FREIGHT TRAFFIC

Consideration of freight traffic is all important to the future of the railways as a nation-wide system. Without freight the main railway network could not exist. Although passenger trains can be operated profitably over main routes where they have to contribute only a part of the route cost, they would, on their own, be capable of supporting only a small fraction of the existing route mileage outside the London suburban area. It is encouraging to see, therefore, how well freight traffic is spread over all the routes on which passenger train services are likely to continue.

It can be seen, by comparing the freight density map with the passenger density map, that practically all routes which carry over 10,000 passengers a week, carry at least 10,000 tons of freight. It is evident, too, that a very high proportion of lines which are dotted or dashed on the passenger map, i.e. lines over which passenger services are normally found to be uneconomic, are also shown dotted, as very low density lines, on the freight map. Provided the general level of freight business can be built up, therefore, there is promise that freight and passenger traffics will prove mutually supporting over most of that half of the total route mileage which carries 95 per cent. of all traffic at present, while very little freight or passenger traffic will be lost if most of the remainder is closed.

The possibility of generating and handling more remunerative freight traffic **is** of key importance. Before we turn to that subject, however, some attention must be given to the present method of freight handling on the railways, because success in attracting traffic and making it remunerative will depend upon improvements in the system of moving it.

Present Method of Handling Freight Traffic
Whereas all passengers move on services which can be individually distinguished and identifiably associated with particular routes, this is not so with most freight. Some freight traffic is carried by through trains, but the greater part of it moves quite differently, by a system which can best be understood in the light of its history.

Our railways were developed to their fullest extent at a time when the horse and cart were the only means of feeding to and distributing from them. Therefore, as the railways grew, because of the deficiencies of horse transport on poor roads, the main network of routes was extended by an even closer network of branches, with close spacing of stations over the whole system, in order to reduce road movement to a minimum. Because of this penetration of rail movement so far into the stages of collection and delivery, and the associated multiplicity of stations and depots, a great deal of traffic originated and terminated in single wagon load consignments.

Over the same era, there was a linking of the mainline railways into a national network, with an enormous increase in the number of places to which traffic originating in any one place might be consigned. As a result, the wagon became the unit of movement and through working of trains was largely suppressed. Instead, nearly all freight moved by the staging of wagons from marshalling yard to marshalling yard, with variable and cumulative delays in them, so that the overall journey was bound to be slow and unpredictable.

Thus, in order to provide for a large measure of rail participation in countrywide collection and delivery of small consignments, which the railways were never particularly well suited to do, and which they only did because the horse-drawn cart was worse, the railways threw away their main advantages. They saddled themselves with the costly movement of wagons in small numbers over a multiplicity of branch lines, where there were too few wagons moving to make good trains. At the same time, they sacrificed the speed, reliability, and low cost of through-train operation even on the main arteries.

This staging of wagons is carried out in accordance with a set of rules, but these rules, like those of chess, allow a considerable variation of speed and route for a transit between any two points. To a large extent, therefore, we are compelled to think of the system of freight movement as one which produces statistically measurable and predictable results, but which does not produce a known or foreseeable result with any one consignment.

The slow and semi-random movement of wagons, and their dispersal over many small terminals where they cannot be collected or delivered very frequently, has necessitated the provision of an enormous fleet of wagons. Also, because of their random motion, all these wagons have to be capable of coupling and running with one another and of going almost anywhere on the system. This compatibility requirement, combined with the size and cost of the fleet, has been a great obstacle to technical progress, since the new always has to mate with the old. In consequence, evolution of improved rolling stock has been very slow.

The average turn-round time between loading and loading for British Railways' wagons is 11-9 working days. The average loaded transit time is about l 1/2 -2 days, with an average journey length of 67 miles, but individual transit times are bound to vary over a wide range, not merely because of variations in distance but also because of variations in route and in marshalling delays.

These slow and variable delivery times are quite unacceptable for many forms of freight in these days, when road deliveries over comparable distances can be made on the day of despatch. In addition, however, this whole method of rail movement by the staging of wagons is far more costly than movement by through trains.

As we shall see later, the way to break with the past is not to attempt an overall change of the present system but to develop new services, with new rolling stock not compatible with the old, which will progressively displace the common-user wagon fleet and the system of operation which employs it.

The Main Classes of Freight Traffic

Reference has already been made to the main classes into which freight traffic is traditionally divided. They are:

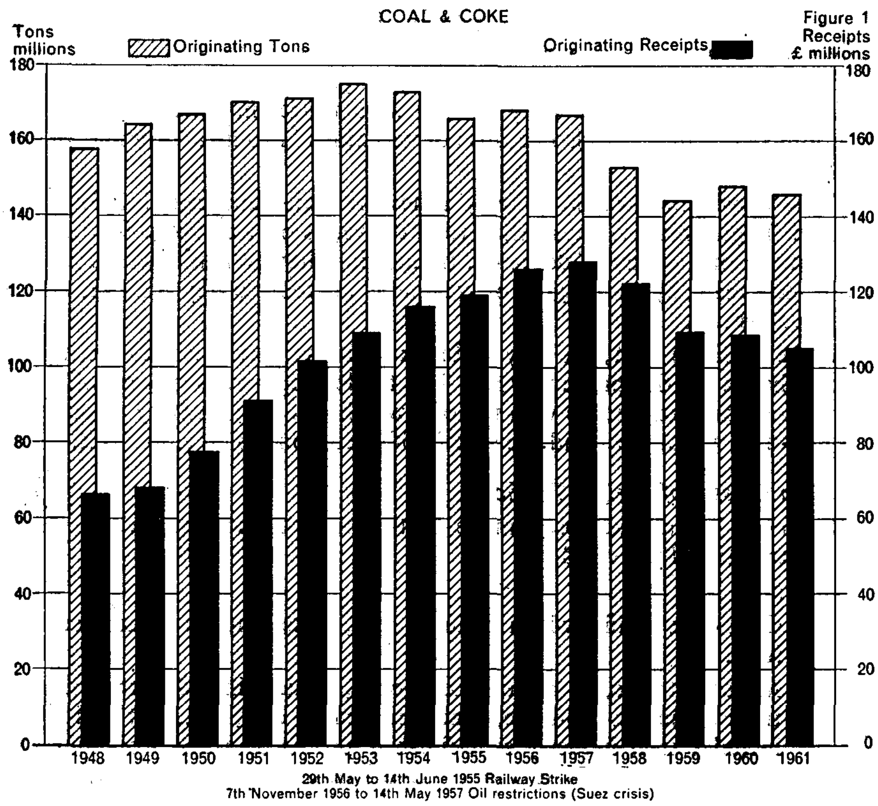
- (i) Coal class traffic, which includes coal, coke, and manufactured solid fuels.
- (ii) Mineral traffic, a more mixed class, which includes true mineral traffics such as iron ore, limestone, china clay, etc., but which also includes steel industry semi-finished products, ashes, iron and steel scrap, bricks, creosote and tar, fertilizer, and even sugar beet.
- (iii) General merchandise, also covers a very wide range of commodities, as its name implies, and the bulk of it is made up of manufactured products of many kinds.

Consignment sizes in this class of traffic vary enormously and, for practical reasons, the broad class is sub-divided into two groups according to whether consignments are large enough to make a wagon-load or not.

