

# THE INSTITUTION OF CIVIL ENGINEERS.

## SECT. I.—MINUTES OF PROCEEDINGS.

16 March, 1886.

EDWARD WOODS, Vice-President,  
in the Chair.

(*Paper No. 2104.*)

“On the Economical Construction and Operation of Railways  
in Countries where small Returns are expected, as  
exemplified by American practice.”

By ROBERT GORDON, M. Inst. C.E.

A PAPER was read lately by Mr. Edward Bates Dorsey, Member of the American Society of Civil Engineers, before that Society, in which he stated, that while the 18,681 miles of railway in the United Kingdom in 1883 had cost over £40,000 per mile, there were at the same date 110,414 miles completed in the United States, at a cost averaging £12,400 per mile, the cost of operation for the former being about £2,000 per mile, while for the latter it was £880 during 1883. The ton-mileages of the two systems were 9,589,786,848 and 44,064,923,445; and passenger-mileages 5,494,801,496 and 8,817,684,503 respectively. The average rates charged were 0·01 and 0·0012*d.* per ton-mile and 0·01165*d.* and 0·0121*d.* per passenger-mile respectively. Owing to differences of method in rendering accounts the mileage rates of working could not be compared for the whole; but by selecting the Baltimore and Ohio Railroad, which is the extreme type amongst the great trunk-lines of the American method of construction, with high summit-level, steep gradient and sharp curves, he found that the extra cost of working due to these difficulties was only per cent.

Assuming the above figures to be fairly accurate, some corrections should be made before finally deducing a comparison. In the first place the greater portion of the English lines have double tracks, while the larger part of the American mileage is single. Again, while most of the land belonging to the American railway companies cost them nothing, and in some cases the capital accounts are reduced by sales of the land received under State grants, it is computed that in England fancy prices above the market value of the land have added to the average cost of the