

If we now take the cost per road-engine mile from the fourth division of Table III., and the costs per assistant-engine mile from Table VII., which correspond to the line and number of trains, using the engines required for each line as given in Table II., and add these together, the results will be as given in Table VIII.

TABLE VIII.—COST OF MOTIVE POWER PER TRAIN MILE IN PENCE.

Line.	Trains per Annum each Way.					
	500.	700.	1,000.	340.	477.	681.
A ...	41·58	37·18	33·78	57·17	50·37	45·37
B ...	40·50	36·60	33·60	57·27	50·87	46·17
C ...	47·30	43·20	40·10	89·47	77·97	69·37
C1 ...	46·90	42·90	40·00	88·37	77·17	68·97
E ...	71·60	63·90	58·20	...	...	...
E* ...	53·66	49·66	46·56	...	...	...
F ...	78·90	70·90	64·70	...	...	...

* Alternate arrangement of motive power, two 90-ton engines.

Multiplying the values of Table VIII. by the annual train mileage for each case, the annual cost of motive power is the result, and is given in Table IX.

TABLE IX.—TOTAL ANNUAL COST OF MOTIVE POWER IN POUNDS.

Line.	Trains per Annum in each Direction.					
	500.	700.	1,000.	340.	477.	681.
A ...	1,479	1,851	2,404	1,374	1,698	2,183
B ...	1,654	2,091	2,744	1,589	1,982	2,568
C ...	2,081	2,662	3,529	2,677	3,272	4,160
C1 ...	2,120	2,717	3,617	2,717	3,328	4,250
E ...	3,162	3,951	5,141	...	...	...
E* ...	2,369	3,071	4,113	...	...	...
F ...	3,477	4,372	5,702	...	...	...

* Alternate arrangement of motive power, two 90-ton engines.

Maintenance of Way.

All available records show that the cost of maintenance of way is nearly proportional to the train miles.

The New Zealand returns show that about 33·4 per cent. of the cost of maintenance of way is made up of renewals, which it will be fair to distribute as follows :—

Rails ...	...	...	...	...	...	13·4 per cent.
Ties ...	...	...	...	...	...	20·0 "
Surfacing and ballast	..	...	...	...	...	35·3 "

These are the only items of maintenance of way affected by grades and curves.

Wellington gives the effect of cost of maintenance due to 600 degrees of curvature and 26·4 ft. rise and fall on these items, as follows :—

TABLE X.—EFFECT OF GRADES AND CURVATURE ON COST OF MAINTENANCE OF WAY.

Items.	Per Cent. of Total Cost of Maintenance of Way.	Due to 26·4 ft. Rise and Fall.		Due to 600 Degrees of Curvature.	
		Per Cent. of Increase.	Per Cent. of Total.	Per Cent. of Increase.	Per Cent. of Total.
Rails ...	13·4	10	1·34	300	40·20
Ties, surfacing, and ballast	55·3	5	2·77	50	27·65
All items affected	...	...	4·11	...	67·85

Multiplying these values respectively by the rise and fall per mile in feet, divided by 26·4, and the curvature per mile divided by 600 for each line, the increased per cent. of cost of mainten-