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A PAPER ON
RAILWAY ECONOMICS

BY
S. C. GHOSE

DECEMBER, 1924.

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~~Checked 1989~~

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December 1924.

S. C. GHOSE.

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A PAPER ON RAILWAY ECONOMICS.

PRELIMINARY.

1. In writing this paper on Railway Economics I have endeavoured to place all sides of the case (*viz.* the public, the government and the railway points of view) as clearly as possible before the public. Whatever might have been or might be my personal opinion I have tried to avoid it to the best of my power, and my one aim has been to make a clear statement of facts and to state each side of the case fully and fairly, so as to leave it entirely to the readers to draw their own conclusions. It is only fair that they should not be influenced by any personal opinion, and ought to be able to form their own conclusions, for this is the best and the fairest way of arriving at a healthy public opinion.

2. In dealing with Railway problems one is first required to consider the question as to what are the functions of railways. This is easily answered for almost everybody knows that railways are carriers of goods and passengers, but the real issue that requires to be settled is what position the railways occupy in the eyes of the public in connection with

the performance of the service they are required to render to the public.

3. There are other methods of transporting persons and their property besides the rail roads, and the point is whether or not railways can be brought under the same category as the other carriers. It is therefore, necessary, to analyse and ascertain what are the main features of difference between rail roads and common carriers. And this has to be clearly explained before one can proceed to deal with the aims, objects and duties of a railway or with Railway operation or Railway management in general. Therefore, let us first deal with the question as to

WHAT ARE THE MAIN FEATURES OF DIFFERENCE BETWEEN RAIL- WAYS AND COMMON CARRIERS.

4. Common carriers of goods by pack animals, bullock carts, horse wagons or motor lorries or of passengers by palanquins, rickshaws, bullock carts, camel carts, horse gharries or by road motors are all engaged in the business of transporting traffic by roads, which are built and maintained by the Government or by public Corporations, such as Municipalities, District Boards or Local Boards, and these roads are open to all, generally free of charge. Common carriers carry on business which may, at any time, be taken up by any one, and similarly given up, at his will, at any moment, without their having to answer to the public or to the Government in any way. A common carrier can charge one fare to one passenger and one rate to one trader, and

another fare to another passenger and another rate to another trader for identically the same service performed perhaps on the very same day. Tramways come almost under the same category as railways and what are now called light Rys. used formerly to be called steam Tramways.

5. Railways carry traffic by roads, which have to be built by, and at the cost of the railways and these roads can only, under ordinary circumstances, be used by the railway which builds it. Another railway may, however, use them by the consent of the building railway and by paying adequate compensation for such use, and further, when one railway uses the road of another railway sufficient and reasonable grounds, mainly in public interests, have to be shown in justification for such use, and even between two State Railways Government sanction has to be obtained before one State railway can run its trains over another State railway. Railways cannot start or give up business at the will of the owners nor can they charge different rates and fares, for identically the same service performed, to two different persons between any two specific points. And above all, railways cannot come into existence without the previous sanction of the Government and without conforming to the rules and regulations laid down by the Government for construction, upkeep, equipment and maintenance of Railways. And the Government or public Corporations acquire private lands, sometimes at the cost of the public, and give them to railways to build

their roads upon. The railways in India that are owned by Companies are given free gifts of land, and this expenditure is met out of the Revenues of the State from railways and the cost of land is not included in the capital expenditure of Companies. In the case of local Government or rather District Board railways, the District Board gives the railways the use of the District roads, on which generally feeder narrow gauge railways are built.

6. Then, again, whereas common carriers are private individuals or purely private bodies, the railways, in many respects, resemble public corporations and have to justify that they are needed in the interests of the public before they can be allowed to come into existence. Although railways make a charge for the service they render, the same as other carriers do, there is a marked difference between the method of charges by the two. The railway rates and fares are regulated by the Government by the fixing of maximum limits, and the railway charges have to be just and reasonable to all and to be the same, for identically the same service performed, between the same points and railways have been for years known as *quasi* public corporations. Therefore, I think, at this stage it is necessary to state more fully why they are so treated, and we will next discuss

WHY RAILWAYS ARE CALLED *QUASI PUBLIC CORPORATIONS*.

7. *Quasi* is a Latin word, which means resemblance, and this word has been placed before the

two English words "public" and "Corporation" and the term "Quasi public corporation" has been used to distinguish Railways from public corporations on the one hand and purely private corporations on the other, and although railways may be owned by a certain number of private individuals, forming into a Corporation or a Company, and may be existing mainly to earn dividends, they are different from ordinary private business concerns in many ways. While it is true that in some respects railways bear close resemblance to private corporations they, at the same time, perform certain services and are given certain rights and privileges, which are similar to those performed by and exercised by public corporations.

8. We all know that from time immemorial the function of providing highways originally belonged to a Government, and this function has been delegated to railways in respect of making rail roads, which are but modern highways of a special character. Further, it is also well known that no Sovereign or Government, in a civilised country, can ordinarily take away the land of one private individual and give it to another private individual, but a Sovereign or a Government can take away lands of private individuals for public purposes by compensating the owners, and, therefore, when lands of private individuals are taken away from them and are given to railways, the latter come to be regarded as public corporations. The railways in a way enjoy monopolist's rights over the road they use. But, on

the other hand, as railways, particularly those owned by companies, are engaged in a business, in which the object is to earn profits for the owners, such railways in their object are not very different from private corporations. So that railways combine in them the functions of both private and public corporations. Public corporations, such as Municipalities, District Boards, Local Boards are all created under charters from or under the authority of a Government, and so are railways. They cannot be created for purposes of carrying public traffic otherwise. Public corporations, such as just mentioned, levy taxes to meet expenses and so do the railways. The only difference is that while public corporations generally do not look to anything more than is necessary to meet expenses the railways (whether State or Company-owned) endeavour to earn more than what it costs them to run and maintain the railways, in order to be able to pay dividends to shareholders (when the railways are company owned), and when State own the railways they try to earn profits to pay the same into the Public Treasury. Railways make charges for services they render and such charges are called rates and fares. Rates are the charges or taxes made for the transport of goods, and fares are the charges levied for the carriage of passengers, and what we have, therefore, to consider now is

WHAT ARE THE VARIOUS FACTORS THAT GOVERN RAILWAY RATES AND FARES.

9. In a paper published in the French language in January 1895, Mr. C. Colson, whose books on railway problems are well known to the railway world, described railway fares and railway rates as duties on traffic carried by passenger trains and as duties on traffic carried by goods trains respectively, and, some years ago, one of the eminent and learned Judges of U. S. A. observed in one of his decisions "that the right of a railway company to demand compensation from a person who uses its high ways for the carriage of goods, in the only way in which it can be used, depends on the language of the Charter." A public corporation receives its Charter from the Government or a bill is passed by the Legislature empowering a public corporation to perform certain services and to levy taxes or rents therefor. Similarly, a legislature by passing a bill or a Government by issuing an authority or by a notification, allows the construction of a railway, and further, either by a special sanction, or by a notification, or an agreement between a Company and the Government, the latter fixes the limits of maximum rates and fares chargeable by each railway for each class of goods and passengers. In some cases, and in some countries, the lowest limit, or the lowest charge a railway can levy, is also laid down, particularly in a country like India where the ownership of the railways is mainly that of the Government, and the railways are leased to companies for purposes of working, and the Government are interested in seeing that the railways are not rendered un-

remunerative by reason of the management charging non-paying rates. Furthermore, the railways are subject to the condition that the railway rates and fares should be just and reasonable and that the railway rates must not create undue preference or subject any particular traffic or a particular class of traders or any individual to undue disadvantage or prejudice. The Railway Acts of various countries generally provide for these conditions.

