

Symposium on the Present and Future of Inland Transport

By J. C. BAILIE and others.

(Read before the Society in Belfast on December 14th, 1956)

(This symposium was recorded by the British Broadcasting Corporation, and a shortened version was broadcast in the Northern Ireland Home Service on January 22nd, 1957. The text below is taken, by permission of the B B C, from the shortened version, and certain tables distributed by the speakers are included)

The Proceedings were introduced by *Professor C F Carler*, Vice-President, who said:

The Statistical Society of Ireland is nearly 110 years old, and it has discussed the problems of Irish transport on some twenty-five occasions: for instance, over 90 years ago it was discussing the nationalisation of the railways. But transport problems on road and rail have never been so urgent, complex and interesting as they are today.

Let me remind you that in Northern Ireland the Ulster Transport Authority has a monopoly of most kinds of goods transported by road for hire or reward (which is a minority of all goods transport), and a monopoly of bus services outside Belfast, and that it also runs part of the railways: most of the rest of the railway system belongs to the Great Northern Railway Board which is jointly set up by the Government of Northern Ireland and the Republic of Ireland. The Northern Ireland Government policy is to close a substantial part of the railways, and, in principle, to introduce competition in road haulage.

We have therefore invited four speakers to place before you the facts and issues which they consider most relevant. The first is Mr. J. C. Bailie, Traffic Manager of the Great Northern Railway.

Mr. J. C. Bailie: It is generally believed to be the case that the public have deserted the railways in favour of road transport; it is certainly true that the railways are not now carrying anything like the same volume of traffic as they did during the war and immediate post-war years when conditions were exceptional—road transport was severely restricted and armed forces' personnel and traffic was available for conveyance. But contrasting 1955 with the last complete pre-war year—1938—the number of passengers carried by the Great Northern Railway increased by 79,754—an improvement of 1.6 per cent. On the freight side, again comparing 1955 with 1938, the total tonnage carried increased by 445,549 tons, an increase of 63.7 per cent. The average length of haul for freight traffic advanced

from 53.39 miles to 57.38 miles. These improvements in traffic volumes occurred despite the fact that a decreased route mileage of $41\frac{1}{4}$ was operated in 1955 as compared with 1938 due to the complete closure of certain branch lines, while, in addition, the passenger services had been withdrawn from a branch line $6\frac{3}{4}$ miles in length.

Although operating well below its capacity I suggest that these figures of comparative traffic volumes clearly indicate that the Great Northern Railway, slightly reduced in extent, is now doing no less business than it did immediately before the last war, it is therefore, apparently, by the sole reference to its adverse financial operating results of recent years, and not on the score of its actual and effective transport service to the community, that the railway stands to be adjudged as to its usefulness.

(Mr Bailie then pointed out that the financial problems of the railways were due to the rapid rise of costs, while receipts were held back by the necessity to compete with privately-operated road transport. The problem of arriving at the right scale of charges is a difficult question of balance. The Great Northern Railway cannot reduce its charges unless it attracts extra traffic sufficient to increase its revenue by more than any increase of costs; it cannot increase its charges if it loses more by driving traffic away than it gains from the higher charges.)

It is, therefore, to the expenditure side that we must constantly look in an endeavour to improve our finances. Here, too, we are always trying to find new and cheaper ways of doing the job, but the inescapable fact remains that our general methods of operation are outmoded and, as such, far too costly. Nothing short of complete modernisation is the answer to the railway's financial problem, and the resultant benefit would be three-fold firstly, expenditure would be drastically reduced; secondly, greatly improved services would be provided which could not fail to command increased public patron-

TABLE I.