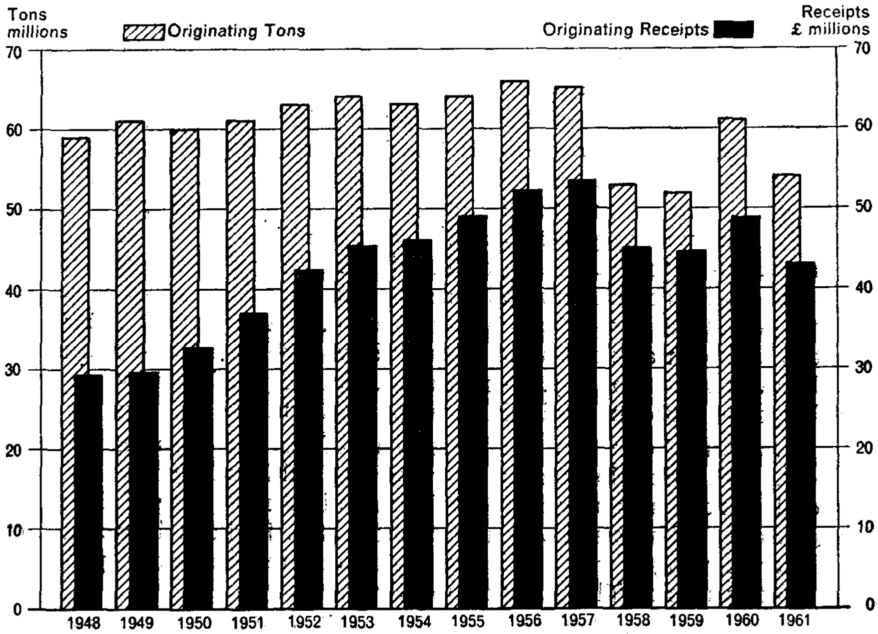
As already mentioned, only one of the three main classes of freight is profitable and the 1961 results were:-

Class of traffic	Tons	Receipts	Margin of receipts over direct cost	Estimated margin over total cost
	m.	£m.	£m.	£m.
Coal	145.7	108.3	24.8	2.8
Mineral	54.3	44.5	7.6	- 3.7
General merchandise:				
Wagon-load	34.4 } 38.2	64.8, } 102.8	31.8 } 45 3	53.8 } 75.1
Sundries	3.8	38.0	-13.5	-21.3

The trends in volume and receipts for these classes of traffic over recent years are shown by Figures Nos. 1, 2 and 3.

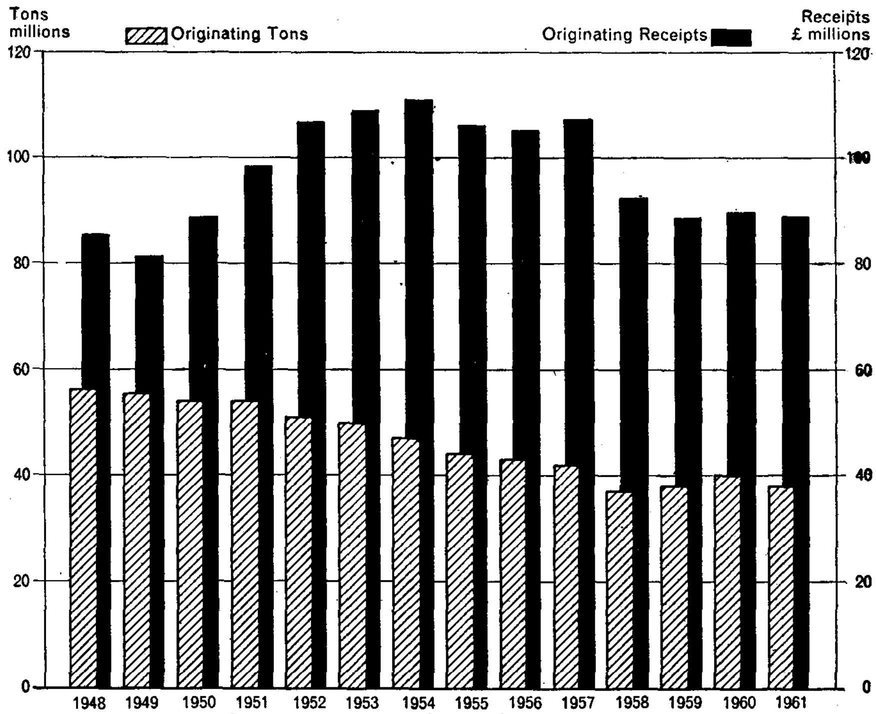


MINERALS Figure 2



29th May to 14th June 1955 Railway Strike
7th November 1956 to 14th May 1957 Oil restrictions (Suez crisis)

GENERAL MERCHANDISE Figure 3



29th May to 14th June 1955 Railway Strike
7th November 1956 to 14th May 1957 Oil restrictions (Suez crisis)

Receipts from road conveyance and miscellaneous sources are not included in these Figures.

The great significance of these figures is underlined by the realisation that the only traffic which the railways can hope to carry in much larger volume in future is general merchandise.

The total ton mileage of coal traffic is more likely to decrease than increase, and since the railways are already the predominant carriers of coal, they have only limited scope for increasing their share of the total. Bulk mineral traffic is likely to increase in tonnage with growth of the economy, but ton mileage is unlikely to increase very fast. Again, since the railways already carry a very high proportion of the total traffic of this kind, any increase in their share can only be small. By contrast, the railways are the minority carriers of general merchandise and that part of the mineral class of traffic which is of like character. Also, this kind of traffic is certain to grow in volume, at least as fast as the general growth in the economy. This, therefore, is the type of traffic which offers the railways the best opportunity for increasing their freight loadings.

Of recent years, however, the railways' share of this traffic has declined and, at present, it is a serious loss maker. Therefore, the railways are confronted with the twofold task of making such radical changes in the handling of this traffic as to render it profitable and of attracting more of it. Fortunately, methods of handling are envisaged which will give a much more satisfactory quality of service at costs substantially below competitive rates.

This will be considered further in the section dealing with general merchandise freight. First, however, something must be said about coal and mineral traffics.

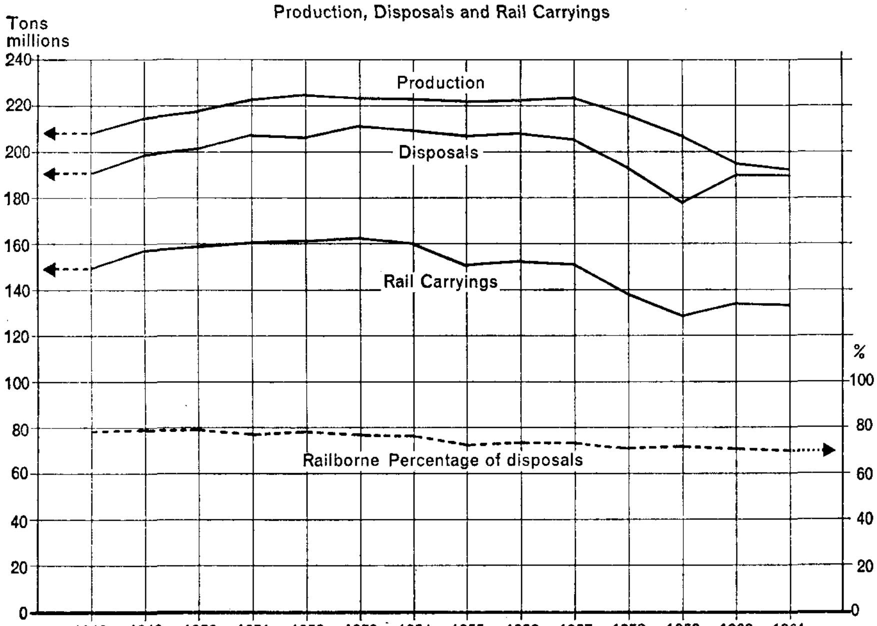
Coal Traffic

There are 620 collieries in Great Britain and 600 are rail connected. The output is distributed by rail, sea, road, and waterways, or by a combination of some of these means.

