

Appendix E 1. BALLAST.

QUESTIONS.	AMERICA.						INDIA.	AUSTRALIA.
	CHESAPEAKE AND OHIO.	CHICAGO, BURLINGTON, AND QUINCY.	ILLINOIS CENTRAL.	LAKE SHORE AND MICHIGAN SOUTHERN.	NEW YORK CENTRAL AND HUDSON RIVER.	PENNSYLVANIA.	EAST INDIAN.	NEW SOUTH WALES GOVERNMENT RAILWAYS.
Material adopted for Bottom Ballast	Broken Stone and Gravel.	Stone or Gravel.	Stone or Gravel.	Clay or Sand.	Stone.	Large Stones.	Stone.	Stone.
If Stone, what mesh P .....	.....	.....	2½ inches.	.....	4 inches to 6 inches Spawls.	5 to 8 inches in diameter.	1½ inch Cubes.	4 inches.
Depth of Bottom Ballast	10 inches at centre of road, increasing in thickness towards side.	9 inches at centre of road, increasing to 14 inches at sides.	10 inches.	.....	6 inches.	8 inches.	.....	9 inches.
If Cinders, whether screened or not P .....	.....	.....	.....	.....	Not screened.	.....	No distinction between Bottom and Top Ballast.	Only a small quantity has been used, and these have been screened.
Material used for Top Ballast.....	Gravel.	Stone and Gravel.	Stone or Gravel.	Gravel.	Crushed Stone Gravel, Cinders, or Slag.	Stone that will pass through a 2½ inches ring.	.....	Principally Hardstone broken to a 2½ inch gauge.
Thickness of Top Ballast	No answer, but according to Diagram about 6 inches.	6 inches.	8 inches.	Not given.	12 inches.	About 5 inches.	.....	12 inches.
Is the Top Ballast laid above the top of Sleeper, and if so, to what extent P	No answer, but shown on Diagram to be level with top of Sleeper.	Shown on Diagram to be slightly above top of Sleeper.	Yes, 3 to 4 inches at centre.	Shown on Diagram to be level with top of Sleeper at centre of road, and 5 inches below top of Sleeper at each end.	Level with top of Sleeper.	Top of Sleepers at centre, bottom of Sleepers at ends.	Varies from the underside of the head of the Rail to the underside of the Chair.	2½ inches.
What advantages are found to result from the use of the material selected for Ballast P.....				An elastic Roadway, economically maintained.	Crushed Stone Ballast affords better drainage, decreases wet rot of sleepers, and obviates frost "heaving" of track in winter, and affords firmer bearing to the sleepers.	Gives a solid road bed and affording good drainage preserves the ties.	Better life of Sleepers and running than either Brick or Kinkor, the only alternatives.	It provides efficient drainage, does not pulverize under the wheel, preserves the alignment of the road and gives a firm and elastic bed, and consequently minimizes cost of maintenance.

Appendix E

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QUESTIONS.	CHESAPEAKE AND OHIO.	CHICAGO, BURLINGTON, AND QUINCY.	ILLINOIS CENTRAL.
Material adopted for Bottom Ballast	Broken Stone and Gravel.	Stone or Gravel.	Stone or Gravel.
If Stone, what mesh? .....	.....	.....	2½ inches.
Depth of Bottom Ballast	10 inches at centre of road, increasing in thickness towards side.	9 inches at centre of road, increasing to 14 inches at sides.	10 inches.
If Cinders, whether screened or not? .....	.....	.....	.....
Material used for Top Ballast.....	Gravel.	Stone and Gravel.	Stone or Gravel.
Thickness of Top Ballast	No answer, but according to Diagram about 6 inches.	6 inches.	8 inches.
Is the Top Ballast laid above the top of Sleeper, and if so, to what extent?	No answer, but shown on Diagram to be level with top of Sleeper.	Shown on Diagram to be slightly above top of Sleeper.	Yes, 3 to 4 inches at centre.
What advantages are found to result from the use of the material selected for Ballast?.....	.....	.....	.....

E 1. BALLAST.

AMERICA.			INDIA.	AUSTRALIA.
LAKE SHORE AND MICHIGAN SOUTHERN.	NEW YORK CENTRAL AND HUDSON RIVER.	PENNSYLVANIA.	EAST INDIAN.	NEW SOUTH WALES GOVERNMENT RAILWAYS.
Clay or Sand.	Stone.	Large Stones.	Stone.	Stone.
.....	4 inches to 6 inches Spawls.	5 to 8 inches in diameter.	1 $\frac{3}{4}$ inch Cubes.	4 inches.
.....	6 inches.	8 inches.		9 inches.
.....	Not screened.	.....	No distinction between Bottom and Top Ballast.	Only a small quantity has been used, and these have been screened.
Gravel.	Crushed Stone Gravel, Cinders, or Slag.	Stone that will pass through a 2 $\frac{1}{2}$ inches ring.		Principally Hardstone broken to a 2 $\frac{1}{2}$ inch gauge.
Not given.	12 inches.	About 5 inches.		12 inches.
Shown on Diagram to be level with top of Sleeper at centre of road, and 5 inches below top of Sleeper at each end.	Level with top of Sleeper.	Top of Sleepers at centre, bottom of Sleepers at ends.	Varies from the underside of the head of the Rail to the underside of the Chair.	2 $\frac{1}{2}$ inches.
An elastic Roadway, economically maintained.	Crushed Stone Ballast affords better drainage, decreases wet rot of sleepers, and obviates frost "heaving" of track in winter, and affords firmer bearing to the sleepers.	Gives a solid road bed and affording good drainage preserves the ties.	Better life of Sleepers and running than either Brick or Kunkur, the only alternatives.	It provides efficient drainage, does not pulverize under the beater, preserves the alignment of the road and gives a firm and elastic bed, and consequently minimises cost of maintenance.