10. Now in regard to collection of taxes and duties it is the duty of the Government to see that the charges to the public are made with a certain amount of uniformity, combined with equity and impartiality, for it is the highest duty of a Government to see justice done. Distribution of justice, which must be done by the Government, consists in giving to every one that right and equity which the laws and principles of equity require. Ordinarily, and particularly in the case of Company Railways, the right of the Government to control railway rates and fares is thus limited by obligations of justice. While on the one hand, the Government have to see that the railways do not levy such charges as are burdens or are unfair to the trade, on the otherhand, the Govt. have also at the same time to see that the railways are not compelled to quote such rates and fares as would be injurious to their interests. Railways must be in a sound financial condition in order to be able to exist, expand and improve and, above all, to render the maximum amount of service to the public.

11. Now to come to the broad principles on which Railway rates and fares are fixed. A Railway has been called a *quasi* public corporation and let us, therefore, examine and see, for purposes of comparison, what a public corporation does in the matter of fixing its taxes and rents. The field of a Government to levy taxes may be said to be unlimited, but that of a public corporation is limited to the sphere within which it can act under the functions allotted to it by the Government and the latter is the case with railways also. A railway can only levy its rates on such goods as are brought to it for transportation and its fares on such passengers as offer themselves to the railways for carriage. Then, let us examine what are the methods of a Government or of a Corporation in the matter of levying or determining taxes, duties and rents. First and foremost, a Government or a public Corporation has to prepare a budget of the expenses that would be required to run a Government or a Corporation. When this has been done, they have to find ways and means to meet them by levying rents, taxes and duties, and loans are also created for new works or even at times to meet expenses. A railway must also act similarly. Although in the beginning, railways, in some cases, may not be able to pay their way yet they have to accept such rates and fares as would move the traffic, even if such rates and fares do not bring in sufficient money to meet even the bare expenses of running the railway. The expenses may, therefore, have to be met out of temporary loans until

the business of the railway fully develops. The railway working expenses start from the very day the railway is opened for public traffic, and they have to be incurred irrespective of whether they are fully covered by the revenue or not.

12. The object of a railway is to carry as much traffic as it can conveniently and efficiently carry; the more the traffic carried, the greater would be the profit, provided that, taken as a whole, the cost of operating the railway is such as it leaves a margin of profit between the total of all expenses (including obligations on account of interest on loans, depreciation funds, sinking funds) and the total of gross revenues. A railway, like a large business concern, has to attract a large number of customers for the sale of its produce, which is transportation in the case of a railway or rather the space in its wagons and in carriages. And the more such space is sold, the greater is the railway revenue. In order to make more space available, wagons and carriages have to be moved and turned round quickly and the railway rates and fares have to be such as to attract as much traffic as can fill up the space in the wagons and carriages. Now, a railway with a large mileage can run its trains, wagons and carriages for long distances, and greater and continuous the distance, for which traffic is carried, the freight in the aggregate would be ordinarily better, and also larger the volume of business the earnings would be higher still, and, further, the expenses per unit of traffic would be reduced owing to cost of operation being

distributed over a larger number of units. And more the number of passengers in a car and more the weight of traffic carried in a wagon, the cost of carrying traffic will be less as thereby more traffic would be moved by each train.

13. Thus, the first aim of a railway is to reach the widest range of customers, which can be done by carrying persons in large numbers and goods in large quantities, and for long distances, or in other words, by serving the mass by offering cheap rates for such goods as are in every day request or have to be brought from long distances and form articles of necessities of life, and cheap fares for the poorer classes. In the case of long distance traffic, wagons are able, or at least should be able, to run at a stretch for a considerable time, and while the wheels of a wagon are revolving and wagons are proceeding along, with goods in them, it means that for each mile traversed so much more freight is earned per mile. The time occupied in loading and unloading wagons at the despatching and at the receiving stations respectively is the same whether it is long or short distance traffic. When wagons are constantly back at the despatching stations for loading and at the receiving stations for unloading, the wagons occupied with such traffic are not earning revenue most of the time, for in such cases wagons are standing at loading and unloading stations for longer periods in a year with short haul traffic than in the case of long haul traffic. In this connection, however, it should not be forgotten that in India, the special feature of the

bulk of the traffic carried, such as grain and other agricultural productions and coal, is that the goods are conveyed for long distances at cheap rates and as, in majority of the cases, wagons occupied in carrying such traffic have to come back empty one way, after discharging grain or seeds or cotton at the ports or coal at the consuming places, it is not always that a wagon occupied whole time during a year in carrying long distance traffic at cheap rates per unit per mile gives more net revenue than a wagon employed all the year round in carrying short distance traffic at higher rates per unit per mile. It has also to be seen, that railways while attempting to cater for more traffic are not over taxing the capacity of the railway facilities and causing undue delay to traffic and consequently to their wagons. It is necessary to avoid wastage, and delays to wagons mean wastage, which cannot produce beneficial results either to the railway or to the public. All these are principles which are inseparable from commercial concerns. And, therefore, to render the greatest amount of service to the public there seems to be no other alternative but to run railways as commercial undertakings at least so far as their actual operation and management are concerned. The managers have got to see that on the one side they are receiving as much traffic as possible at reasonable rates and that they are carrying traffic efficiently and economically at the same time.

14. When a railway is not getting sufficient traffic but the traffic is there, and is being carried

by roads or by water, it would, at first sight, be natural to infer that the railway rates and fares are not cheap enough and that they should be reduced. It has, however, to be observed in this connection that, in India, for distances up to 40 miles, and 60 miles in some cases, bullock carts can compete successfully with railways, particularly as they can carry traffic from the doors of the sellers to the doors of the buyers. Water transport is very cheap and sometimes, almost non-paying rates will have to be quoted by railways if they want to compete successfully with boats and steamers. In any case, however, when a railway is lacking traffic and can carry more traffic it is necessary to secure additional traffic, especially if it is found that the railway trains are not running full, and that the wagons, carriages, engines, the permanent way of the railway and the staff are not fully employed. In such cases, so long as the traffic carried will come at rates that will pay the cost of hauling the traffic and a little more, it may not be wise to neglect such traffic, but if the existing traffic and the additional traffic combined together and carried at reduced rates produce results poorer than before, i.e. if the nett returns are lower or the same, owing to lower rates having to be charged for the entire traffic carried, then it is not advisable for at least company owned railways to quote lower rates to get the additional traffic, unless such rates are expected to foster and develop traffic in the long run and thus tend to increase revenue and

reduce expenses and produce more nett profit in the end.

15. In this respect the task of the Traffic Managers of Indian Railways has been rendered somewhat easy by the fixing of the minimum limits of railway rates. When the minimum rate was fixed for Indian railways, and perhaps the minimum rate is unique for Indian railways, it was held that the railways of India could not be profitably employed as competing lines beyond a certain limit, particularly as the railways were eventually to become the property of the State and the liability for the capital outlay and for losses was to be that of the tax payers, who would suffer if the railways did not earn adequate return on the capital outlay. It was therefore considered essential to see that the railways did not quote unprofitable rates, and a minimum limit was fixed up to which railways could come down in their rates, and in the case of agricultural productions and minerals, and other cheap goods, this minimum was taken at the then average cost of carrying traffic of all the railways of India taken as a whole, and this cost was at the time about 1/10th of a pie per maund per mile or say 2.72 pies or less than 1 pice per ton of goods carried per mile. A cheaper rate than this will not be found perhaps in any other part of the world, but since then, i.e. since the 1/10th minimum was introduced, coal traffic has even a lower minimum than 1/10th pie, for long distances, inspite of the fact that to-day the working expenses are much higher and the average

sum actually earned for carrying coal does not exceed 2.87 pies for the broad gauge lines and is in many cases below 2.72 pies per ton per mile.

