perature it is accompanied by considerable boiling and is somewhat dangerous.

The binder liquor, while hot, is poured over the concrete from buckets, and uniformly swept over the surface with stiff house brooms until every particle of surface is coated with a thin film and all excess is swept from holes or depressions in the concrete. The paint binder penetrates deeper into the concrete when permitted to flow in a thin wave ahead of the first sweeping. A second sweeping after a few minutes removes excess from depressions and spreads it uniformly over the concrete. The thinnest possible application of paint should be used so that after evaporation, which is completed in from one and one-half to two hours, the surface should have a glossy black appearance. If too small a quantity is used, or if the percentage of asphaltic cement to distillate is considerable less than above, a brown surface will result, which will not make a successful bond with the asphalt surface.

Two men can easily mix and apply this asphaltic coat on 12,000 sq. ft. per day. On 69,000 sq. ft., where the proportions were being varied somewhat, it was found that 100 sq. ft. required 0.856 gal. of engine distillate and 3.5 lb. of asphaltic cement. The total cost on above area, including 15 per cent. on labor, was \$0.0018 per square foot of surface.

It is found that no inconvenience is caused to the work of laying asphalt by the placing of the asphaltic coat. After one hour's time it does not stick to the wheels of motor trucks or wagons. It is not desirable to so cover the concrete farther ahead of the asphalt work than is required for the distillate to evaporate and leave the binder hard.

In one case, several days' rain which fell on paint freshly applied caused the asphaltic coat to appear loosened from the concrete in many places. After two days' dry weather, however, it seemed to bond again to the concrete so that it could not be removed. It is believed that the paint binder will tend to waterproof the asphalt surface, preventing damage to its under side from moisture which may rise through the concrete.

If the asphaltic coat is allowed to accumulate in any quantity in a depression such as a heel mark, its location is soon apparent after the placing of asphalt since excess asphaltic cement appears on the surface during rolling. With reasonable sweeping, however, no trouble of this kind has been experienced.

There is a marked difference in the behavior of hot asphaltic mixture under the roller where the paint binder has been used and where it has been omitted. Where concrete has been painted, the asphalt does not move or welt up in front of the roller to any appreciable extent, as is noted when rolling asphalt on plain concrete.

It is found that the asphaltic cement, while dissolved in the distillate, penetrates into the surface of the concrete to a distance of from 1/10 in. to ½ in. and in some cases even further. Samples of the surface removed show the concrete adhering uniformly to the asphaltic surface. When removing the sample the concrete is fractured and a layer of solid concrete is removed, carrying the first layer of finer gravel. When trimming a joint to begin a new day's work, the surface of the concrete base is always broken off in removing the thin edge of asphalt which has been cut from the finished work.

For experimental purposes, a few hundred feet of the surface has been placed without the use of the paint binder. As expected, no bond is secured except that of a mechanical nature, due to the roughness of the concrete. Notwithstanding this, the surface remains in first-class condition after one month of heavy traffic, and it is believed that good results will be obtained under wear without the use of a binder of any kind. However, the use of this binder at so small an additional cost will improve the pavement and prolong its life to such an extent it will more than justify its expense.

MAY FIRE LOSSES

The Canadian Engineer's estimate of Canada's fire loss during May amounted to \$2,123,868, compared with April loss of \$1,470,622 and \$2,251,815 for the corresponding period of last year. The following is the estimate for May losses:—

Fires exceeding \$10,000	\$1,540,500
Small fires	306,342
Estimates for unreported fires	277,026

\$2,123,868

The following are the monthly totals of the losses by fire during 1910, 1911, 1912, and 1913:--

	1010.	1911.	1912.	1913.
January \$	1,275,246 \$	2,250,550 \$	3,002,650 \$	3,913,385
February	750,625	941,045	1,640,153	2,037,386
March	1,076,253	852,380	2,261,414	1,710,756
April	1.717.237	1,317,900	1,355,055	1,470,622
May	2,735,536	2,564,500	2,251,815	2,123,868
June	1,500,000'	1,151,150	4,229,412	
July	6,386,674	5,384,300	1,741,371	
August	1.667,270	920,000	1,164,760	
September	894,125	1,123,550	883,949	
October	2,105,781	580,750	1,416,218	
November	1.043.708	1,506,500	1,184,010	
December	1,444,860	2,866,950	1,769,905	

\$23,593,315 \$21,459,575 \$22,900,712 \$11,256,017

During May thirty-three lost their lives through fire; this is the largest number of fatalities since July, 1911.

The following are the monthly totals compared with 1909,

igio, igii and igii	1000.	1910.	1911.	1912.	1913.
January	16	27	27	27	14
February	8	15	12	II	21
March	16	20	18	24	22
April	18	37	20	15.	II
May	21	15	28	18	33
Tune	. 16	52	13	6	
Tuly	. 4	15	IIO	9	
August	. 17	II	22	16	
September	. 10	10	13	6	
October	. 26	16	17	, 21	
November	. 34	19	20	22	
December	. 33	19	17	28	
Totals	210	256	317	203	IOI

The fire waste in each province for first five months of this year has been estimated by *The Canadian Engineer* as follows:—

Ontario	\$2,697,806
Alberta	2,649,203
Manitoba	1,542,912
Ouebec	1,109,266
Nova Scotia	943,409
New Brunswick	730,801
Saskatchewan	717,295
British Columbia	490,538
Prince Edward Island	374,787

\$11,256,017