COAL

Figure 4

Production, Disposals and Rail Carryings



29th May to 14th June 1955 Railway Strike
7th November 1956 to 14th May 1957 Oil restrictions (Suez crisis)

Over a period of years the total production of coal has declined and, until recently, the proportion carried by rail has also fallen. The trends are shown in Figure No. 4.

The growth of road transport has been responsible for the decline in the railways' share of the traffic, and in 1961 the total tonnage forwarded by the National Coal Board was spread over the main forms of transport as shown below:-

	Million tons
Rail	133
Road	39
Private line	9
Canal	3
Other	5
TOTAL	189

Twenty-two million tons carried by rail, private line and canal to shipping points was subsequently carried by coastwise vessels.

The volume and geographical distribution of coal flows by sea and road during 1960 is shown in Map No. 6.

Trends in the pattern of consumption of coal also affect the transport problem, and figures below show how the pattern has changed between 1956 and 1961 and how it is likely to change over the next five years.

Million Tons

	1956		1961		1966	
Electricity generation	46.3		55.4		75.5	
Towns gas	28.1		22.5		16.5	
Iron and steel and coke ovens	36.3		31.2		30	
Other industrial	34.21		26-3		23.5	
Household coal and naturally smokeless fuels	32.9	} 106.8	28-9	} 82.7	27	} 71
All other	39.7		27-5		20.5	
	217.5		191.8		193	
Export and bunkers	9.7		5.7		7	
total	227.2		197.5		200	

The Coal Board expect to increase their output to 200 m. tons by 1966, and to sustain that level thereafter. Whether they will be able to do so remains to be seen, but it is almost certain that the change of pattern within the total will continue and that a greater proportion will go to power stations.

Because power stations and other large industrial users are normally located as close to coal fields as other considerations permit, most of the tonnage which they consume moves over relatively short distances. Therefore, the growth of the Central Electricity Generating Board's demand, accompanied by a decline in demand for household coal and coal for many other small consumers, will lead to a reduction in ton-mileage of coal traffic, even if the total output stays around the 200 m. tons level. For that reason, although the railways' share of the total tonnage is likely to increase to some extent, the ton-mileage and gross revenue will fall. It does not follow, however, that the net revenue will also decrease, because there will be a higher proportion of bulk movement which is favourable to rail.

In 1961, the rail coal traffic which totalled 146 m. tons was spread over the main consumer groups as shown below:-

Rail Carryings of Coal Class Traffic
(1961)

Consumer	m. tons
C.E.G.B.	30.7
Gas	11.0
Blast furnaces	18.0
Other industrial	22.3
Shipment	22.9
Domestic	27.6
Balance*	13.2
total	145.7

* Balance mainly accounted for by coal to washeries, for stocking, and hauled by Coal Board locomotives over British Railways' system.

A high proportion of the coal for large consumers already moves by through-train operation and 57 m. tons, or 39 per cent. of the 1961 total was moved in that way, while the remainder moved by the wagon-load. Of the 89 m. tons which moved by the staging of wagons, 54 m. went to private sidings and 35 m. tons went to stations.

Movement of coal by through-train operation enables greater benefit to be derived from the potential advantages of rail transport than does single wagon movement. Even with this type of traffic, however, terminal conditions and established practices militate against really economic use of rail facilities. As a result, there has been some erosion of bulk flows of coal by road competitors, in spite of the very substantial cost advantage which rail is potentially able to give.

The main trouble arises at the collieries, for a combination of reasons which spring from the histories of the two industries. First, there are few collieries which produce enough coal of any one type to supply a large consumer, so that the flow to, say, a large generating station has to be built up by drawing from a group of them. A second and even more serious difficulty is that none of the collieries has storage bunkers and facilities for rapid loading of trains, although quite a number of them are able to load road vehicles without delay, from elevated hoppers. Instead, the collieries use railway wagons as bunkers and need to have a large supply of them available for that purpose at all times. As a result, wagons spend an average of 2 days in colliery sidings, and, at present, the Coal Board pay practically nothing for their use during that time.

The total annual cost of providing wagons for coal traffic exceeds the total haulage cost and is about £30 m. a year. The Coal Board have the use of them as bunkers for about 22 million wagon days a year, either at pits or washeries. This, with an allowance for coverage of peak demands, costs the railways about £1 for each wagon supplied, or about £11 m. per year. Under established practice, the Coal Board pay a total demurrage charge of only £1 m. per annum.

It is true that a charge of *2s. 6d.* per ton is made to road hauliers by the Coal Board to cover the cost of land sale facilities, and this may be regarded as offsetting the cost to the railways of supplying wagons, but there are two important differences. The road haulier only pays when he moves coal, while the railways have to bear the cost of wagon provision even when the wagons are not in full use. Also, the facility for which the road operator pays is one which is designed to meet his need for quick loading. The railways, on the other hand, do not, in many cases, have their requirements met by being provided with complete trainloads ready for haulage to a single destination as a return to them for the cost of having made wagons available at pits. It should be said, however, that the staff at many pits do help in this respect when they can.

A rather similar situation often exists at the receiving end where wagons are again used for storage while road vehicles are emptied at once. The position is especially bad at the ports.

The degree to which the position is unsatisfactory is made more apparent when consideration is given to the supply to new power stations. To take advantage of new locomotives and make the rail haul more efficient, the sound course is to use large, braked, hopper wagons, which have a better load/tare weight ratio, which can be drawn at high speed, and which can be unloaded very quickly at the receiving terminal. Such wagons are relatively costly, but are much more economical to use if they can be turned round quickly. They are, however, too expensive to be used as storage bunkers at the pits, and need to be loaded quickly from static bunkers.

The Coal Board show understanding of the railways' problem, but it is very understandable that they do not voluntarily spend money for the purpose of providing bunkerage and train loading facilities at pits, all the while the railways provide wagons for use as bunkers without charge. To bring about provision of loading bunkers, and cover the railways' cost of wagoning the pits in the meanwhile, it will be necessary to charge the Coal Board the full cost of wagons retained by them. At present, however, trains of new wagons, capable of making several round trips per day, are being limited to one trip every *2 1/2* to 3 days by the absence of quick loading facilities at the pits.

Although the cost of through-train movement of coal is higher than it need be because of terminal conditions, the cost of moving it in single wagon loads to stations and sidings for small consumers is very much higher still. Over a hundred-mile haul, for example, the movement cost is about twice as great, and typical figures for the two different types of movement are shown on the following page. System cost is not included.

Estimated Direct Costs for a Transit of 100 miles

	(a)		(b)
	Single wagon consignment (16-ton capacity wagon) from colliery to small station on branch line		*Through-train load consignment (16-ton capacity wagons) from colliery to private siding*
	Per wagon		*Per wagon*
(1) Terminal facilities and services at both ends of transit;	s. 96	(including local trip working to first, and from last marshalling yard)	*s.* 28
(2) Provision	92		32
(3)	21		
(4) Trunk haul	69	(85 miles)	93 (100 miles)
TOTAL	278		153
Cost per ton *(*14 .5 tons per wagon)	19.0		10-6

Since 61 per cent. of the total coal moved by the railways is still handled by wagon-load movement, at correspondingly high costs, it is very necessary to consider what can be done to enable more of it to be handled in through-trains. In this connection, the data given in Appendix 1 is of particular interest. This shows how the total 28.1 m. tons received by stations was spread over the 5,031 stations open to coal traffic in 1960. Although open to receive coal, 1,172 stations received none and many of these have obviously fallen into disuse for this purpose. A further 1,790 received between one and five wagons per week and totalled only 1 -7 m. tons between them in the year, or 6 per cent. of the whole. At the other end of the scale 64 stations received over 50,000 tons per year each, and between them received 20 per cent. of the total. In between, 2,005 stations, receiving 2,500 to 50,000 tons/year each, together accounted for 74 per cent. of the total.