16. The minimum limit of $1/10$ th pie may be taken as more, in some cases, and in others, such as coal, less than the average cost of carrying the total of all traffic.

17. Now to come the problem of reasonable rates. A reasonable rate is neither a high rate nor a low rate. When a railway is in want of traffic, and the traffic is there but is not coming to the railway, then even an ordinarily low rate is not reasonable if a further reduced rate will bring the traffic and with it such additional revenue as will leave a margin for profit though it may be small per unit. On the other hand, if a railway is being run at a loss and is carrying traffic at low rates, which can be enhanced without fear of loss of traffic, then enhanced rates can but be considered reasonable rates, for what is reasonable must be just and fair to both the contracting parties, *viz.* to the public and to the railways. It would be unfair to railways if the public were paying low rates which meant loss to railways.

18. Now, a Corporation or a Government must be just in the aggregate in the matter of taxation, and arrange that the taxes taken as a whole, are not a burden to the people, but are yet sufficient for purposes of running the Corporation or the Government. Whenever there is a surplus revenue, they consider whether such surplus should go towards relief in the matter of taxation or in creating new works that are

necessary for the good of the public. A railway has more or less to do the same. The working expenses having been met, the next item for charge against the balance of the revenue is that for interest on loans, and then, reasonable contributions towards Depreciation and Sinking funds ought to be made before a dividend is declared, for it is not really looking after the interests of the property if a dividend is declared before adequate provisions are made for depreciation and for repayment of loans, and before perhaps a reserve fund is created for substantial improvements etc. Reserve funds not only help a railway to meet emergencies but enable the undertaking to substantially improve its property, and often, to make expenditure on works and measures which would mean eventual increases in traffic and also in gross and nett revenues. Further, the point is whether the nett balance of surplus revenue should go first, particularly in the case of State railways, in granting reductions in rates and fares or in contributions towards railway expenditure in extended facilities. In effect, both mean public good, and what should be done depends upon conditions that prevail at the time and apply to each particular occasion.

19. We may now turn our attention to the principles of taxation by a Government or by a public Corporation and see how the same compare with the principles of railway rates fixing. Taxes and duties are levied either to meet public expenditure or on account of public policy; and taxes are, again, levied on the tax-bearing capacity of the commodity and

of the people. For instance, articles in every day demand that constitute necessities of life may be exempted from duty or subject to a small duty, such as salt, whereas articles of luxury, say wines, silk, etc., may be subjected to heavy duties, and still other goods, which it is thought desirable to have produced in the country, may be protected, by reason of public policy, by so large a tax that it may almost prevent importation. Now let us take another instance; Government land revenue is assessed on the producing value of each piece of land. In agricultural areas, this factor must be taken into account in fixing rents for purposes of Government land revenue. An acre of land producing, or which is only fit for production of, coarser grains, cannot possibly pay that rent which a land producing say good and abundant cotton can. The railway rates are more or less based on the same principle, and commonly amongst railway men and economists the principle of fixing railway rates is known as the principle of charging what the traffic will bear. On the pure basis of cost of transporting the goods the cost of carrying full wagon loads and full train loads of coal would not be much less than cost of carrying full wagon or full train loads of grain. It is true that coal is loaded into and unloaded from wagons by the owners of goods at their cost while grain is loaded and unloaded by, and at the cost of, the railway. Also the care that has to be taken of grain, while in the

custody of a railway, is greater, but it is to be remembered, at the same time, that coal traffic involves a very large amount of work to be done by locomotive engines in connection with supply of empty wagons to and collection of loaded wagons from collieries which are scattered all over the coal fields. Both coal and grain traffic sometimes enable a railway to obtain the same amount of nett weight carried per train and the cost of hauling traffic by a railway consists largely in cost of running its trains, at least this item involves one of the largest items of railway expenditure; and hauling coal trains and grain trains mean same cost in many cases.

20. In India, for instance, during May 1924, on the E. I. Railway, which carries an enormous amount of coal and a comparatively lesser amount of grain and general merchandise, the average nett freight load per train was 479 tons against 495 tons per train accounted for by the N. W. Railway, which carries a much lesser amount of coal than the East Indian Railway but has a big grain traffic. The more the freight load is carried per train the lesser is the cost of hauling traffic per ton of goods. And yet in spite of the fact that at times it may not cost more to carry grain than coal, there is a vast difference in the charges levied in carrying a ton of coal and those for carrying a ton of grain, and the coal rates are considerably lower. For example, for transporting coal for 300 miles the charge of a railway may approximately be Rs. 6/8/- per ton whereas

to carry a ton of grain for the same distance Rs. 11/6/- per ton may be charged; this difference is mainly based on the principle of charging what the traffic will bear but the cost of carriage has also to be taken into account in deciding how low a rate can be quoted. To charge coal at the rate for grain would mean restricting the movement of coal traffic to short distances and this would again limit the consumption of coal. At the same time, if grain was charged at coal rates, or cotton at grain rates, this would involve unnecessary loss of revenue to railways *which could not be recouped in any other way*. Apart from the fact that such a procedure would mean in some cases transferring profits from the railways, which are quasi public corporations, to the pockets of a few private individuals such as middlemen and others, it would have the effect of curtailing the power of the railways to do the greatest amount of public service by the reason of its gross earnings, and consequently the nett earnings also, going down and the money available for expenses, repairs, renewals and improvements becoming less. The price of good coal, at the very highest, may be taken, at pits mouth, at Rs. 16/- per ton, and that of grain (wheat) at the lowest say Rs. 70/- per ton. This being so, there is justification for charging much higher rates for wheat than for coal on the basis of price of goods though perhaps not on the basis of the cost of carriage.

21. Generally speaking, the rates for various

descriptions of goods are considered from the following standpoints:—

- (i) volume of business in a particular commodity.
- (ii) Volume of traffic per consignment.
- (iii) Load obtained per wagon per consignment.
- (iv) Value of the article.
- (v) Continuity and regularity or otherwise of the despatches.
- (vi) Proportion of weight to bulk.
- (vii) Degree of risk attending transportation.

The largeness of the volume of traffic, the greater weight attained per wagon and regularity of despatches generally enable a railway to give lower rates because the cost of carrying traffic is reduced by these factors, but if one goes deeper into the question he would find that the largest quantities of traffic consist of goods which are in every day demand, and at the same time form daily necessities of life of the mass or consist of such articles as are required to render the greatest amount of service to the public. The price of goods is limited by the power of the mass to pay for the goods and thus the traffic demands such rates as would *not* make the cost of transportation (which forms part of the eventual price to be paid by the consumer of the goods) high, or in other words, the cost of transportation added to the price ruling at the place of supply should not make the price at the place of demand high or beyond the power of the consumer to pay.

but at the same time the power of the railways to give the rate required has to be considered.

22. Therefore, after all, the basis of charging traffic comes back largely to the principle of charging what the traffic will bear. Then next, the rates have to be just and reasonable in the aggregate, and, further, the railways are required to see that no particular commodity, person, or trader is penalised and that no undue preference is shown. A railway economist once observed that the price of transportation being dependent on the capacity of the consumer to pay the price the railway rates have more or less to conform to the price and that thus the railways have continually to strive to economise in cost of working.