Recent operating results of railways in various countries

Railway	Annual	
	Profit £mn	Loss £mn
British		$30\frac{1}{2}$
German Federal		36
Danish State		1
Belgian National	3	
Italian State		143
Netherlands State	6 (a)	
Portuguese Government		1
Ceylon Government		$\frac{3}{4}$
New Zealand Government		$1\frac{1}{2}$
Queensland Government .		$\frac{1}{2}$ (b)
Western Australia Government		2 (b)
Tasmanian Government . .		$\frac{1}{2}$ (b)

(a) excluding interest and depreciation

(b) excluding interest

age, and thirdly, a more economic utilisation of manpower and equipment, with increased efficiency and the elimination of wasteful effort and function, would result

(Mr Bailie then reminded his audience that many railways all over the world make a loss, and that most have had to close lines, as we have done in Northern Ireland. But closing lines will not by itself solve the problem.)

In the case of a railway, however, and with somewhat greater force than applies to other businesses, the stage is reached when further closures, if effected, would worsen rather than improve the final financial position, and when this happens the decision can only be—"Close all or nothing." This is for the reason that each section of railway carries, in addition to its local traffic, traffic moving to, from and over other sections, the revenue accruing from which is termed the contributive revenue. When a section of line is closed, all traffic—local and "through"—obviously ceases to pass over it, but as against this direct loss of revenue there is the saving in expenditure (in excess of the revenue—otherwise the closure would not be contemplated) resulting from the closure. But the matter does not end there, for the "through" traffic which becomes displaced because of the closure is immediately diverted in some measure from the sections still remaining open, and a loss of revenue arises in consequence, which cannot possibly be offset by a corresponding reduction in the expenditure of those sections.

(In other words, closures may even make losses worse. The matter can be explained by using a local example . . .)

To illustrate the point I think I should take a case near at home—the Banbridge line—which fairly recently was closed. And if you imagine the main line Belfast/Lisburn and the branch line Lisburn/Banbridge and take one traffic item between Belfast and Banbridge producing a revenue of, let us say, 30/-, the division of that revenue is 20/- to the line Lisburn to Banbridge and 10/- to the line Belfast to Lisburn. When the line from Lisburn to Banbridge is closed obviously the 20/- revenue is lost. But in addition the 10/- revenue which accrues to the part of the lines remaining open, namely Belfast/Lisburn, is also lost because, in fact, the traffic moves otherwise than by rail throughout—it does not move from Belfast to Lisburn by rail and then get transferred at Lisburn to road for the remainder of its journey. That is illustrative of the loss of contributive revenue.

This is now precisely the position in which the Great Northern Railway finds itself in the matter of its secondary lines to Armagh, Tyrone and Fermanagh, as to which financial evidence was submitted to the joint enquiry held by the Northern and Southern Transport Tribunals at sittings in Dublin and in Belfast in April and May last. It may indeed be said that the railway is in much the same position as a restaurant proprietor who, having tried every remedy, is still faced with a loss in running his business. In desperation he decides to cease providing light refreshments such as teas, coffees and the like and to cater only for principal meals. But the loss of receipts from this light business eliminates the contribution, however small, it makes to his standing charges. His last position therefore is worse than his first, and the decision really facing him is complete closure.

(Finally, Mr. Bailie went on to point out that, although railways were tending to rely more on diesel oil, they could use it much more efficiently than road transport; and in goods transport a gallon of diesel fuel could take a given load twice to nearly five times as far on the rail as it would on the road.)

TABLE 2

Efficiency of Fuel Usage

	1 gallon of diesel fuel oil
(a) in a single-deck omnibus—	will "yield" 400 passenger-miles,
(b) in a double-deck omnibus—	will "yield" 500 passenger-miles,
(c) in a suburban-type diesel tram—	will "yield" 850 passenger-miles,
(d) in an express diesel train (including buffet car— of the "Enterprise" type)—	will "yield" 515 passenger-miles,
(e) in a 5-ton road lorry—	will "yield" 77.5 ton-miles;
(f) in a 15-ton road lorry—	will "yield" 150 ton-miles;
(g) in a diesel locomotive hauling 60 wagons (with an average load of 4 tons per wagon)—	will "yield" 360 ton-miles,

The second speaker was Mr R. L. Streight, Freight Manager of the Ulster Transport Authority, and he gave some statistics which supported those quoted by Mr Bailie; they showed that the railways had (since 1938) not so much lost ground, as failed to share in the immense expansion of public and private transport services. He observed that the return fare from Belfast to Antrim was 5/4 in 1924 and 5/1 in 1956: to Londonderry 27/8 in 1924 and 24/5 in 1956—despite costs which had nearly trebled even since 1939.