All the coal from these stations is distributed by road in any case, with an average radius of distribution of *2 1/2* miles at present. Since the whole country can be covered by a 10-mile radius of distribution from 250 centres, the costs of road distribution would not be greatly increased by reducing the number of rail-served coal depots to a few hundred large ones which could be supplied by through-train movement. The resulting reduction in rail costs would be very considerable, and depots large enough to be fed by the train-load would also have enough throughput to justify efficient mechanisation and the use of special purpose road vehicles, so that the overall cost of handling and distribution from depots could be reduced as well.

Even in the absence of improved facilities and practices at the pits, rail costs could be reduced by about 6s. per ton on the average length of haul, and if the pits consigned coal to depots in train-load quantities, so as to eliminate the initial rail collection and marshalling, a further *Is. 6d.* per ton could be saved on direct cost.

Such changes would be in the best interests of the Coal Board, the railways, and coal consumers, because the potential savings are large enough to improve the competitiveness of the first two and to give a worthwhile reduction in the delivered price of coal. For the same reason, the changes will be beneficial to the coal trade as a whole, but may not be welcomed by all individual merchants, especially some of the smaller ones.

A number of coal concentration depots of the type envisaged have already been established and schemes for others are being developed. It is very much in the interests of the railways to accelerate progress in this direction, but it would not be wise for them to provide the depots themselves. By doing so, they would commit themselves, even further than at present, to fixed investment in a business which they do not control. Therefore, although the railways will encourage and facilitate the establishment of concentration depots, they will not normally invest in them. They will, however, induce concentration by a rapid progressive closure of the smaller stations, a process which is also necessary on other grounds.

In this last connection it needs to be stressed, once again, that the cost figures quoted do not include system cost, and that this may be very great on lightly used branch lines where many of the smaller stations are to be found.

Mineral Traffic

For the purpose of the traffic studies, this mixed class of traffic was combined with general merchandise. Therefore, not a great deal need be said about it as a separate class.

As in the case of coal, a considerable proportion of this traffic, in particular that comprised of bulk minerals, is carried in block trains. The more heterogeneous remainder is carried by wagon movement and is distinguishable from the greater part of general merchandise traffic only by rather arbitrary definitions. Since some of the freight classed as general merchandise also lends itself to bulk movement, there is little reason to treat the two classes separately for present purposes.

It is worth mentioning, however, that the movement of bulk minerals provides some of the best examples of really efficient use of rail transport. Some big flows are carried in large trains of special wagons, served through efficient terminals, and yield profits to the railways and very low freight rates to the customers. They serve to show what could be done with coal.

Wagon-Load Mineral and General Merchandise Freight Traffic

Under this heading is considered mineral and general merchandise traffic, other than general merchandise sundries. The description 'wagon-load* is not used here to distinguish between the through train and wagon forwarding modes of movement, but only to exclude consignments of less than a wagon load.

In 1961, this group of traffics as a whole, amounting to 89 m. tons, produced receipts of £109-3 m., but failed to cover its direct costs by £24-2 m. and fell short of covering its total costs by £57-5 m. It is, however, a very mixed class of traffic which not only includes a wide variety of commodities but which also covers a very wide range of all the other variables which determine the suitability of traffic for rail transport, such as terminal conditions, consignment size, loadability, length of haul, etc. It is, therefore, particularly necessary to analyse this group of traffics in detail to determine how much of it can be regarded as good rail traffic.

The commodity composition of the 89 m. tons of this traffic carried in 1961 is as follows: —

Mineral Traffic	*Million Tons*	
Bricks, clay, common	1.1	
Bricks, refractory	0.5	
Clay, common or fire	0.4	
Fertilisers and manure	2.0	
Iron and steel, bars,	4.4	
Iron and steel scrap	6.1	
Iron ore	16.6	
Iron, pig	2.6	
Lime and limestone	7.4	
O.T.W.—Bitumen,	0.9	
Roadstone	0.2	
Sand, common	1.6	
Slag, cinders and ashes	1.0	
Sugar beet	1.0	
Other total	8.6	
	54.4	(of which 23.2m. tons, or 43 per cent. moved in full

General Merchandise	Million Tons	
Animal feeding stuffs	1.3	
Beer	0.3	
Butter, margarine, etc.	0.2	
Cement	1.6	
Chemicals, not in O.T.W.	1.3	
Confectionery	0.8	
Esparto grass and wood pulp	0.6	
Fruit	0.5	
Grain and flour	1.4	
Iron and steel—other products	8.6	
Machinery	0.4	
Meat	0.2	
O.T.W.—chemicals	1.0	
O.T.W.—fuel and petrol	4.8	
O.T.W.—other	0.4	
Paper and cardboard	0.6	
Potatoes	0.5	
Soap and detergents	0.2	
Sugar	0.3	
Textiles and drapery	0.1	
Timber—pit props	0.5	
Timber—other	0.9	
Wines and spirits	0.3	
Wool	0.1	
Other	7.5	
total	34.4	(of which 6-5m. tons, or 19 per cent. moved in full train loads)

O.T.W. = Owners' Tank Wagons.

It will be seen that 30 m. tons of the total of 89 m. tons in the group was carried in block trains, and virtually all of this moved from private siding to private siding, or between private siding and a dock. It is necessary to comment, however, that not all siding and dock traffic moves in train-load quantities.

One of the main objects of the freight traffic survey made over the test week, ending 23rd April, 1961, was to determine what proportions of traffic flowed between terminals of different kinds, how each of these groups was spread over different ranges of distance moved, how they varied in wagon loading, and how costs for the various groups compared with receipts. All this information is set out in Tables I to VI of Appendix 1.

The traffic surveyed in the test week amounted to 1,695,000 tons. This compared closely in volume with the weekly average for the whole year, although actual carryings, measured in terms of loaded wagons forwarded, were rather below that level. The total costs shown for the week, for this reason, are also a little below the average. On the other hand, the receipts shown for the week are somewhat above average. To the extent of perhaps 5 per cent., this is due to insufficient allowance for outpayments, rebates and other adjustments in the calculation of the actual earnings for each individual consignment. The balance is attributable to the particular composition of the traffic during the test week.

It is inevitable that there is variation in the component traffics as between one period and another, and seasonal fluctuation, which affects some of the most important traffics, is not the least of the causes. Whilst the results shown in the Tables thus appear a little more favourable than the figures for the full year (which also include some receipts and costs from relatively small sources not included in the test), they are, nevertheless, sufficiently representative to constitute a most informative analysis of the traffic in this group.