23. It has already been said that a railway, like a public corporation, must determine what gross revenue it must earn to meet its expenses and obligations, and the railway has, therefore, to estimate the total amount of traffic that it expects to carry, and also the average or aggregate rate which would, on the estimated amount of traffic, bring in the required gross revenue. The next step is to determine the distribution of the total tax (or gross revenue) between the different descriptions of traffic so as to arrive at the aggregate average rate already agreed upon. This manner of determining railway rates is not merely theoretical, because in India in 1898, when the old G. I. P. Ry. Company made wholesale reductions in its rates from Nov. 1898, the gross revenue, the average rate, the rates for various

classes of traffic and various distances, the probable loss or profit in each case were all taken into consideration. As previously stated, like a public corporation or a government, a railway has to fix its rates on the tax bearing capacity of each particular commodity or class of traffic. Then the rates for the respective distances have to be considered; the rate per unit per mile decreases as the distance for which the traffic is carried increases. The cost of transportation begins to increase the total price as the distance becomes more, because the total rate increases with the rise in the distance, although the rate per unit per mile becomes less or has to be made less in order that the traffic for long distances may bear the total charge to be paid on it.

24. While the aggregate rate required to earn the gross earnings (which usually cover the working expenses first, then the interest on loans, next the yearly or half-yearly contributions to the Depreciation, Reserve and the Sinking funds, and then the nett dividend) has some relation to cost of service, it cannot be said that each single rate for each commodity separately has any direct relation to cost of service rendered in carrying a particular consignment or a particular item of traffic between two specific points. A single rate may be more or less than the average cost and the average rate. Each single rate is fixed mainly with a view to secure the traffic for which it is quoted, having regard to the fact that the rate is not unduly low or unduly high.

25. Now it has been observed before that

when a railway is not paying its way the remedy is either to enhance the rates, if they are too low, or to reduce the rates if it is found that the inadequate revenue is due to the railway lacking traffic and to its not being able to attract more traffic at the existing rates. If the present rates on the whole do not meet the expenses, owing to traffic being small, and the railway wants more traffic, and it is ascertained that lower rates are essentially required to secure such traffic, it is imperative that the rates must come down. And the railway has, therefore, to devise means to carry the traffic as cheaply as possible. On the other hand, if an investigation shows that a railway corporation, after meeting its expenses and obligations, has a large surplus revenue and is paying large dividends it then becomes a question as to whether or not a limit should be fixed as to the maximum dividend that should be paid to the owners. In India, in the days of the old guaranteed companies, it was laid down that a higher dividend than 10% was not permissible, and that in the case of a higher dividend being earned than this figure the rates and fares were to be so reduced as to bring down the dividends to the said limit of ten per cent. If however it is seen that a Railway is earning a high dividend *and is at the same time carrying the maximum traffic that it can carry*, then lower rates which must naturally have the effect of stimulating and increasing the traffic, would mean that the increased traffic would cause congestions on railways. In such an event it would be better if the

surplus, over and above what is required to pay the maximum dividend fixed, is spent towards extending the capacity of the railway to carry more traffic instead of revenue reduced to grant lower rates and fares. It is also to be particularly remembered that the capacity of railways cannot be always increased simply by adding more rolling stock; large facilities are required, especially when the traffic has outgrown the capacity of a railway, before more wagons or carriages can be placed on the railway, for wagons and carriages have to be moved quickly, and more trains have to be run before more wagons and carriages can really carry more traffic, or else more wagons and carriages would mean waste of money.

26. Then another point is whether, before repaying the debts or taking measures to accumulate funds to repay the debts, when they become due, it is justifiable or not to reduce rates and fares unless it is certain that the rates and fares require reductions to increase the traffic and the nett revenue, and that this could be effected *within the existing railway facilities to carry the present and the additional traffic*; otherwise any surplus might with advantage be utilised in creating increased Sinking funds to repay debts the moment they become due for repayment, so that fresh debts have not to be incurred to repay the old debts, particularly as sometimes fresh debts have to be incurred at a higher rate of interest than paid on the old debts.

INDIAN RAILWAYS IN PARTICULAR.

27. Before proceeding further to deal with the broader aspects of Railway Economics or Railway management in general it would perhaps be useful if a few words were said about the Indian Railways. The railway mileage of India at the end of March 24 was 38,000 miles, of which 5' 6" gauge represented 18,640 miles, metre or 3' 3 $\frac{3}{8}$ " gauge 15,630 miles, and the narrower gauges of 2' 6" and 2' 0" about 3,730 miles. Further out of this total length of 38,000 miles, the Government owns 27,963, miles of railways. The rest of the railway mileage of about 10,000 is owned by Companies of both Indian and British domicile and by the States of Indian princes. The standard gauge adopted for railways of Europe and America is 4' 8 $\frac{1}{2}$ ", but the Railway Engineers, who originally built the railways of India, wanted to be on the safe side and it was considered by them that a narrower gauge than 5' 6" would not be very safe, especially on bridges and high embankments and curves, during cyclonic storms which were not infrequent in India. In fact 6' 0" gauge was the original idea. In the case of narrower gauges there is more overhanging on both sides of carriages and wagons. We have had within the past 2 years a very serious disaster over a bridge near Bareilly to a metre gauge train during a storm. Of course this might have happened even to a 6' 0" gauge train, but this only goes to show that in their original idea to build

railways on a wider gauge than in European countries, the first Railway Engineers of India were only guided by their desire to ensure the safety of the travelling public as far as possible. This is merely mentioned because of the remarks that are often made that the Railways of India were made expensive owing to the wider gauge originally adopted for them.

28. In India, we have 38,000 miles of railways for an area of 18,02,657 Square Miles against 24,000 miles of railways in Great Britain for an area of 1,21,633 square miles and about 2,60,000 miles of railways in U. S. A. for 30,26,689 square miles. Compared with these two countries the railway mileage of India is much less on the basis of area. The McKay Committee considered that for its vast area India should have about 1,00,000 miles of railways, but the Government of India Railway Department in their evidence before the Acworth Railway Committee said that about 45,000 miles of railways would be sufficient for India to meet the requirements for some years to come.

29. Though the railways of India to-day radiate from the important ports of Calcutta, Bombay, Karachi, Madras, Chittagong and extend throughout the length and breadth of the Peninsula and connect almost every city of importance and every Province, a glance at the map of India will show that there are yet large tracts lying without railways. For instance, in parts of Central India, Central Provinces, Chota Nagpur and in northern

portions of the Madras Presidency there are large areas that require to be provided with railways. There are reported to be rich mineral deposits of coal, manganese and other minerals in such parts and a railway line from Raipur in C. P. to Vizana-gram, near Waltair in the Madras Presidency, and another from a point near Gomoh or Adra to Katni or Jubbulpur in C. P. are railway projects to tap these mineral districts and to open out new areas that are lying unconnected with other parts of India.

30. The recent speech of His Excellency the Viceroy in opening the last October Session of the Indian Railway Conference Association must be fresh in the minds of many and as he dealt with, in a very interesting way, the history of railway development in India it would be more to the point and save time if in this paper the railway history of India was only briefly touched upon. Even in doing so one cannot say much new, for the Gazetteers of India have already sufficient information published in them so that one can only go over trodden ground.

31. The idea of making railways in India is said to have been first officially taken up by the Court of Directors of the late East India Company in one of their despatches to India in 1845, but as peculiar and special difficulties were anticipated in this respect the said East India Company were not very sanguine about railway enterprise in India becoming commercially successful. Grave doubts were entertained about railways being largely utilised for carrying passengers, for it was feared that owing to

caste prejudices the higher caste people would not travel with what are known in India as lower caste people so that railways besides being great unifying agencies were practically amongst the first moves to remove untouchability in India. The railways were originally largely expected to depend on their goods traffic earnings only, but we see to-day that during the last official year ending on 31st March, 1924 out of the total railway-earnings of over 107 crores of rupees over 38 crores were earned from passenger traffic. Then, again, other difficulties were anticipated, particularly in regard to overcoming obstacles such as the big rivers, and their floods. Therefore, railways that were first projected were on a very limited scale and were treated as experimental lines. The experimental railways were of short lengths, *viz.*, from Calcutta to Raniganj (120 miles), from Bombay to Kalyan (33 miles) and Madras to Arkonam (39 miles). The floods of the present year, and the disasters caused by them, and the dislocation of railway traffic and very heavy damages, which the railways in U. P. and in the Madras Presidency have suffered, and the way some of the bridges and portions of railway lines have been washed away, and the danger threatened to the big bridges over the Jumna at Delhi and at Agra, and the Ganges at Cawnpore, only go to show that the fears of the Court of Directors of the East India Company were not altogether imaginary; even to-day, Railway Engineers and Managers throughout India have a very anxious time during the rainy season when the

weather is unusually cyclonic. Repairs to damages caused by such disasters mean heavy railway expenditure and less of nett revenue.

