

The author deals very frankly with the matter of railway competition. In many cases, he shows that where there is an assurance of very considerable traffic between two points, served by two or more lines, it is almost impossible to bring about any competition in the ordinary sense of the term. The tendency is to enter into an agreement whereby each line binds itself not to give more than such and such facilities to the public. In cases of this kind, the only remedy for the public lies in the Government imposing definite conditions in the interest of the people. Even then, tacit understandings are reached between the companies, and these understandings not only tend to suppress competition still further, but actually hinder the introduction of improvements. Notwithstanding all this, it is true that the railways of Great Britain are ahead of their continental rivals in the matter of public conveniences.

Pursuing this matter, under a different heading, Lord Monkswell says that if there are two things, above all others, which the public would thoroughly appreciate, they are decreased third class fares and increased speed. In 1888, when the race from London to Edinburgh took place, and in 1895, when the race to Aberdeen was on, some very remarkable locomotive performances were shown. The Caledonian Railway, working the passenger traffic from Carlisle to Edinburgh, were able to haul a train, on time all the way, with perfect ease. This was done with a "single" driver engine weighing 42 tons, of which 17 tons were on the driving wheels, and these had a diameter of 84 inches. The grate area was only 17 square feet, or about the size of an ordinary dining-room table. The engine, No. 123, was timed to run 100¾ miles in 112 minutes and surmount the "Beattock bank," a grade of 1 in 80 for ten miles and 1 in 75 for six miles. The daily performance of this engine, well within the booked time, produced a profound impression at that period, and all the more so, when it was apparent that her uphill work was better than her downhill performance. The designs of engines used on the Caledonian proved what can be done in the way of speed, but the timing of trains at the present day has not been kept up to the high level of promise inaugurated in the West Coast race to Scotland. At that time, however, the entire railways of Great Britain felt the impetus, and the speed of trains was accelerated all over the Kingdom, until, as our author shows, the paralyzing effect of "agreements" deadened and restricted the otherwise natural growth of improvement.

It has been held that high speed on long non-stop runs is expensive, and with this subject Lord Monkswell deals very fully. The average British railway manager believes that high speed is a good thing, but believes also that it is costly, and does not pay. How far the danger of misplaced switches or misread signals, enters into this view, Lord Monkswell does not say. The author, however, believes that accelerated service can be made to pay. High speeds cost more than slow speeds, but the corresponding advantages gained by selling the better article, i.e., rapid transportation, might easily put the balance on the right side of the ledger. As a concrete example he takes the 6.05 a.m. ex-Euston for Manchester, and shows in detail what effect altering its time of arrival from 9.35 to 9.05 a.m. would mean and what the cost of gaining this 30 minutes would be. Step by step he proceeds, and takes the difference in cost, if more powerful engines replaced those now in use, with increased outlay for up-keep, more fuel, more supplies, and even higher wages for driver and fireman. All the many etceteras are taken note of, and set down as money items required in gaining the half hour, daily on this train. On the assumption that the engines ran 40,000 miles between "shoppings," the increased cost would be 2½d. a mile. Adding to this, the extra expense in road maintenance, and that due to increased wear

and tear of train, he says that even taking the most unfavorable view possible, that 5½d. a mile would be the limit of extra expense, and that the average, when other trains are considered, would probably be considerably less. In face of this, if the increased speed attracted six more third class passengers to travel, the railway would actually be making a profit.

Lord Monkswell does not leave the matter here, but offers several very pertinent suggestions as to how time could be saved on the run from London to Edinburgh. He does not merely say it can be done, but shows how. He cites instances of locomotive performance on the Nord, in France. He gives his own country credit for pre-eminence in long non-stop runs, and shows the saving that has been effected by the use of the Ramsbottom "pick-up" water-troughs. He advocates a serious trial of increased speed as a revenue producer.

In the matter of railway carriage design, the old stage-coach, modified to suit railway service, was long the model. The advent of Pullman cars showed what could be done when that model had been entirely abandoned. The Pullman car is not popular in Great Britain, as English travellers prefer the compartment system, and their desires must be met; but certain it is that, unpopular as the Pullman car itself is, yet its advent produced a very marked change in the whole spirit of British railway carriage design. The increased dead weight per passenger, which gradually came as a result of increased comfort for patrons is at the bottom of the heavier engine design, which naturally went hand-in-hand with the desire for comfort and speed.

Railway signals are dealt with when the London and South-Western is under review. The author believes that the British system of signals is the simplest and most complete now employed. He says: "Ordinary visual signals leave little to be desired in broad daylight; they are slightly less perfect at night, when color and not shape has to be depended on." This is, perhaps, a fairly accurate statement of the average man's opinion. We can only say that experts are here and there beginning to modify their views, and feel that "position" for day and "color" at night is not an ideal arrangement. The author may have this in mind, for in a footnote he remarks: "Possibly something may be done by means of flashlight signals to differentiate signals at night." The Great Western, he tells us, has experimented with cab signals, both audible and visual, which give a driver the correct indication of the position of any signal he is approaching. The L. and S.W. are successfully experimenting with a system of wireless train control which involves the automatic stop.

The whole of the goods traffic on all the railways is gone over in detail, and to those who know only our long, unbroken trains of bulk freight, such as ore and coal, the demands of British traffic will be a revelation. The whole of the goods traffic seems to us more like a magnified express business than legitimate freight handling. The small car has its uses over there, and its economies, and the heavy, high capacity box cars used in Canada would well-nigh be useless in Great Britain.

As science advances and inventions multiply the possible rivals of the locomotive are mentioned in this book. Electricity has now an established place of its own, and the tram-car has secured a field for its own activities which is no longer debatable. The possibilities of the turban principle are still remote as applied to the locomotive, while the Diesel engine, using crude oil fuel, may some day be applied to railway work.

The book as a whole contains a mass of most useful information, and, though we have touched on the locomotive side of it for the benefit of interested readers, yet we have