(Mr. Streight then went on to the position to-day.)

Mr. R. L. Streight. Now to turn to the present position: it seems evident that private road passenger and freight traffic is increasing rapidly. The railways have charged, and are charging, fares and rates below the level of railway costs, but still cannot increase traffic. The competition to-day is not public road services versus rail services, but private road transport versus public transport. In effect the people of Northern Ireland are today luxuriating in the best of all possible transport worlds. In the case of passengers there are still train services to many places, while the bus services link every city, town, village and hamlet in the province, and those who can afford it travel by their own motor cars. For freight traffic again there are certain rail services, while public road services operate everywhere under common carrier obligations. Apart from this, no special licence is required by those wishing to convey their own goods by

road lorry They can thus keep the number of road vehicles which they know will be constantly employed, in the sure and certain knowledge that there is a public transport service to deal with their peak periods and to take care of awkward loads or traffic to outlying districts, or when lorries are being overhauled or under repair.

(Why is it then that even an efficient transport system suffers so much from the competition of private users ?)

TABLE 3
Traffic Receipts and Expenditure (of U T A and its predecessors) for years
1924, 1934, 1938, 1942 and 1955

BELFAST AND COUNTY DOWN RAIL SERVICES									
Year	Route Mileage	Receipts £	% (1924 =100)	Expen- diture (Working) £	% (1924 =100)	Passenger Journeys No	% (1924 =100)	Freight Tonnage Carried	% (1924 =100)
1924	80	296,545	100	259,667	100	6,779,209	100	209,671	100
1934	80	156,764	53	152,185	58	5,271,171	78	107,329	51
1938	80	149,476	50	154,165	59	5,234,899	77	90,868	43
1942	80	435,849	147	358,551	138	11,893,563	175	204,282	97
1955	13	212,813	72	185,172	71	4,084,230	60	—	—

NORTHERN COUNTIES COMMITTEE RAIL SERVICES									
Year	Route Mileage	Receipts £	% (1924 =100)	Expen- diture (Working) £	% (1924 =100)	Passenger Journeys No	% (1924 =100)	Freight Tonnage Carried	% (1924 =100)
1924	281	713,182	100	609,201	100	5,189,358	100	821,280	100
1934	281	341,607	48	400,220	65	3,519,251	67	455,070	67
1938	271	375,893	53	395,194	65	3,644,518	70	430,365	52
1942	247	1,223,761	172	868,906	143	8,049,652	155	914,777	111
1955	154	995,828	140	1,241,832	204	4,595,848	89	451,122	55

NORTHERN IRELAND ROAD TRANSPORT BOARD AND ULSTER TRANSPORT AUTHORITY
(ROAD SERVICES)

Year	Route Mileage	Receipts £	% (1924 =100)	Expen- diture (Working) £	% (1924 =100)	Passenger Journeys No	% (1924 =100)	Freight Tonnage Carried	% (1924 =100)
1924	—	—	—	—	—	—	—	—	—
1934	—	—	—	—	—	—	—	—	—
1938	—	926,472	—	1,002,678	—	29,042,753	—	927,077	—
1942	—	2,916,658	—	2,661,048	—	52,627,634	—	4,370,570	—
1955	—	4,831,104	—	4,852,546	—	94,548,164	—	1,357,532	—

First of all we must examine the reasons why traders use their own vehicles. A great many can be enumerated, but I would place the main reasons in the following order : first, convenient and speedy service ; second, competition within each trade or business ; and third, economy. It will be observed that I have placed economy last,

and I am satisfied that it is not the deciding factor with the majority of business people. During the recent debate at Stormont it was stated that very few business men really want to sink their capital in lorries. They would get it out of these lorries as quickly as they could if they could get reasonable service at a reasonable price in any other way. In this connection it should be noted that while it is sometimes stated that road freight charges in Northern Ireland are higher than in Great Britain this has never been established, and all