One of the main subdivisions in the Tables is based upon terminal conditions, and this brings out very clearly the gross unprofitability of most station traffics and the relatively favourable nature of siding-to-siding movement. Thus:-

ANALYSIS BY TERMINAL CONDITIONS

Combination of terminal conditions. (Flow in either direction)	Tons	Percent.	Receipts	Percent.	Direct costs	Per cent.	Margin
			£		£		£
Road-Road	26,800	2	145,300	7	214,10	9	- 68,800
Road-Station	17,600	1	64,400	3	91,70	4	- 27,300
Road-Dock	25,400	1	61,600	3	91,90	4	- 30,300
Road-Siding	111,500	7	299,900	13	376,00	17	- 76,100
Station-Station	30,200	2	66,300	3	91,80	4	- 25,500
Station-Dock	29,600	2	65,000	3	72,50	3	- 7,500
Dock-Dock	5,400		3,900		9,50		- 5,600
Station-Siding	246,600	14	369,500	16	379,60	17	- 10,100
Siding-Dock	256,300	15 } 71	190,500	8 } 52	200,90	9 } 42	- 10,400
Siding-Siding	946,000	56	986,500	44	746,20	33	+240,300

One obvious feature is that any traffic which is road collected or delivered by the railways is carried at a heavy loss relative to direct costs. The high cost of collecting or delivering by road, plus the cost of hand transfer of freight between road and rail vehicles, makes it impossible to attract traffic at economic prices. As a result, the railways get practically none of the better loading traffic in this way, but are used for poor loading traffic which road hauliers would reject or carry only at very high prices. This view is confirmed by the very low wagon loads produced by this traffic, the average for road/road and road/station traffic being only 2.5 tons per wagon.

The railways' financial losses are much the same on traffic which passes through stations without road collection or delivery by the railways' own vehicles, because transfer and road movement is still necessary, and railway rates have to allow for this cost being borne by the customer. Consequently, as groups, station/station and station/dock traffics both show a loss relative to their direct costs, while station/siding traffics just about break even. Here, however, as in the case of other traffics, increases in wagon loading or in length of haul have a beneficial effect, and that part of the traffic in the last two terminal groups which loads best or travels furthest yields some margin over direct costs as a contribution to system costs.

In the non-station traffics, siding/dock traffic falls just short of paying its direct costs, while siding/siding traffic produces a good margin. These were the terminal combinations for 71 per cent. of all the traffic covered by the survey, of which siding/siding traffics alone accounted for 56 per cent.

These terminal conditions are particularly favourable to rail, because no transfers from vehicle to vehicle are involved, because they give rise to good loading traffics (12.3 tons/wagon), and because a high proportion of the traffic can be moved in trainload quantities. The test week tonnage of freight passing under these terminal conditions is equivalent to 62.5 m. tons/year, and, as has already been mentioned, about 30 m. tons of this is carried by through trains.

The figures as a whole make it very clear that the mineral and general merchandise traffic falls roughly into two main groups, distinguished by whether or not the traffic passes through a station at either end, these being:

(1) Siding/siding or siding/dock traffic, nearly two-thirds of which moves in train-load quantities, which accounts for 71 per cent. of the total tonnage, and which, on the basis of the test week, appears to yield a margin over direct costs of about £12 m., p.a.

(2) Traffic which passes through a station at one or both ends of its transit, which is virtually all based upon wagon load movement with poor wagon loading, and which, on the basis of the test week, appears to give rise to a deficit relative to direct costs of £13 m., p.a.

Even in the non-station based group, not all traffic is good. As has already been mentioned, that which flows between sidings and docks falls just short of covering its costs, partly because a great deal of it is short haul traffic and partly because terminal conditions at docks often cause wagons to suffer long delays.

There is a lesser proportion of siding-to-siding traffic which moves under 25 miles, and the bulk of it is spread fairly evenly over haulage distances from 50 to 200 miles, with fairly good wagon loading for all distances. As will be seen from Table V of Appendix 1, however, about 5 per cent. of the siding-to-siding traffic which loads to less than 6 tons/wagon does not pay its way.

This light loading traffic is not necessarily associated with smaller sidings, although much of it is likely to be. Also, in general, costs of servicing small sidings are greater. It is, therefore, of interest to see, from Tables Nos. 19, 20 and 21 of Appendix 1, how unevenly traffic is spread over the total number of private sidings which exist. About 78 per cent. of all traffic flows through 855 of them, while a further 5,039 sidings account for only the remaining 22 per cent. of the total traffic.

In the station-based group of traffic there is practically none which is good, as handled at present, and most of it is extremely bad. Some of it is so bad that it may well be the right course for the railways to reject it in future, but first it is necessary to consider:—

(a) whether some of the traffic could be made profitable in future;
(b) whether some of it must be carried to give full service to important private siding customers;
(c) to what extent could expenses be saved if some or all of the traffic were not carried ?

These questions cannot easily be dealt with separately, and what follows has some bearing upon each of them.

It is noteworthy that of the 25.4m. tons of traffic which the traffic test showed to pass through stations each year, 12-8 m. tons moved siding/station, and a further 5 . 8 m. tons moved siding/road. This is traffic which it is particularly necessary to consider in relation to (a) and *(b)* above.

The first of these groups of traffic only just about paid its direct costs in 1961, and, as will be seen later, it should be possible to move much of it in ways which will make it remunerative traffic. It will be noticed from Table V of Appendix 1, that a very high proportion of it gives good wagon loading, and it will also be found, later, that most of it moves between a relatively small number of large centres.

The smaller group of traffics which moves siding/road does not load so well, but about 70 per cent. makes wagon loads over 6 tons. It does, therefore, include a substantial proportion of potentially good traffic which, in common with that mentioned in the previous paragraph, will be referred to again in the section dealing with Liner Trains.

As might be expected, most of this siding/station traffic, whether it includes road movement or not, is a flow outwards from sidings to stations. This is confirmed by the marked disparity between the total of traffic received by stations during the test week and that forwarded, as shown by Tables Nos. 11 and 12 of Appendix 1. Traffic received exceeded forwardings by an annual rate of 9-3m. tons which shows how preponderantly the flow of siding/station traffic must have been a flow out from sidings.

It has already been pointed out that a preponderance of the siding traffic passes through a relatively small proportion of the total number of private sidings which exist, and Table 18, which shows how traffic is spread over sidings grouped under parent stations, also makes it evident that sidings handling most of the traffic are concentrated in a few areas of high industrial or population density. It is equally evident from Tables 11 and 12, that most of the station traffic passes through a small proportion of the total number of stations, and that the siding/station traffic is mostly received by the large ones. The following figures illustrate this point:-

Stations forwarding or receiving less than 100 tons/week			Stations forwarding or receiving more than 100 tons/week		
Total received	Total forwarded	Difference	Total received	Total forwarded	Difference
'000 tons/week			'000 tons/week		
54-2	41-1	13-1	315-7	149-1	166-6

These points are of interest and importance in connection with the closure of small stations, since it appears that not only do such stations handle very little of the total volume of merchandise freight but, also, that what they do handle must be predominantly of the very poor road/road, road/station or station/station types. Moreover, since so little siding/station traffic flows to such stations, closure of them will have very little effect on good customers who are rail connected.

This brings us to question (c) on page 37 'To what extent could expenses be saved if some or all of the traffic were not carried?'.

The main elements in direct expenses, which vary in relative importance according to the circumstances of particular traffics, are:—

Road collection and delivery.
Terminal expenses.
Trip working.
Marshalling.
Trunk haulage.
Provision of wagons.
Documentation.

It is fairly obvious that most of these expense items could be reduced if the traffic which gives rise to them were discontinued. Nevertheless, it is also clear that the extent of the reductions which could be made would depend upon the degree to which facilities used are shared with other traffics, because big savings are often possible only where facilities can be removed altogether.