32. In spite of all these anticipated difficulties it was noticed that by 1859, *i.e.* within 14 years from 1845, when the Court of Directors of the East India Company first thought about making railways in India, contracts were made with no less than 8 companies for building 5000 miles of railways in India, and this practically laid the foundation of the railway system of India of to-day.

33. ~~Let~~ us next see why companies were introduced to make railways in India. [Lord Dalhousie's famous minutes of 1853 on Indian railways are known to many in India. He was opposed to the idea of Government building the railways in India, because he held the view that one of the greatest drawbacks to the advance of India in its material prosperity was due to the total dependence on the Government in which the Indian community placed itself, and its apparent utter helplessness to do any thing for itself.] Thus, evidently, the idea underlying this argument was that with the advent of British private enterprise in India to build and work its railways impetus would be given to Indian enterprise to take up the work of making railways. In regard to railway construction Lord Dalhousie said that it was first necessary to connect the interior of each presidency with its principal port, then the several presidencies with each other and, further, he anticipated great social, political and commercial

advantages of constructing railways between the chief cities of India.]

34. [The British private enterprise, which offered to build railways in India, wanted a minimum guarantee of 5% dividend on the capital outlay and a premium of 20 to 25% over and above the share value of their investments, at the time of Government purchase of the railways, and, further, Government supplied land, on which the railways were to be built, free of cost,] and also land for excavating the earth for making up the railway embankments, over which the railway lines were to be laid, as well as land for providing clay for manufacturing bricks &c. [It must be remembered that in those days the knowledge of how to build railways was meagre and confined to a few firms in Europe—India had no trained contractors or engineers versed in railway construction. Therefore, the private enterprise, who built the railways in India, had to import from Europe not only engineers but trained supervisors of the foreman and overseer type and skilled labourers. The Government reserved to itself the right of purchasing the railways after a certain number of years, and this purchase money was mostly paid by the Government by annuities which were to run for several years.) These annuity payments on account of railways, that have been purchased by the State, had, hitherto, along with the interest payable thereon, been met out of the railway revenues of the Government of India. [In some cases cash payments were made, and the money required for such payments

were raised by loans, by the Government, both in India and in England. The first railways purchased by the Government were the East Indian Railway in 1879, the E. B. Railway in 1883, the Sindh Punjab and Delhi Railway in 1886, and so on, and the acquisition of the present State owned railways was completed in 1907, but, in most cases, they were given back to new companies, formed out of the old companies and the new companies became lessees for working the railways and were part owners at the same time. Their investments in such railways, as were leased to them, was comparatively small and they were given a lower rate of minimum guaranteed dividend than 5% viz., 3 to 4 per cent on their share of the investments in the railways, but were allowed a share of the surplus profits, when there were such profits available, after meeting all the liabilities and charges against railway revenue. This share of surplus profits of the companies was small and to earn it the railways had to strive a great deal to increase their revenue and to economise in their working expenses.

35. It may be useful to go back a little in order to mention here that, before even the first company railway was acquired by the Government of India, there was, for a time, a change in the attitude of the Government of India in the matter of construction and management of railways by companies, and also in connection with the gauge to be adopted in their future construction, particularly in cases where a railway would not pay an adequate return if con-

structed at a higher expense on broad gauge. [In 1869, Lord Lawrence, the then Viceroy of India, strongly recommended that the State should construct and manage its railways.] He observed that under the then existing policy the State had to take up all the unprofitable lines for itself, and give all the profitable lines to private companies, carefully guarding them, however, at the expense of the State, against any possible loss, whether from their own negligence or not; and he strongly recommended that the Government should construct and manage the railways.

36. Thus in 1870, the Government of India had embarked on the policy of making new railways by the State, of managing them by State agencies and of making more railways on metre gauge. In 1872, the railway mileage open for traffic was 5,369 miles of which 5,325 miles were on broad gauge and only 17 miles on metre gauge and 27 miles on narrow gauge, but by 1877 the broad gauge mileage rose to 5,752 miles, or by 427 miles only, but the metre gauge lines had a mileage of 1,521 miles in 1877 against only 17 miles in 1872. The metre gauge lines were up to that time mostly made by the State. The British Parliament did not, however, accept the continuance of Lord Lansdowne's policy of State construction and management and decided in favour of Company management although they kept State ownership of railways. The main reason advanced for adopting this policy was that the superior fitness of the joint stock companies would so improve the

income of railways as would prevent any important loss of revenue or of profits that were to be reserved for the State. Lord Ripon was the Viceroy of India at the time, when the policy of Company management of State lines was advanced, and he agreed with the views of the British Parliament. And with this change in policy again, even railways that had been constructed by and were being managed by the State were given over to Companies for working, such as the Rajputana Malwa Railway, from Delhi and Agra to Ahmedabad and from Ajmere to Khandwa, was made over to the B. B. and C. I. Railway Company for working, the Tirhoot State Railway to the B. & N. W. Railway Company and so on.

37. After purchase of railways by the State, and the introduction of the policy of State ownership, but with Company management, the burden of providing greater portion of the funds for railways fell on the Government. The occurrences of repeated famines from 1874 to 1879 and the continued fall in the gold value of silver made it necessary for the Government to restrict its expenditure on railways and the sum to be borrowed on railway account was limited to 2 crores a year, and a portion of the Famine Insurance grant, when not required for famine relief purposes was spent on productive or on famine preventive railways. In 1883, the financial condition of the Government was said to be better and it was agreed that borrowings on railway account might be increased to 3 crores annually. But the Panjeh

incident in 1885 led to construction of strategic lines in preference to productive railways with the result that the railway revenue did not increase in proportion to the expenditure. Then by 1892-93 the continued fall in exchange again affected the finances of the Government of India and, in order to relieve the Imperial Budget grants on railways, Companies were again invited to make railways in India either on 3% guarantee or by a system of subsidy. The latter or the subsidy was paid in this way. Suppose a new line was to be made, the promoters were offered a maximum subsidy up to the limit of 50% of such gross revenue of the trunk railway (to which the new line was to be a feeder) as was to be derived from the carriage of such traffic as the trunk line got from or sent to the new line, and this subsidy was to be paid, if necessary, to make up a dividend of 5% on the capital outlay of the new line. But if 50% of the gross revenue of the trunk line derived from the traffic interchanged with the new line, *plus* the nett receipts of the new railway itself did not make up 5% dividend or even 1% dividend to the new line nothing further could be done to help the investors.

38. Then the Indian States or the Indian princes were invited to assist in the making of railways for India, both inside and outside their territories. They made some railways themselves particularly on metre gauge, in which the ownership was theirs. In some cases such railways were managed by the respective owners and in other cases the several states formed a Coalition Board of manage-

ment for their railways or made over the railways to the trunk lines for management. Also some states lent money to the Government of India to assist towards the making of railways in India, at a fixed rate of interest, but the States had no other interest in such railways. The States also gave free gifts of land to railways, whether made by the British Government or by Companies, when such railways passed through their territories. In future, however, the various States and their subjects may have to be compensated for any land they give to railways that do not belong to them.