TABLE 4

Motor Vehicles in Northern Ireland bearing current Licences during the Quarter ended 30th September

Year	Private Cars	Goods Vehicles		
		Agricultural	N I R T B and U T A	Others
1924	8,095	—	—	3,374
1934	23,165	—	—	7,479
1938	40,036	550	592	8,020
1942	24,930	643	865	9,371
1955	83,542	1,261	652	23,233*

*This includes vehicles used for the retail delivery of milk, bread, coal, etc., small collection and delivery vans, the Belfast and Londonderry carriers' vehicles, and local authority vehicles.

It is estimated that of the 23,233 vehicles, about 12,000 are competing with the U T A and the G N R B.

TABLE 5

Comparison of Passenger Fares (Road and Rail) between Belfast and the undernoted places—years 1924 and 1956

BELFAST and	YEAR	ORDINARY FARES				WEEK-END FARES Rail (3rd class)
		Rail		Road		
		Single (3rd class)	Return	Single	Return	
Antrim	1924	s d 2/8	s d 5/4	s d —	s d —	—
	1956	3/-	5/1	3/-	5/1	—
Ballymena	1924	4/5	8/10	—	—	5/10
	1956	5/3	8/10	5/3	8/10	7/10
Ballymoney	1924	7/4	14/8	—	—	9/9
	1956	9/-	14/10	9/-	14/10	12/11
Coleraine	1924	8/6	17/-	—	—	11/5
	1956	10/7	17/1	10/7	17/1	14/8
Londonderry	1924	13/10	27/8	—	—	18/6
	1956	15/5	24/5	15/7	24/8	19/10

enquiries which the Authority has made show the allegations to be unfounded. The main reasons why merchants operate their own vehicles is to obtain convenient and speedy service, if possible better than their competitors. Why has public transport not been able to withstand this challenge? While it would be wrong to generalise, I believe the reason is briefly obsolescence. For lack of capital both public and rail and transport have continued to use methods which, while excellent in their day, are now out of date. This charge could quite rightly be repudiated in a number of cases where both road and rail have successfully introduced specialised vehicles and containers for the conveyance of certain goods, usually in bulk, but I am now speaking of the general run of full load traffic such as potatoes, grain and feeding stuffs, case goods, etc.

(Mr. Straight pointed out that the conventional procedure for dealing with goods, both by rail and road, caused delay and raised costs. On rail, there is too much delay in moving goods on to and off the railway wagons, on road, difficulties of getting lorries loaded and unloaded, during the short working day, causes inefficiency. He went on to suggest a solution. . .)

There is, however, a very positive answer to this problem, and one which is being successfully tried out by the Authority at the present time, and that is articulated trailers. This term in the motor industry means that the trailer carrying the load is separate from the power unit, but is superimposed upon it for haulage purposes. By using such units loading and unloading times are reduced to a minimum as the motor unit uncouples and leaves the trailer to be loaded or off loaded as required, returning again at the appointed time. The trunk haul, that is from the forwarding point to destination, can be performed at any time, during the night if necessary, and a trailer already loaded at the receiving point is brought back as a return load to be delivered as and when required.

(Mr. Straight felt that the Government's recent approval in principle of the return of private enterprise in the carriage of freight for hire or reward was difficult to understand, for the advantages were not clear. A private business would not risk capital in providing a *comprehensive* freight service, like the Ulster Transport Authority, for the return was small; to depend on "unrestricted competition" would leave many without a service at all.)

(The third speaker, Mr. Martin Johnson, is concerned with one of the specialised forms of private enterprise transport which are at present permitted. Despite the Ulster Transport Authority's monopoly he felt that public and private transport could live in peaceful co-existence—though a public service should not necessarily be expected to pay its way. . .)