This is particularly true of costs of small terminals and of the road operations, the rail pick-up services, and the documentation work associated with them. In large terminals, services and staff can normally be scaled down to match the traffic, so that only certain overhead charges remain unchanged, but such scaling down is not possible with smaller terminals, where the time of individual members of the staff is spread over various forms of traffic, where the number of road vehicles cannot be reduced in proportion to the traffic, and where the frequency of trip working cannot be reduced just because the number of wagons to be handled comes down.

The foregoing considerations suggest that station based traffic as a whole should be treated in the same way as the whole railway problem, and that potentially good parts should be improved and developed while basically bad parts should be rejected. With this in mind, the conclusion has been reached that, although a great deal of the traffic which flows to stations from private sidings may be made profitable, and will be developed, very little of it goes to the enormous number of small stations throughout the country, and, therefore, very little of it will be affected if they are closed. It has also been concluded that most of the traffic which does pass through small stations is of the worst kind, which cannot be made to pay at all, and which the railways would do well to lose. Further, it has been concluded that, if the traffic is got rid of, the expenses associated with the traffic will not be saved effectively unless the stations themselves are closed, and where possible, the route as well. It would serve little purpose to thin out the traffic without closing the stations.

So far, attention has been paid only to existing rail traffic of the mineral and general merchandise types, but studies were also made of the traffic not on rail. Before passing on to consideration of potential traffic, however, let us sum up what is proposed for existing traffic.

		m. tons		m. tons	
I	Siding/Siding Siding/Dock	62-5	By block train	30	Keep and improve operating efficiency
			By wagon forwarding	32-5	Keep, but increase through-train working. Some of small siding traffic to Liner Train
II	Siding/Station	12-8	Keep as much as can be handled in a remunerative way. The high proportion which moves in dense inter-city flows is good Liner Train traffic		
	Siding/Road	5-8			
III	Other station traffics	7-9	Attract to Liner Trains that portion which moves in the dense inter-city flows, but shed the rest by station closures and rate increases		
	Total	89			

In group II, 64 per cent. of the traffic moves over 75 miles and 50 per cent. of it moves more than 100 miles. In group III, the corresponding figures are 66 per cent. and 50 per cent. Nearly all of the traffic in group II loads well and is of a physical nature which makes it suitable for Liner Train movement. Also most of it will move over the dense inter-city routes. Therefore, at least half of the total 18-6 m. tons, i.e. nearly all which goes over 100 miles, and a part of that which moves over 75 miles, may be regarded highly suitable for Liner Train movement. (Say 10 m. tons.)

The traffics which make up group III are largely composed of smaller consignments than group II and they include a great deal of poor loading traffic. In general, therefore, they are less well suited to Liner Train movement than those in group II. Moreover, a lesser proportion of the total movement of these traffics will be in the dense inter-city flows which the Liner Train is intended to deal with. Probably, therefore, not more than about 2 m. tons of this kind of existing rail traffic will be attracted to Liner Trains in future.

The Survey of Traffic Not On Rail

It is commonly stated that the railways now carry only about a fifth of the freight traffic of the country other than coal, but this figure is based upon a global assessment of the ton-mileage of road vehicles. Taken at its face value, it suggests that there is a large volume of traffic which could be attracted to rail, by suitable services at the right prices. Before such a conclusion can safely be drawn, however, it is necessary to know much more about the nature of this traffic in terms of all the characteristics which determine its relative suitability for road and rail transport. Among other things, it is necessary to know:—

The nature of the commodity;
Loadability;
Points of origin;
Terminal conditions;
Volume and regularity of flow;
Average consignment size;
Geographical location of flows;
Lengths of haul;
How carried at present.

To get this information, a very massive enquiry was made during 1961. The way in which it was carried out is described in Appendix 1, which also gives a summary of the results which it produced.

The enquiry covered 305 m. tons of freight other than coal, of which the railways carried 82 m., and it is estimated that this was over 80 per cent. of the total freight movement in the country, apart from local delivery services by light vehicles.

All of the flows making up the total 223 m. tons of non-railborne traffic were examined to determine their potential suitability for rail haulage. As a result, 130 m. tons had to be judged unsuitable on first inspection, mainly because the length of haul was too small, but also because of terminal considerations, irregularity of flow, requirements for special vehicles, etc. Table 23 of Appendix 1 shows that 62 m. tons of the total travels less than 25 miles, and a further 54 m. tons travels less than 50 miles. Such short distance traffic is unlikely to be attracted to rail unless it can be moved in bulk, directly between rail connected terminals. A very high proportion of this short distance traffic is made up of road stone or building materials moving to contractors' sites, petrol being delivered to service stations, farm produce moving to markets, or fertilizer moving to farms, and other flows to places where no rail terminal could be expected to exist.

The 93 m. tons of traffic which was left after this first sieving was judged potentially suitable for rail haulage by virtue of its physical characteristics and the distance over which it moved. It represents a very large part of the total longer distance road freight of the country, and the way in which it flows is illustrated diagrammatically in Map No. 5.

Features which are strikingly illustrated by the map, although not in themselves surprising, are the concentration of flows between areas of high industrial and population density, paralleling the better used rail routes, and the sparsity of traffic in the green-field areas where rail traffic is also very light. This holds promise for the future profitability of the main rail network, because of the prospect of loading routes more nearly to capacity, but provides no support for continued operation of lightly loaded parts of the system.

After the map had been prepared, the flows composing the 93 m. tons of longer distance traffic was screened again in more detail. By then, progress with other studies had made it clear that traffic could not truly be regarded as potentially good rail traffic for the future unless it could be made to pass as siding traffic, or else could be carried over distances of not less than 70 to 100 miles by Liner Trains. The second examination was, therefore, made with these two possibilities in mind. This showed that there are flows amounting to 13m. tons which could pass siding to siding, in consignments of substantial size, of which 8 m. tons is suitable for through train movement. It also showed streams of traffic, amounting to a total of 16 m. tons, which were judged to be good Liner Train traffics.

Efforts are already being made to attract to rail the potential siding/siding traffic revealed by the survey, particularly that which can be moved by block trains. Nevertheless, much more vigorous selling is called for, and it will be more soundly based as movement by wagon forwarding is subjugated to through train traffic.

Where desired, and where justified by the volume and regularity of traffic flow, trains of wagons tailored to the special requirements of customers will be operated as timetabled trains.

Liner Trains
Although sundry references have been made to Liner Trains in earlier sections, the nature of this form of service has not, so far, been described.

The Liner Train concept is described more fully in Appendix 4. It has not yet been developed quite to the point where proposals for the establishment of a national network of Liner Train services can be put forward as a firm project, sufficiently detailed to justify capital expenditure, but enough scheme work has been done to show its promise. More thorough market research is going on now, side by side with route selection, studies of depot design and location, and more reliable costing.

The basic idea is to combine road and rail movement in such a way as to take advantage of the low cost of fast through-train movement as the means of providing trunk haulage over medium to long distances, for flows of traffic which, though dense, are composed of consignments too small in themselves to justify through-train operation, and to do so without the disadvantages of either costly assembly of trains by wagon-load movement on rail, or costly transfer of merchandise between road and rail vehicles.

The method proposed for doing this is to link main centres of industry and population by services of fast, regularly scheduled, through-running trains. These trains would be composed of specially designed, permanently coupled, low, flat wagons capable of taking large containers of the newly recommended international cross section of 8 ft. by 8 ft. with length modules of 10, 20 and 30 ft. They would operate in shuttle services between main centres, or over circuits linking a number of centres, and would remain continuously coupled as trains. Containers, loaded at the point of origin of the freight, would be brought to special depots feeding the services by flat-decked road vehicles, or by pickup on rail where conditions made that favourable, and would then be transferred to the Liner Train. At the receiving depot, the procedure would be reversed.