39. Relief afforded in this manner for railway construction was no doubt useful, but not very substantial, and the Government had to depend mainly upon its own resources for railway expenditure, but during 1895-99 famines, frontier troubles and fall in exchange again checked railway progress. But towards 1901, and say until 1906, the Government was able to find money for Indian railways on a better scale and in 1905-06 the railway grant for one year was $12\frac{1}{2}$ crores of rupees. }

40. Owing to the funds for railways being largely dependent on Imperial Government Revenues and on Govt. loans and, further, as the Imperial Revenues had to meet expenditure on so many other accounts the railway expenditure, though from time to time satisfactory, was never very large. Some years ago it was agreed that the railways should spend 10 crores a year on capital account but money was seldom, if ever, found upto this figure. Then,

during the Great War, the railway property was not attended to properly, due to want of funds and materials, and, on the top of this, the railways were worked to their utmost capacity to carry abnormal traffic and had to send whatever materials, rails, rolling stock they could conveniently spare for war requirements beyond the seas. The result was that after the war was over, the railway property was in a very bad state of repairs and renewals and a sum of 150 crores was sanctioned to be spent from 1922-23 on railways spread over a period of 5 years. The money was largely raised in England and the great bulk of it is to be and is being spent in rehabilitation of the existing lines, in extending the facilities of transport in the way of more tracks, sidings, stations, rolling stock, better yards and also in making such new railways as would bring in an immediate and an adequate return on the capital outlay.

41. The railways of India, during, say, 1905 to 1914-15, paid, on the whole, well, and although during the great war the nett returns were good, it must be remembered that, owing to repairs and renewals not having been carried out to the extent they should have been, the seemingly good returns in reality did not mean that gain that they showed. And as the expenditure after the war had necessarily to be high to meet overdue repairs and renewals, and there were heavy increases in the price of materials and in wages and, consequently, the railway expenses went up, and there were for a time very small nett returns,

and the proportion of working expenses to gross earnings rose considerably higher than before. This position demanded certain enhancements in railway rates and fares, because this was the only means of increasing the revenue because rates and fares could not be lowered to attract more traffic as the railways could not carry any more traffic and the working expenses had become high.

42. The nett balance outstanding on account of liability and debt incurred for purchase of railways from the original companies was about 183 crores of rupees at the end of official year 1922-23, and the money supplied by the Government direct for expenditure on state owned railways and on state acquired railways, after their purchases, was more than 440½ crores, so that the total Govt. liability was nearly 623½ crores of rupees at the end of 1922-23. Even out of the Government direct supply of money of 440½ crores there are large sums raised by loans in India or in England. And this liability will increase for the next few years, and it will be some years before the capital of all the State railways is paid up. The railways in India are, however, again showing signs of revival in their business and income, and it is to be hoped with the improvements in facilities that are to be provided in the near future and economy in working, the nett railway revenue will substantially improve.

43. Indian railway rates and fares are said to be cheap. The Railway Board in their Administrative Report for 1922-23 showed that while the

average fare per mile for the cheapest travel in U. S. of America was equivalent to 18.7 pies that in India was 3.8 pies and that while the average goods rates in U. S. of America was 6.7 pies per ton mile that in India was 6.1 pies per ton mile. It does not perhaps serve a very useful purpose to draw such comparisons because the conditions of the two countries are not identical. Comparisons are only useful when they are alike in every way. American writers on railway subjects and American Economists in speaking about the railways of U. S. A. very openly say that the railways there cater for a wealthy nation and that in U. S. A. any increase in railway business is expected largely from improvements in comforts, luxury and speed of travel, rather than from reduced fares. And Acworth (Sir William Acworth of the Railway Committee of India) in his book on Elements of Railway Economics observed some years ago that in a poor country of great distances, fares must be very low or very few passengers could afford to travel. As regards goods traffic, however, in some respects Indian traffic conditions are similar to those of U. S. A. in so far as carriage of agricultural productions and minerals in large quantities is concerned. India is supplier of food stuffs and cotton to Europe and so is U. S. A., but in addition U. S. A. exports its manufactured products also, such as iron and steel and other goods, which is not the case with India. It is, also, unfortunately a fact that in India the middlemen—and not the agriculturists—profit largely from low goods rates. The agriculturist has

to part with his goods the moment they are ready for the market, and he cannot wait for better prices for his indebtedness to the money-lenders is great and he has hardly got any savings to enable him to fall back upon them while waiting for the prices to rise, and, generally, the tendency of the buyers or middlemen is to try to reduce the prices as far as possible, unless there is scarcity of food stuffs and the demand for them both in and out of India is great. If, however, the agriculturist could afford to wait and was able to do so, he would get a better price not infrequently.

44. Next to deal with the question of comparison between rates of railways of different countries or of rates of railways of the same country but with different traffic and working conditions. Any comparison between the rates and fares of one country's railways with those of another country's railways does not throw much light. Even between 2 railways of the same country the traffic conditions sometimes differ very greatly and the average rate is more or less governed by the nature of the traffic carried, for the rates for various descriptions of traffic must differ necessarily for reasons previously stated. Let us for purposes of practical demonstration take the case of 2 Railways of India. We see that during the years 1922-23 and 1923-24 the average goods traffic rates of the East Indian Railway were 3.95 pies per ton per mile and of the B. N. Railway 4.38 pies against 6.41 pies per ton mile of the North Western Railway Commercial Section,

6.89 pies of the G. I. P. Railway and 8.39 pies per mile of the B. B. & C. I. Railway, broad gauge section. Now let us first take the two extreme cases viz. those of the E. I. Railway and of the B. B. & C. I. Railway, broad gauge, that is, the lowest and the highest, and see if the B. B. & C. I. Railway rates are really more than 100 per cent. greater than those of the E. I. Railway, as the average rates of the two Railways at first sight seem to indicate. The traffic of the East Indian Railway was the largest in Coal; during the official year 1923-24 this Railway carried one hundred and six lacs of tons of public coal traffic (106,10,100) tons but the weight of all other articles of merchandise carried for the public was only 55,85,000 (or say 55½ lacs of) tons. Compared to this, the B. B. & C. I. Railway carried only 4,11,000 (4 lacs of) tons of Coal and 34,09,000 (or thirty lacs) of tons of other goods traffic. Whereas on the E. I. Railway, Coal constituted by far the largest bulk of its traffic, the Coal traffic of the B. B. & C. I. Railway was small. The highest figure attained by Coal traffic on the B. B. & C. I. Railway was 6,88,000 (6 lacs eighty-eight thousand) tons and that was in 1917-18. The rates for Coal are the same over all the broad gauge or rather all the state owned broad and metre gauge railways of India, and the average coal rates of the B. B. & C. I. Railway and of the E. I. Railway were, say, 2.80 and 2.42 pies per ton mile respectively, thus showing that so far as Coal traffic was concerned, the average rate of the B. B. & C. I. Railway was slightly lower than that

of the E. I. Railway. This is due to the B. B. & C. I. Railway traffic in Coal having had to be hauled for long distances from the Coal fields of Bengal and Behar, and naturally the rate per ton per mile decreased as the distance increased and the B. B. & C. I. Railway's average rate on Coal traffic was in effect slightly lower than that obtained by E. I. Railway, on which latter Railway a good proportion of the Coal traffic was for comparatively shorter distances from Collieries.