Mr. Martin Johnson Many philosophers have expounded the paradox that complete freedom is not freedom at all, and to live usefully in a modern community some guiding influence and controls are necessary. Just as the lack of controls leads to confusion, too much will lead to frustration and exhaustion. We started with the aim of feeding and supporting the grand railway system we had

in this country, but appear to have been hypnotised by the tool provided for the job—the monopoly. I apologise for appearing a “know-all” after the event, but not for learning from it. The railway system was not always in such disgrace. In fact it used to be considered gilt-edged. There is still plenty of use in it, and the present Suez crisis shows just how precarious our oil supplies can be. The forthcoming rationing may be of short duration, but will it be the last oil crisis? Both tourists and cattle trades have confidence in rail: let the road freight service, which we can control, be made to serve the railway. Despite the advantages of official carriers, maybe because of them, private enterprise has thriven over the last twenty years and is still steadily increasing in most areas—the White Paper itself gives lots of figures on that subject. The authorities claim that this has occasioned some of their losses, and in the majority of cases there is no moral or just reason for prohibiting these private hauliers. To ensure personal attention, however, some private firms are prepared to sink capital in lorries and carry out their own baulage work. If the restrictions on road haulage were relaxed so that private firms could compete with the Ulster Transport Authority we would have a different picture.

(Mr. Johnson went on to talk about the principles which should guide the operation of public transport . . .)

The Authority is a public service like health, the forces, our civil service. No one demands that these pay their way, but every effort is made to see that they are economically run and kept to as small a size as practicable. I would love to ask an Admiral of the Fleet what he is would think of the Royal Navy taking over Kelly's coal boats. The public service should be of help and assistance to the people where needed, and should not enter into competition with small trading concerns. If this policy were adopted a large reduction in running costs would eventually be expected. This view, I know, leaves me open to the charge that I want all the cream for the private hauliers. My personal opinion is, however, that we are supposed to have a service for us—not an authority over us.

(The final speaker was Dr. William Black, Lecturer in Economics in the Queen's University of Belfast, who looked at the general economic problem of transport . . .)

Dr. W. Black: Recently the discussions on transport have been bedevilled by a discussion of the relative advantages of road and rail. I think that these discussions of relative advantages have tended to obscure the problem of transport in general. I want therefore to outline some very general principles which I believe to be relevant to transport in Northern Ireland.

First, and most important, is this. Transport is a public service; it is a service which is as fully essential as the provision of telephone and postal services, or electricity, or safe water supplies—and indeed, maybe, more essential than some of these. The Government of Northern Ireland has recognised this principle of the public nature of transport since the Road and Railway Act of 1935, and has expressed it clearly in the Northern Ireland Transport Act, 1948, where it requires the Ulster Transport Authority (and I quote) “to provide or secure, or promote the provision of, an efficient, economical, convenient and properly integrated system of public inland transport

for passengers and goods in Northern Ireland by road and rail." Now I submit that it must have been recognised when this Act was framed that some of the services which the Authority would have to provide to fulfil this general commitment would necessarily be unremunerative, and it is quite clear from the present discussion that the Authority has provided many services which would not have been provided by private enterprise, simply because they would not have paid. Once it is accepted that transport facilities should be provided, even though in some instances this can only be done at a loss, there arises the problem of financing these unremunerative services. Now it seems to me there are two main ways of tackling this problem: firstly, the State may, through its regulation of transport, enable a public transport undertaking to exercise monopoly powers. Through its exercise of these powers the public undertaking can then cover the cost of its unremunerative services from its profits on other services. That is the first method: the other alternative is that the State may provide a subsidy to cover the costs of the unremunerative services.

(Dr. Black pointed out that, having this choice of monopoly or subsidy, the Northern Ireland Government had chosen a monopoly for the Ulster Transport Authority, and had set its face against giving any explicit subsidies . . .)

