

## IMPORTANCE OF MAINTENANCE IN SELECTING PAVEMENTS.\*

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INVESTIGATION shows that very few of our cities, counties or states give any real consideration to the maintenance costs in deciding upon proper pavements for streets and roads. Even a cursory examination of the various reports shows this matter to be greatly neglected. Many cities have appropriations for repairs. These appropriations are always used, but the reports do not show the actual conditions as to whether the various streets were kept in good repair, or whether the money was simply spent and holes were fixed as far as the money would go, and the rest were left to be done with another year's funds. Unless these facts are known, it is impossible to compare maintenance costs and arrive at any true results.

Many of our cities possess experienced engineers to draw specifications for, and to supervise, the construction of new pavements, and they get good pavements of their kind; but the authorities think that the work of the engineer is done when this has been accomplished. In other words, the idea seems to prevail that when a pavement is laid, the engineer is through and that any politician with a good following can do the rest. As a result, the maintenance work and the replacing of pavement over corporation and plumbers' cuts are very often under a man who is known as superintendent of streets, or of repairs, or has some similar title, and whose only qualification is that he was a good worker in the last campaign. He may do the best that he can, and then again he may only see that a maximum number of voters are given employment in making alleged repairs to the pavements. Such a man will probably keep track of the cost of repairs by weeks, months or years, but will have no idea of keeping costs by streets, blocks or contracts; and as a consequence his costs will mean nothing to him or anybody else, except that he has had an appropriation and has spent it where he thinks it will do the most good (at the next election?).

By this method the engineer who laid the original pavements will have gained no knowledge as to the real costs of his pavements, and consequently will be in no better position to judge whether he should continue to lay the same kinds of pavements under similar traffic conditions, or whether he should select more durable materials for those conditions. The best that he can do is to judge by casual observation, which in the case of most busy municipal engineers can be of the most general character at best.

The above seems to be the rule rather than the exception in this country, and applies not only to municipalities, but also to our county and state highways as well. Some of the State Highway reports of neighboring states furnish a great amount of data to illustrate this point if one takes the trouble to dig it out, but the work is so divided and the reports are from so many different officials, that nothing can be learned without a large amount of labor.

One nearby state which continues to lay mainly water-bound macadam, even upon main arteries of travel, shows in its report (or rather it does not show, but by spending considerable time in the study of the various sections of the report, it was found) that, with the first cost of the

macadam and the repairs to this in a period of six years, the total cost per square yard was considerably more than would have been the cost of laying the same width of granite block pavement on a concrete foundation in the first place and making the additional provision for the sinking fund. At the end of the six years the reports gave the condition of the roads as bad even with the large sums spent in repairs. This was applicable to some thirty or more of the main travelled roads, between important towns and cities. This search could be carried further, to include many more roads where a cheaper form of pavement, yet a more substantial one than water-bound macadam, could have been used, with much economy from the standpoint of maintenance.

The remedy for this condition is to continue to employ experienced paving engineers on the original construction of the pavements and then put the maintenance under the same engineer. If this is done, the engineer will watch his pavements carefully, also his maintenance costs, and will observe when he requires a more substantial form of pavement under certain traffic conditions, and also when he has the proper pavement for those conditions. In other words, he will keep careful account of the cost of maintenance of the various pavements together with the traffic each bears, and then he will be in a position to make his deductions as to when to use this kind of pavement and when to use another kind. With the present method of divided responsibility as prevails in so many of our cities, this is impossible.

The all-important point is to place the new construction and the maintenance under one engineering head and then hold him responsible for results; and if he is given the authority, he will get results far superior to those now obtaining.

## TO MANUFACTURE STEEL WHEELS.

The Hamilton Steel Wheel Company has purchased a site and will erect a plant costing \$200,000, for making steel wheels, which product was formerly furnished by Germany and the United States.

This industry will give employment to about 200 men and will turn out about 75 tons of steel wheels per day.

C. W. Sherman, of the Dominion Steel Foundry Company, will be managing director of the new concern.

## SEATTLE DRYDOCK TO BE LARGEST IN THE WORLD?

The Seattle Construction & Drydock Company announced on October 28th that the contract for the first four sections of its new floating drydock would be let to John McAleer for \$225,000.

The new drydock, even the first four sections, when completed, will be the largest floating wooden drydock in the world, according to shipping experts, and will be capable of handling vessels up to 500 feet in length. The lifting capacity will be 12,000 tons.

Through the closing of the deal for the construction of the four units comes the further news that instead of a drydock with a limit of 12,000 tons, two additional sections will be added in the near future, giving a total capacity of 20,000 tons, enough to handle the largest ships plying on the Pacific Ocean. The length limit will be 650 feet.

Because of the size of the big sections, 88 by 136 feet, they will be built at Port Blakely and then towed to Seattle. The first four sections, when completed, will cost \$500,000.

The new Trolpastz Canal in Sweden has been opened by King Gustave. The canal establishes communication between Wener Lake and the North Sea, and seven years was spent in its construction.

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