45. The average rates for general merchandise, when taken separately from Coal, were 6.96 pies per ton per mile on the E. I. Railway and 11.20 pies per ton mile on the B. B. & C. I. Railway. This big difference against the B. B. & C. I. Railway was almost entirely accounted for by the fact that B. B. & C. I. Railway's earnings under the head general merchandise were to no small extent derived from its Cotton traffic, on which much higher rates are charged than on, say, grain, pulses, oil seeds or sugar, in which items the traffic of the E. I. Ry. was far greater than in cotton. Of the total earnings of the B. B. & C. I. Railway from general merchandise, other than Coal, amounting to over $3\frac{1}{2}$ crores of rupees in 1922-23, the Cotton traffic accounted for no less than $88\frac{1}{3}$ lacs of rupees or over 25 per cent., whereas in the case of the E. I. Railway out of its earnings, from merchandise traffic other than Coal, of nearly $5\frac{1}{3}$ crores of rupees, its revenue from Cotton traffic during the same year, 1922-23, was but $5\frac{1}{2}$ lacs of rupees or slightly over 1 per cent. of

the total earnings from general merchandise other than Coal. Even taking the cases of the two Bengal lines viz. the Bengal Nagpur and the East Indian Railway whereas the average coal rates were very nearly the same over both, the average rate on General merchandise traffic was lower on the B. N. Railway than on the E. I. Railway. The B. N. Railway rate was 6.53 pies and the E. I. Railway rate 6.96 pies per ton mile in 1923-24 and 6.60 and 6.98 pies per mile respectively in 1922-23. The B. N. Railway rate was lower because of the reason that out of its total merchandise traffic of 42,28,000 (or 42 lacs) of tons in 1922-23, the weight of metallic ores was 13,34,892 (or 13 $\frac{1}{3}$ lacs) of tons or say, 30 per cent. and on this particular traffic, which was carried principally to the Iron and Steel Works of Tatas, of Martin & Co., and Burn & Co., very low concession rates are charged, which rates might be called by some to practically amount to subsidy to indigenous industries. Now during the same period (1922-23) the East Indian Railway's traffic in metallic ores carried at such cheap rates was but 2,241 (or say, two thousand) tons or practically a very insignificant quantity. It will thus be seen that the high average rate of one railway does not show that it is charging higher rates for the same description of traffic than a Railway showing lower average rates.

46. What one has really got to consider in connection with determining the power of a railway to grant further lower rates is the power of the railway to earn a fair nett return after granting the reduction

in rates contemplated, and, in this connection, the working expenses, the existing gross earnings, and the Capital invested in the railway have all got to be taken into account. With the increase in traffic, which a reduction in the rate ought to bring in, the nett return ought to improve and this factor cannot be overlooked so long as railways are treated as dividend earning concerns. At the present moment, there may be the tendency to ask for substantial reductions in railway rates for commodities like Coal or, say, grain and thus it may be useful to examine the position of some of the Railways. Of course, if the traffic is expected to rise by reductions in rates, or is to be carried in the direction in which wagons are returning empty and, above all, if the existing traffic and the additional traffic taken together and both carried at reduced rates would bring in a better nett revenue on the capital outlay than at present, then reductions in rates would most certainly be to the advantage of the owners of the railways. If the reduction in the rates brings in only a certain amount of increased gross revenue by creating additional traffic, but with it no additional nett revenue, because of the reduction in rates diminishing the revenue, previously derived on the traffic then carried at higher rates, and, of greater cost of carriage of the total traffic (old and new added together), then a reduction cannot be to the advantage of the owners, and these points require very careful consideration especially at a moment when the Indian Railways are just recover-

ing from a period of depression, mainly due to high working expenses caused by conditions, some of which are temporary while others are permanent, such as increase in wages and cost of some of the materials which are higher than before the war.

47. We may expand our explanation a little further. For instance at the end of the official year 1923-24 we find the Capital outlay, gross revenue, the working expenses and the nett return were as follows in respect of some of the Railways *viz.*, the E. I. Railway, the B. N. Railway, the G. I. P. Railway and the commercial section of the N. W. Railway :—

	Capital Outlay.	Gross Revenue.	Percentage of working expenses to Gross Revenue.	Percentage of Nett re- turn on Capital Outlay.
	Rs.	Rs.		
B. N. Railway ...	60,83,65,000	7,82,69,000	65.40	4.45
E. I. Railway ...	99,45,07,000	16,67,74,000	60.30	6.60
G. I. P. Railway ...	103,85,83,000	15,01,98,000	66.78	4.80
N. W. Railway's Commercial section as distinguished from the Military Section.	91,79,85,000	15,43,46,000	65.89	5.74

Dividends of 4½ per cent. and over, for Railway concerns are not low, and in any other country, or even in India, if the liability on account of Capital outlay and debts had not been large, they would be regarded as satisfactory, but as already shewn there yet remained at the end of the year 1922-23, on account of Indian Railways owned by the Govern-

ment, 183 crores of rupees to be redeemed on account of liability and debts incurred in purchase of its railways from the original companies and, further, as out of the direct expenditure incurred by the Government of 440 crores of rupees up to end of March 1923 large sums were raised by loans outside of India, it would not be a very wise thing to reduce the railway rates if they are to diminish the nett returns in any way. Economy in railway working is necessary to reduce the cost of carriage by increasing the capacity of the railways to carry more traffic, and also to convey more traffic per wagon and per train, and to turn round wagons quickly in order to enable the Railways to get more work out of its wagons, and it is only when such economy has been attained and working expenses are reduced that reductions in rates can safely be made.

48. For purposes of examining the present position of railways, we may take the case for instance of the G. I. P. Railway, and let us see whether it would be advisable to reduce the rates for Coal on this railway in order to carry a much larger traffic in coal all the way by railway routes from Bengal and Behar to the Bombay Presidency. The Capital expenditure of the G. I. P. Railway was rather high owing to the difficult nature of the country traversed by that railway. It has not only to overcome the western ghats but the grades of this line for most portions of its length are rather steep and both these reasons again cause the working expenses to be higher. In 1920-21 the G. I. P. Railway carried

53 lacs of tons of general merchandise and, say, $16\frac{1}{4}$ lacs of tons of coal and the total weight of public traffic in goods carried by this railway was 69 lacs tons. In 1920-21 the G. I. P. Ry. ran 1,21,67,000 goods train miles and each mile of train run means expenses. In 1923-24, however, it was noticed that while the G. I. P. carried 57 lacs of tons of public general merchandise or 4 lacs of tons more than in 20-21 it carried only $9\frac{1}{2}$ lacs of tons of coal in 23-24, and the total weight of public goods traffic was, say, $66\frac{1}{2}$ lacs of tons in 23-24 against 69 lacs in 1920-21 so that its total weight of all public goods traffic carried in 1923-24 was less by 6 per cent. only than in 1920-21, but the coal traffic was less by 34 per cent. (viz. $9\frac{1}{2}$ lacs tons in 1923-24 against $15\frac{1}{4}$ lacs in 1920-21)—First of all in spite of 6% reduction in the total weight of goods traffic the Railway earnings were more owing to greater amount of better paying traffic in general merchandise being carried (viz. 57 lacs of tons in 1923-24 against 53 lacs of tons in 1920-21) at naturally higher rates than for coal. But what is most striking is that with the decreased, or rather substantially decreased coal traffic, the working expenses of the G. I. P. Railway per unit carried were less, and this was most evident in the large reduction in the goods train miles. The total goods train mileage of the G. I. P. Railway in 1920-21, when a large amount of coal was carried by that line, was, as already shewn, 121 lacs of miles but in 1923-24 the total goods train miles were but