A key to the success of this type of operation is quick safe transfer of containers from one vehicle to another, and feasibility and cost studies have been made of a number of possible ways of doing it. Several methods are satisfactory, and choice will depend to a large extent upon the levels of traffic which depots and services are expected to handle.

The advantages offered by this form of service are:—

- (i) Fast through working of trains to cheapen the trunk haul.
- (ii) Containers designed for easy loading by forklift trucks through full-width end and side doors.
- (iii) Elimination of the expensive double handling associated with the transfer of non-containerised freight from road to rail, and vice versa.
- (iv) Elimination of expensive wagon movement on rail to assemble freight from small terminals into trains.
- (v) Elimination of marshalling and absence of all shunting shocks. (vi) Fast, reliable, scheduled delivery.
- (vii) Freedom from pilferage.
- (viii) Drastic reduction of documentation.

(ix) A system which is simple and readily understandable.

(x) Door-to-door costs below road costs for distances of about 100 miles and very substantially below for longer hauls.

Attention was drawn in earlier sections to the availability of about 12 m, tons/year of very promising Liner Train freight among the unremunerative freight traffics which at present flow through stations. In addition, there is the prospect of transferring a large part of the passenger parcels traffic to these trains with an opportunity to improve handling. Also, and possibly more important, there is the prospect of transferring to them that part of the sundries traffic which moves between main centres, and which amounts to about 3 m. tons per year.

In addition to the railbome traffic suitable for transfer to this type of service there are, as indicated by the freight survey, about 16 m. tons per year of road-borne traffic which could be moved more cheaply by Liner Trains. There is. therefore, at present traffic levels, a potential market of about 30 m. tons, and this should grow at least as fast as the national economy, and rise to 40 m. tons over the next ten years.

liner Train routes which are being considered are shown on Map No. 11, and figures giving the potentially suitable traffic flowing each way between the main areas which they link are given in Appendix 4.

At present, it is envisaged that there would be about 55 special terminals to feed and link these services, and the approximate location of these terminals is also indicated on the map.

Appendix 4 also includes a tentative estimate of the capital cost of equipping the network shown on Map No. 11, and of the revenue and costs associated with operating it at three different levels of traffic flow. The results are summarised below:—

Capital Cost	£m.
Depots	16
Locomotives and wagons	34
Road vehicles	25
Containers	25
Total	100

Traffic level 1973 estimate	Direct cost £m.	Revenue *£m.*	Margin *£m.*
(A) 6,440 m. ton miles	49	67	18
(B) 3,220 m. ton miles. 50 per cent. of (A) level	30	33	3
(C) 9,660 m. ton miles. 150 per cent. of (A) level	74	101	27

At the level of traffic envisaged it is estimated that the services would contribute £18 m. to system cost, as compared with an estimated deficit on existing traffics of the same kind of £31 -8 m.

These figures are based upon the assumption that British Railways would provide all the road vehicles and carry out all collection and delivery. This would not be their wish or intention, and it is expected that many customers will prefer to use their own vehicles for the purpose. It is expected, also, that some public road hauliers will wish to use Liner Train services for trunk hauls of traffic collected and delivered by themselves.

Subject to a satisfactory outcome from the studies now in hand, it is expected that proposals for construction of the first two Liner Trains will be put forward in a few weeks, and it will then be possible to have them in operation by the end of 1964. One of them would then be used to run two round trips per day between London and Liverpool, and the other would do one round trip per day unking Sheffield with London and Birmingham.

It is clear, however, that the real issue is much bigger than the question as to whether two prototype trains should be produced and put in service. If the Liner Train type of service is judged to be a likely success on the scale envisaged, and likely to contribute very materially to the future viability of the trunk line network of the railways, then it is clearly desirable to introduce a system of services as quickly as possible. Decision on speedy provision of a system as distinct from isolated services is also important from the point of view of attracting custom, because manufacturers may well be prepared to equip themselves to use a system which will give good national coverage, but be unwilling to do so in order to use only one route.

Therefore, the important decision which will have to be made as quickly as possible is whether an integrated system of Liner Train services, such as that shown by Map No. 11, should be set up. If this decision can be reached in a few months, then it should be possible to build up the pattern of services progressively from the end of 1964, at a rate which would bring the full network proposed into operation by 1970.

Freight Sundries

A country wide service is provided by the railways for freight consigned in quantities too small to be treated as a single wagon load, and most of it is carted by road at both ends of the transit. At one time, the railways were the only providers of this kind of service, but now it is shared with road hauliers who are estimated to carry about 55 per cent. to 60 per cent. of the total. As with other forms of freight, however, the railways are still heavily influenced by their former common carrier obligations and by their tradition of nation wide coverage, while the road operators select good traffics and good areas for coverage.

Traffic of this kind tends to decline because of the changing pattern of production and distribution, and the railways' carryings of sundries has declined over recent years. In 1960, the tonnage carried was 3-6m. and in 1961-62 it was 3-4m.

As is indicated by the global cost figures for this class of traffic, on page 8, it failed to cover its direct costs in 1961 by £13-5 m., receipts being £38-0 m. with direct costs of £51 . 5 m., and an assessed overall loss of £21 . 3 m.

In 1961 a special study was made of the sundries handling problem. This included a test of all the traffic handled on one day, which, because of the diversity of this traffic and the large number of consignments covered, gave a representative sample. The study also included detailed costing of the traffic, and this not only confirmed the previous global estimates of the deficit but also gave quantitative indications of how large savings could be made by different methods of handling.

By the time of the test, the bulk of the traffic had been concentrated upon 550 stations throughout the country, but a further 400 stations still dealt with some of it. As with other traffics, the disparity in the loading of stations handling this traffic is very pronounced, as shown by Table 27, Appendix 1.

Before considering some other features of this traffic, it is worth devoting a little attention to the way in which, with a given total volume, the problem is intensified by handling it through a large number of terminals. For purposes of illustration it is convenient to consider, say, 1,000 terminals with equal throughput and each equally likely to send traffic to any of the others. Then, if the total traffic is 10,000 tons/day, each terminal will receive 10 tons and each will transmit 0-01 tons to every other terminal. If, on the other hand, the same total tonnage were to be concentrated upon 100 rail heads, each would receive 100 tons, and would transmit 1 ton to each of the others, so that daily consignments between terminals would be 100 times as great.

Although, in practice, terminals are far from equal in size, multiplicity of terminals tends to have this same effect. This is important with wagon-load freight, because it reduces the proportion of the traffic which can be handled by through trains. In just the same way, with sundries traffic it reduces the proportion which can be handled by the through loading of full vans.

Even at the best, sundries are a poor loading form of traffic, but the subdivision of flows by the multiplicity of terminals makes it necessary to dispatch vans part filled, to and from many of the lesser used terminals, or to combine loads to different destinations in one van for part of their journey and then tranship them at points along their route. This transhipment involves expensive handling.

At present, with the existing number of terminals, both these expedients are found necessary. As a consequence, the average wagon load is only 0-92 tons, and, in spite of the fact that there is a proportion of through van movement, consignments are, on average, transhipped more than once per journey.

As a result of the study, it is now proposed to reduce the number of main depots progressively to about 100, to limit light van loading and transhipment by reducing the frequency of forwarding to and from smaller stations in the meanwhile, and to concentrate transhipments on a few strategically placed points. At the same time, charges scales are being adjusted to bring them more into line with costs, and the present expensive documentation procedure is being simplified.

The volume and geographical distribution of present flows are shown by Map No. 7.