However, the Government has not been able to provide public transport with an *effective* monopoly, however much it wished to do so, and this for two main reasons. Firstly, it is the Government's view, and has been since 1935, that there should be no restraint on the private citizen's right to provide his own transport, either for his goods or for himself, in the form of a private car. And, secondly, while it is essential, if the Authority is to have an effective monopoly position, that the haulage of goods for profit should be prohibited, the Government has simply been unable to eliminate illegal haulage. Now these two factors—the fact that a private individual can provide his own transport, and the fact that we do have a substantial amount of illegal haulage—have contributed greatly to the weakness of the Authority. The Authority has not an *effective* monopoly. And for this reason, substantial losses from the Authority's operation were inevitable, right from the moment of its foundation.

What are we to conclude then? Since the Government cannot provide a monopoly for public transport, and since it is expressly unwilling to subsidise transport, the Ulster Transport Authority cannot be expected to operate services which are clearly unremunerative—and most rail services and many of the road freight services seem to fall into this category.

That private operators will provide all these services is surely not to be expected, for there is no evidence that private operators can provide them at a sufficiently low cost to render them remunerative.

The Government's decision to eliminate the unremunerative services then, as expressed in its recent pronouncement of policy—that is to say its decision to judge the performance of public transport in its financial results—is simply a decision to stop providing transport as a public service, and nothing more. And the financial gains which are expected from this policy should be judged, not simply in their

own light, but against the general abandonment of principle which is involved, and against the consequent effects on the economy as a whole

Professor Carter concluded The points which remain with me most clearly from the discussion are these firstly, both rail and public road services suffer from being out of date, in other words they need new capital Secondly, a railway is a system: you cannot keep lopping off bits and hope finally to arrive at a profitable line. I agree with Mr Baile that the real choice at the present stage is "close all or nothing" Thirdly, the question of who owns transport services is subsidiary. the real question is what services you want. If you want a comprehensive public service like the posts and telephones, you must either give it an effective monopoly or expect to have to subsidise it. If you run away from both of these you cannot have a comprehensive service.

Technological Training—Education for Industry

By D H ALEXANDER, O B E , M Sc , Wh Sch , M I Mech E

(Read before the Society in Belfast on January 25th, 1957)

The invention of the steam engine and the widespread use of machinery in the rapidly growing manufacturing industries of the last century created the demand for a new form of training for those whose business it was to design, make and operate the new machinery. The rate of change was so rapid that it no longer gave the craftsman time to develop the forms and methods of construction by the time-consuming process of trial and error. The sciences of geometry, applied mechanics and physics had to be brought to the aid of the mechanic to accelerate the speed of engineering development and avoid the delays caused by traditional methods. The young mechanic sought instruction from the scholar and it is interesting to note the number of clergymen whose ability in mathematics led to their interesting themselves in the new developments.

Then again, physicists, chemists and mathematicians in the universities took an interest in many of the new inventions and helped to formulate the laws and principles underlying their operation. It is significant to note that in the last century the actual working invention often came first and the scientific explanation of its operation was explained later. Watt developed the steam engine long before Rankin and others explained fully its place in the theory of heat engines.

In England, in the middle of the last century, classes in the fundamental sciences of applied mathematics, geometry and physics began to be held in the Mechanics Institute and these helped to produce from ambitious local tradesmen the skilled mechanics and draughtsmen required by the engineering industries of their region. Eventually these classes were incorporated into the present system of State technical education.

In Ireland, the first venture of the State into this field was in 1889 when an Act was passed which gave urban or rural authorities permission to levy a rate not exceeding one penny in the pound to supply technical or manual instruction. It is interesting to note that the term "technical instruction" was defined as meaning "instruction in the principles of science and art applicable to industries and in the application of special branches of science and art to specific industries or employment." It was *not* to include teaching the practice of any trade or industry or employment. It was in 1899 that the foundations of our present system were really laid. It was in that year that the Government established the Department of Agriculture and Technical Instruction for Ireland and set the pattern which we follow to-day. Because of the previous experience of the