

## OIL FOR MACADAM ROADS.

Automobile traffic has revolutionized our ideas of permanent road construction. Whereas a dozen years ago a well-constructed waterbound macadam road was considered about as permanent a road as could be desired for country traffic; with the constantly increasing use of the high-speed rubber-tired automobile, such roads have in many cases disintegrated faster than they could be maintained.

It has been clearly demonstrated that the bond in ordinary macadam road is insufficient to protect it against the somewhat complex action of the automobile tire travelling at high speed. The dust raised by this class of vehicles is blown entirely off the road and a fresh lot of dust raised; this repeated action resulting in the wearing down of the road surface, in some cases several inches in a single season.

While oiling a road is not considered a permanent remedy for this disintegration, it serves to keep the dust down, thus preventing the next lot of dust being raised, and by this means temporarily preserving the road. There are many varieties of oil on the market for this purpose, some of which are little better than water, while others, having a bituminous base, on the evaporation of the volatile constituents, leave a certain amount of bitumen to act as an aid to the binder in the road. This bituminous residue is increased at each successive application, so that as time passes the applications may be made fewer and lighter.

The cost per year of applying oil at current prices, amounts to from eight to fifteen per cent. of the original cost of the road if built by day labor, or from five to ten per cent. if built by contract. This expenditure will be well repaid in the elimination of the dust nuisance and the decreased cost of maintenance, as well as in the increased life of the road.

Cost, per application, of oiling one mile of road, of different widths with varying quantities of material.

Oil, 7½ cents per gallon.

Cost of application, \$25.00 per mile.

Width of Road	Square yards per mile	¼ gallon per square yard	½ gallon per square yard	¾ gallon per square yard	1 gallon per square yard	1½ gallons per square yard
10ft.	5,867	\$135	\$245	\$355	\$465	\$ 575
12	7,040	157	289	421	553	685
14	8,213	179	333	487	641	795
16	9,387	201	377	554	729	905
18	10,560	223	421	619	817	1,015
20	11,733	235	465	685	905	1,125

Oil, 8½ cents per gallon.

Cost of application, \$25.00 per mile.

Width of Road	Square yards per mile	¼ gallon per square yard	½ gallon per square yard	¾ gallon per square yard	1 gallon per square yard	1½ gallons per square yard
10ft.	5,867	\$150	\$275	\$400	\$525	\$ 650
12	7,040	175	325	475	625	775
14	8,213	200	375	550	725	900
16	9,387	225	425	625	825	1,025
18	10,560	250	475	700	925	1,150
20	11,733	275	525	775	1,025	1,275

Ordinarily the following applications will suffice:—

FIRST YEAR—First application, ½ gallon per square yard.

Second application, ¼ gallon per square yard.

SUBSEQUENT YEARS—Two applications, each ¼ gallon per square yard.

## LUBRICATION OF STREET RAILWAY RAILS.

Water lubrication of street railway rails has been in use for some time on a street in Rome, Italy, carrying heavy traffic. The street is on steep grade and has numerous curves. At the top of the slope a stream of water is fed into each of the four rails of the double track line and flows downhill along the groove of the rail. Every 20 to 30 inches a small wooden block is wedged in the groove, reaching up to wheel flange level, to break the flow of the water. It is reported that cars ride very smoothly on this lubricated track and the grinding noise of cars rounding curves is practically eliminated, while also the general noise of the car traffic is reduced. Grease lubrication at curves is rendered unnecessary.

## SMALL WATER POWER WANTED.

A subscriber would like full particulars, with price, of small water powers of about 2,000 horse-power. A firm of carbide manufacturers desires this information. Those interested are invited to correspond with the managing director of The Canadian Engineer.

The Canadian Northern Railway have just signed contracts with builders of rolling stock all over Canada for seven million dollars worth of railway equipment to be delivered during 1913. This will include 130 locomotives, 76 passenger coaches, 300 box cars and variety of other cars. Equipment bonds will be issued for the purpose.