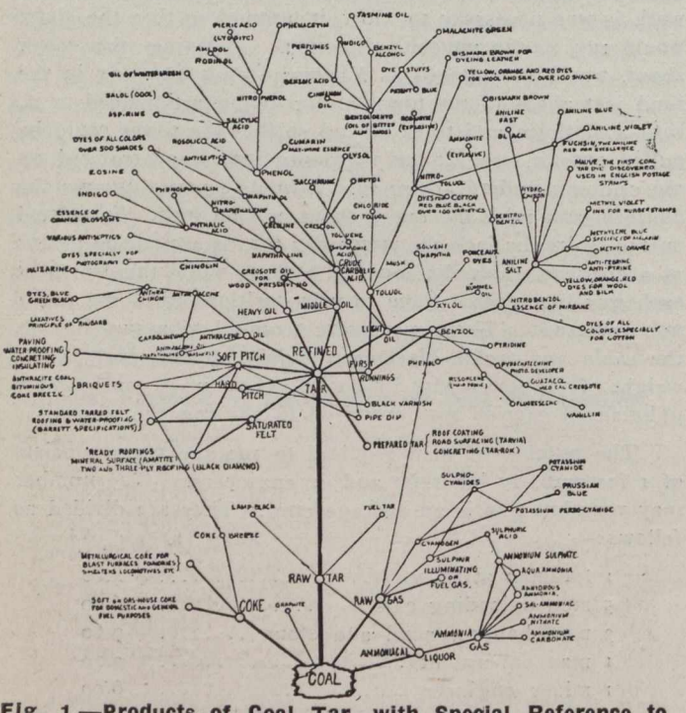


**Fig. 1.—Products of Coal Tar, with Special Reference to American Conditions.**

("The Coal Tar Tree" graphically illustrates the almost innumerable products and by-products that are derived from ordinary coal, such as is found in practically inexhaustible deposits throughout a great portion of this and other countries.)

of the town, suggested certain improvements, told him how the same would increase the value of the abutting property emphasized the fact that there was no improvement possible by which the community would reap such large and quick returns, that home-seekers would be attracted, rentals increased, etc. In reply this official expressed a desire that the foregoing be told to the community at large, with the result that a public meeting was held and a general outline of the above suggested benefits given to the public. This is a long step in the right direction, as it is the taxpayer who is most vitally interested in these questions, because he is the one who foots the bill.

There was spent on the roads in the United States last year $142,000,000 and I presume that nearly twice that amount will be spent during this coming year. New York State is bonding for $50,000,000; Ohio is likewise bonding for $50,000,000, and Pennsylvania for the same amount; New Jersey $10,000,000, and thus it is being done all over the country.

In Montclair, N.J., they are considering the advisability of issuing bonds to the amount of $400,000 to make it "The Town Beautiful." Essex County, N.J., has increased its appropriation for repairs $30,000. The city of Newark, N.J., is spending nearly $1,000,000 more this year than it has ever expended before.

This gives some idea of the amount of money appropriated, and shows why the attention of legitimate business has been attracted, and it also provides a reason for the large number of questionable enterprises which come and, fortunately, go with the season. Some of the difficulties arising from these conditions are startling, and at times contracts seem to have been let, because of the low prices offered, to irresponsible bidders who, of necessity, were compelled to resort to dishonest practice or lose money on the job. The speaker believes the time has come when contractors will form some sort of combination themselves and seek to classify business interests—a step which would doubtless result in multiplied benefits to all concerned, and which is, he believes, within the scope of this society.

The speaker considers it a privilege to talk with the members of this society regarding come of the problems of road construction which we all meet every day, and about which little or nothing new has been advanced within the last year. For that reason it is a subject about which he always feels a sense of embarrassment when asked to speak. He does not know that he has anything new to present, but such as he has he will gladly share with you.

The ordinary water-bound macadam roadway when subjected to automobile traffic rapidly goes to ruin and for some years past many experiments have been made to replace this type of construction by substituting some more effective binder, both on new work and the resurfacing of old roads; the two chief binding materials experimented with being asphaltic and tar compounds.

Both asphalt and tar are used in new construction and in dust prevention—there being many grades of each, varying in density and viscosity, the lighter grades being used for dust prevention and the heavier in resurfacing and new construction.

Naturally, the speaker is best acquainted with Tarvia, because he deals in this material exclusively in the construction of roads and for the prevention of dust. In his experiences with various municipalities over a part of two States and in driving constantly over the roads, he comes in contact with every form of material that is on the market and has opportunity to note the method, results and machines, and to draw definite and intelligent conclusions, which he will endeavor to state briefly to you without any disposition to criticize one way or the other.

In order to present the pedigree, so to speak, of the tar binder, he is going to start at the real beginning of affairs—for you all know that tar is a derivative of the distillation of coal and that coal itself was formed in the Carboniferous Age by the accumulation of masses of vegetation and trees.

Very little is in reality known about coal. Some writer has aptly called it "buried sunshine." Not a misnomer, as it suggests the source of light and heat which is driven off

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