masonry would be required to protect them from the atmospheric current. Even these rocks however which appear thus affected on the surface are very likely to be sufficiently compact at the depths at which they would be encountered in these tunnels.

I shall here give the details of these estimates of the tunnelling per lineal foot for the three instances—1st, of a double tunnel arched; 2d, of two single tunnels arched; 3d of two single tunnels without arching.

The cost of excavating rock in tunnels, being in proportion to the width which can be operated on, I have assumed it to be different in the different instances.

1st. For a tunnel of width (as described) to allow of boats passing each other.

Estimate for one lineal foot.

51 cub. yards of rock excavated at		$3 50	$173 50
5.63 perches of masonry of arch		10 00	56 30
4.20 do packing above arch,		4 00	16 80
6 do side walls,		8 00	48 00
3.30 do paving & concrete of bottom		6 00	19 80
Tow paths, two at		2 00	4 00
Draining and pumping,			3 00
Proportion for shafts and lateral galleries,			11 00
			$527 40

2d. For two single Tunnels arched.

23.84 cub. yards excavation of rock,		$4 00	$93 36
2.21 perches of masonry of arch,		10 00	22 10
1.54 do packing above arch,		4 00	6 16
4.32 do side walls,		8 00	34 56
1.60 do paving & concrete of bottom,		6 00	9 60
Tow-path,			2 00
Proportion for shafts,			6 50
Draining and pumping,			1 50
A single tunnel per lineal foot;			177 75
			2
Two single tunnels,			$355 56

3d. For two single Tunnels without arching.

21.3 cub. yards of rock excavation,		$4 50	$95 85
1.76 perches paving and concrete of bottom,		6 00	10 56
Track-path,			2 00
Proportion for shafts,			6 50