Full implementation of the plan, as it stands at present, would lead to a distribution of depots as shown by Map No. 8. It would involve the provision or re-equipment of a number of depots, at an estimated capital cost of £11 m., and, taken together, all the changes proposed under the plan would be expected to reduce costs by £20 m., at the present level of traffic.

While this would be a great improvement on the present deficit of £14 m., it does not make the traffic particularly attractive. Therefore, the plan will be implemented as far as possible without any major capital expenditures, and decisions about new depots will be deferred until the effects of concentration upon existing depots, modified charging scales, new documentation, and other changes under the plan have been tested.

Another reason for deferring decisions on the provision of new depots is that the ultimate handling and profitability of this traffic is seen to be related to the future of' Liner Trains ', which, if introduced as a network, will cheapen the rail handling of a large part of the sundries traffic flows and provide through-train movement in place of the present wagon forwarding for much of it. Also, the use of containers, and sub-containers or pallets, will facilitate more efficient handling in the sundries sheds than is possible with existing rail wagons.

Further, since Liner Trains will offer speed and regularity comparable with passenger trains, they will open the way for a combination of the sundries and passenger parcels services, with a corresponding improvement in loadings and in overhead expenses.

Sundries traffic, together with parcels, accounts for the employment of about three-quarters of the road vehicle fleet, which cost £21-88m. in 1960 and £22-15 m. in 1961. Costs will go on rising unless drastic steps are taken, because of increases in wages and materials and, also, because of the growing size and congestion of urban areas. With this in mind, a General Manager of railway cartage services has been appointed to exercise central control so far as is necessary to achieve efficient and co-ordinated use of the road fleet.

Reduction of the Freight Wagon Fleet

The way in which the freight wagon fleet of the railways has varied over the post-war period is shown in Table 2, Appendix 3. The table below shows capacity, together with the volume of freight carried, and the average 'turn-round time'. The fleet was sharply reduced in 1962, but the railways still had 848,591 wagons at the end of the year as will be seen from the figures which follow:—

Year	Number of wagons at 1st January	Tonnage capacity	Number of wagons forwarded loaded (000's)	Tonnage forwarded (000's)	Average tum-round time (days)
1946	1,252,000		39,765	262,400	9.45
1947	1,230,000		37,549	257,300	9.83
1948	.209,380		36,431	276,117	9.96
1949	165,166	14,560,402	36,220	280,170	9.65
1950	098,614	14,004,049	35,750	281,348	9.22
1951	089,975	14,134,260	35,496	284,803	9.21
1952	094,144	14,401,226	34,978	284,916	9.38
1953	105,130	14,743,949	34,760	289,271	9.54
1954	107,110	14,957,544	34,246	283,498	9.70
1955	109,690	15,264,316	31,990	274,177	10.41
1956	109,935	15,555,896	31,598	276,957	10.54
1957	102,607	15,731,251	30,822	274,283	10.73
1958	1,090,114	15,846,352	27,063	242,873	12.08
1959	1,005,526	14,981,743	25,750	233,963	11.71
1960	945,260	14,264,830	26,356	248,500	10.76
1961	946,998	14,339,097	24,851	238,177	11.43
1962	941,543	14,347,572	22,580	227,675	12.51
1963	848,591	13,198,121			

The meaning of 'turn-round time' needs to be explained, otherwise it is a misleading expression. It is the average time from loading to reloading for all wagons, derived by dividing the total number of wagon days per year by the total number of wagon loadings per year. Therefore, high turn-round time may well indicate high wagon capacity relative to the availability of traffic rather than slowness of movement. That this is so is fairly evident from the Table. Tum-round tune rose from 9-45 days in 1946 to 12-51 days in 1962, but the actual speed of movement of wagons almost certainly increased. Far more striking is the fluctuation between 1957 and 1958. There is no reason to suppose that speed of movement dropped in 1958, but there was a fall in the economy and rail traffic fell by 12 per cent. As a result, turn-round time rose by an exactly similar amount.

Opinion has varied from time to tune as to the optimum size of the wagon fleet, but it has now been decided, quite apart from the intolerably high cost of a fleet of the present size, that it is far bigger than it needs to be for the traffic carried with any regularity throughout the year. Figures which support this view are given below:—

NET TON MILES AND LOADED WAGON MILES PER WAGON INSTOCK 1961

	All traffic	Merchandise only	Coal and other minerals only
Net ton miles (000's)	17,590,315	5,533,160	12,031,155
Average number of wagons	944,270	433,438	510,832
Net ton miles per wagon:			
(a) per annum	18,628	12,812	23,564
(b) per week	358	246	453
Average wagon load (tons)	7.9	4.1	13.5
Loaded wagon miles per week	45	60	33

DIVISION OF WAGON AND CONTAINER TURN-ROUND TIME

Type of wagon or container	Number at end 1961	Turn-round time (available stock)	Terminal time	Movement time		Remainder	Remainder expressed as a percentage of movement and terminal time
				Loaded	*Empty*		
		days	*days*	*days*	*days*	*days*	
Wagons							
Open goods	232,416	13.4	4.5	1.9	0.6	6.4	91.5
Covered goods	140,043	5.8	2.9	1.4	0.4	1.1	23.4
Mineral	508,816	10.6	3.7	1.7	1.2	4.0	60.6
Steel carrying	55,279	11.7	4.7	1.9	1.5	3.6	44.4
Others (cattle)	4,989	20.2	2.0	2.0	3.0	13.2	188.6
Containers							
Open	7,309	32.0	6.4	1.6	1.0	23.0	255.5
Covered	18,172	10.8	4.3	1.4	0.7	4.4	68.7
Others	22,815	13.8	4.1	1.4	1.0	7.3	112.3

The next to last column shows the time which is unaccounted for because wagons are standing idle somewhere away from terminals and not in the course of movement. Therefore, this time, expressed as a percentage of the terminal time plus movement time, gives a measure of the gross surplus capacity which exists. Clearly, with a system of the type which we have, and with seasonal fluctuations in load, some surplus is necessary, but surpluses as large as some of those indicated by the figures are clearly excessive.

Other relevant factors are: the changing pattern of traffic, the movement towards more through-train working, the elimination of the poor wagon utilisation at small stations and on branch lines, and the obsolescence of much of the stock. All these reinforce the view that rapid reduction of the fleet should continue. The position will be reviewed as reduction proceeds, but it is expected that at least 348,000 wagons will be scrapped over the next 3 years, with a total annual saving of £10 m.-£12.m. per annum thereafter.

The reductions which were made in 1962, and the position as it will be at the end of 1963, and those planned for 1963 are shown below. The condemnations already decided upon for

1963 can be seen from the following summary, and further withdrawals in the year may yet be decided upon.

SUMMARY OF STOCK POSITION OF WAGONS AND CONTAINERS, 1961-1962-1963

Wagons

Type	Stock at 31st December, 1961	Stock at 31st December, 1962	Anticipated stock at 31st December, 1963	Reduction in 1963 compared with 1961
Open	232,416	191,563	152,466	79,950
Covered	140,043	136,199	134,086	5,957
Mineral	508,816	464,199	416,607	92,209
Cattle	4,989	4,409	2,500	2,489
Steel carrying	55,279	52,221	42,899	12,380
Total	941,543	848,591	748,558	192,985

Containers

Type	Stock at 31st December, 1961	Stock at 31st December, 1962	Anticipated Stock at 31st December, 1963	Reduction in 1963 compared with 1961
Open	7,309	6,782	1,763	5,546
Covered	18,172	17,389	14,200	3,972
Others	22,815	22,364	20,348	2,467
Total	48,296	46,535	36,311	11,985