comfort, but because the English do not care to travel "in bulk," if one may so say, when they are able to pay for the comparative privacy of the compartment. This is no more an example of prejudice than is the preference of the people of the United States, who do not care to be "penned up" in small groups. People on both sides of the Atlantic are gradually modifying their likes and dislikes, as the British are now willing to dine all together in a restaurant car while on the rail, and the traveller on this side is not altogether adverse to the "boudoir" car.

Midland Railway (English) corridor composite (1st and 3rd) No. 2865, weighs 67,720 lbs., and carries 34 passengers. It therefore has a dead weight per passenger of 1,992 lbs. London and South-Western Railway (English) corridor composite (1st and 2nd) coach No. 859, weighs 64,400 lbs., and carries 34 passengers, thus giving a dead weight for each of 1,894 lbs. North-Eastern Railway (English) No. 838, (all 3rd class) weighs 53,312 lbs., and carries 80 passengers. The dead weight for each is 666.4 lbs. These three coaches have an aggregate weight of 185,432 lbs., carry in all 148 passengers, and have an average dead weight per person of 1,252 lbs.

Great Western Railway (English) corridor sleeping car No. 9082 (all 1st class) weighs 93,632 lbs. and accommodates 12 persons. Its dead weight for each goes as high as 7,803 lbs. It is interesting to note from the engraving that this vehicle has the words "sleeping car" on each side. The word "car" is apparently beginning to be used in Great Britain to signify railway rolling stock, as over there the word "motor" is used to indicate what we call an automobile. North-Eastern Railway (English) diner (1st and 3rd) No. 3753, is a corridor composite carriage, weighing 91,840 lbs. and accommodates 26 persons, i.e., 13 of each class. The dead weight per passenger is therefore 3,532 lbs. This N.E. diner No. 3753 and G.W.R. sleeper No. 9082 have an aggregate weight of 185,472 lbs. and together transport 38 passengers, thus the average dead weight per passenger amounts to 4,880 lbs.

The North-Eastern diner is mounted on two six-wheel trucks and, like all other British corridor cars, has what we would call a vestibule at each end. The body is supported on steel frames, and the lower chord is bent down into the form of a bow-string girder. The windows are wide and high and the absence of a running-board along the side is noticeable. Each of the vestibule doors and the two in the side are provided with short steps, almost on the level of the door sill. The Great Western sleeper has no side doors, the two vestibule doors being provided with short steps.

The British form of composite carriage, by which the different classes of passengers are included in the same vehicle, has the advantage of being more in service in certain sections of the country than if each car carried only one class. Where there is steady and regular traffic the single class car is satisfactory, but where traffic fluctuates or where the "classes" presenting themselves at a station do not always appear in approximately the same proportions, the coach carrying more than one class is likely to have a sufficient number on board to constitute a "paying load," if it can be used at all. Whatever security by form or construction, or whatever safety service may be used, all patrons, regardless of "class," are benefited thereby.

Analyzing what figures are before us, it appears that Canadian and United States day coaches show an average of 1,680 lbs. hauled for each passenger carried, while the British day and corridor carriages show 1,252 lbs. per passenger. The Canadian and United States sleepers show 2,780 lbs. and the British sleeper and diner give 4,880 lbs. The British day coaches have less dead weight than ours, and this is to be expected, as British carriages are proverbially light in construction compared to those on this side. The better showing apparently made by American sleepers is probably due to the fact that the sleeper has here been taken with every section holding four persons. As a matter of fact, this does not occur in practice. If each section only held two persons, the average dead weight would be 5,560 lbs. and, taken day in and day out, this probably approximates to actual performance on many trips. A fairer estimate would seem to be the average of the maximum and minimum figures, or 4,170 lbs. average dead weight per passenger.

The British figure is largely modified by the sleeper and diner, here instanced, being very restricted in accommodation for passengers, and it is probable that the British average is much better. These examples not only show the difficulty of making a fair comparison, but demonstrate again, if that were needed, how unreliable is the inductive method where the evidence to be considered is inadequate. The number of examples available is too small and magazine space too crowded for the results of extended investigation, except in the most condensed form. The point, however, stands out clearly that the question of dead weight in railway rolling stock of all kinds plays an important part in economic operating. There are many and important factors to be taken into consideration, and there is before the student an inviting field for research, which perhaps this presentation of the subject may help. The British and American systems are the result of evolution and it is probable that many things which at first sight appear to be glaring contrasts, may shade down to mere differences of practice, or turn out to be like variations which appear in the same species due to local conditions or to the influence of the habitat.

CORROSION OF NICKEL, CHROMIUM AND NICKEL-CHROMIUM STEELS.

Some corrosion tests are described by J. N. Friend, J. L. Bentley and W. C. West in "Engineering," Vol. 93, p. 753, in which disks were prepared of carbon steels, to serve as standards, of nickel steels, of chromium steels, and of nickel-chromium steels, each 0.7 cm. thick and 2.8 cm. in diameter. These disks were kept nearly immersed in tap-water for 64 days, in sea-water for 60 days, in 0.5 per cent. sulphuric acid for 60 days, in 0.5 per cent. sulphuric acid for 53 days, and they were exposed to alternate wet and dry tests for 52 days. The acceleration tests in 0.5 per cent. sulphuric acid gave misleading results, and the two standard steels which showed practically equal corrosion in all the other tests, showed 100 per cent. deviation with 0.5 per cent. sulphuric acid, and with the other steels there were remarkable differences. In some cases there were indications of galvanic action in the chromium and nickel steels in the acid tests, and no chromium nor nickel passed into solution, showing that these elements were the constituents of the cathode. The resistance of chromium steels to corrosion in salt water suggests the use of this metal for ship-building. Nickel steels show marked resistance both to acid and neutral corrosive solutions, the resistance increasing with increased nickel content.