77,20,000 (77 lacs) or less than in 1920-21 by 36 per cent., with an almost corresponding reduction in its coal traffic. Of course, the G. I. P. Railway wagon loads and train loads were better in 1923-24 and this, to a certain extent, accounted for lesser train mileage, but it is to be noticed that the loads were better inspite of lesser coal carried. The reduced train mileage was also due, to some extent, to the reduced coal traffic, which involves heavy empty running of wagons to the coal fields after discharging their cargo. It is true that the cotton and the grain traffic of the G. I. P. Ry. also mean empty running of wagons but not to the extent the coal traffic involves. The average distance for which coal was carried was 380 miles on the G. I. P. Ry. in 1923-24 against 297 miles, the average distance for which other merchandise traffic was carried. Naturally, therefore, for every wagon load of coal carried, the wagon had to be hauled back empty over the G. I. P. Railway alone (leaving aside the empty haulage over the E. I. R., the B. N. R. and in some cases over B. B. C. I. Ry.) for nearly 83 miles more than in the case of other merchandise traffic, in order to return the wagons to the loading points to be utilised again for loading. This means extra expenditure in hauling empty wagons used for coal traffic for a greater mileage, that is really non-paying mileage. It is also seen that the loads of trains and wagons did not diminish, but increased inspite of reduced coal traffic. This was due to the fact that the full pressed cotton traffic of the G. I. P. Ry. and

the grain traffic are carried in wagon loads and in full trains also. Further the average rate earned by the G. I. P. Railway on coal was 2.62 pies per ton against 9.0 pies per ton earned from other merchandise traffic. This high rate on latter traffic was entirely due to its very big cotton traffic. But for these rates on cotton, the position of the G. I. P. would be worse.

49. The highest earning which the G. I. P. Railway ever received for carrying coal traffic was in 1918-19 when it got Rs. 1,12,20,000 by carrying coal to the extent of 20,77,000 (20 lacs of tons), but on the other hand, we see that during the year 1922-23 for carrying only 4,90,000 (or say, 5 lacs of) tons of cotton the G. I. P. Ry. earned 1,88,00,000 (Rs. 1 crore eighty-eight lacs). Taking even its grain traffic, which pays lower rates than cotton, but much higher rates than coal, it is observed that for carrying 9,31,473 tons of rice, wheat and other grains in 1922-23 the G. I. P. Railway earned one crore and 32 lacs whereas for carrying about the same quantity of coal (9½ tons) it earned but 47 lacs. So that until the capacity of the G. I. P. Ry. increases, and the Railway can effect economy in working and can turn round wagons more quickly, carriage of extra coal traffic at further reduced rates involving increased train mileage would certainly mean increasing the working expenses with probably reduction in nett earnings, especially if coal traffic gets preference over other traffic, as it did in the past. Such a thing cannot be conducive to the owners of the G. I. P.

Railway, who are after all the Indian tax payers. By these observations it is not meant that the G. I. P. Railway must discourage the coal traffic; far from it. What is meant is that the G. I. P. Ry. must treat all traffic fairly and not give preference to coal traffic over other traffic, particularly food grains, and at *the same time it must see that it gets such remuneration by carrying increased traffic as, on the whole, would give such a nett return as would be more than that earned now or else it would mean carrying traffic at a lesser nett profit i.e. at a loss compared with existing earnings.* It would also be unfair to try to recoup the loss on coal traffic by increased rates on other goods or by delaying reductions in such passenger fares or in such goods rates as may otherwise be considered necessary.

50. What has been said so far, has been said in the interests of the railway and its owners, who are mainly the Indian tax-payers, but there is the other side of the case too. The country may require assistance in the matter of reduction of prices of indigenous Coal or Steel or may want to equalise the prices by levying duties on imports in order to be able to place the indigenous productions on a footing of equality, as regards prices, with productions of other nations in the same market. But the point is whether such assistance or part of such assistance should come from the railways. If the railways were treated as pure public works and were existing simply in order to render service, irrespective of financial results to the Govt. from its railway

property, it would not then perhaps be unfair to expect the railways to come in with reduction in rates, which might act in the way of subsidy to the indigenous industries of the country. But it is very questionable whether the Indian Railways are yet in such a position as to be used as public works to render service irrespective of reduced nett profits, especially having regard to the fact that the liability of the Indian tax-payers in respect of redemption of the capital of the old companies, from whom the railways were purchased originally, and also in connection with loans incurred out of India, and the interest yearly payable on such loans, are yet heavy. All these liabilities will have to be met out of the railway revenues of the Government, and, further, we have also to bear in mind that the cost of improving the present railways and of building further railways in areas hitherto untapped by railways has also mostly to come out of borrowed money; the principal and the interest in all such cases will have to be paid also out of Railway revenues.

51. Thus in connection with reduced goods rates there may be some difficulties at the present moment, but there may not perhaps be such difficulties in connection with passenger fares for long distances. As the number of carriages increase more accommodation will be available and, when this is so and when more passengers can be carried, without over-crowding, and with reasonable comfort, it may be useful to grant reductions in fares for long distance travelling, particularly as it is seen that the

longest average distance for which third class passengers are carried over any one railway is less than 60 miles. This is due to great preponderance of short distance travellers, and the great bulk of them are those who previously used to travel on foot or by other methods of transportation. With the majority of third class passengers yet for short distances, it will not mean reducing the present earnings of a railway in any way if it granted reduced fares for passengers travelling for distances in excess of those for which great majority of passengers travel today. By such encouragement to long distance travelling both the public and the railway revenue will be benefitted.

52. Having so far dealt with the Indian Railways and the peculiar conditions which affect them, we shall now return to railway economics in general, and our next subject will be the position of State Railways in their relations with the public.

POSITION OF STATE RAILWAYS

53. Whereas Company owned railways exist and work with the main idea, on the part of the owners, to earn dividends (although in doing so they may often give a better service than what State Railways can or do give) the State Railways, it may be argued, ought to exist as great public works and offer the cheapest possible rates and fares. A State, which is solvent and can meet all its expenses from sources other than the railway revenue, might afford

to treat and use its state railways in the manner just indicated on the strength of the fact that the direct and the indirect benefits of railway communication, apart from the revenue which a State may derive from its railways, are many. The value of land, the trade, the industries and agriculture all increase with the advent of railways, and the benefits to the society and to the State through railways are no small. A railway is the greatest of all unifying agencies. And these gains may be said to more than counterbalance any sacrifice of Government railway revenue. A European economist had once pointed out some thirty years ago that "it had long been recognised as proper that improvements and constructions of the vast net work of roads and high ways, which cover a country, should be paid out of public funds and that the use of them should be gratuitous," and after saying this he had emphasised that "the State railways would doubtless be placed on the same footing once their capital was paid off." This ideal in regard to State railways has, however, never been reached, so far, in any part of the world at least to my knowledge, and it is very doubtful whether it will ever be practicable. When a Government is in need of money for public expenditure and has to relinquish heavy debts incurred on account of railway construction, irrigation and for other public purposes, State railways must earn money for the public treasury.

54. In connection with large and continuous public debts, for the *substantial* relinquishing of

which there may be no great chances in the immediate future, it was once said that it was a doubtful point whether any present generation enriched the posterity by making them responsible for loans and interest thereon on a very large scale. The inheritance of an encumbered property is not regarded as a very great blessing. And thus it is somewhat debatable whether any Government or public Corporation or a State Railway would be right in utilizing any present surplus revenue in order to afford relief in the matter of present taxation or in reduction of existing railway rates and fares in preference to its duty to create Sinking and Reserve funds, especially for repayment of loans, unless reductions in rates and fares are intended to increase the nett railway revenue in the immediate future. And it is also a point for consideration whether or not further railway constructions on a large scale out of borrowed capital should be left for achievement by the posterity, the present generation concentrating its energy on finding ways and means to carry on the present works and to repay the debts already incurred, if they are very heavy. But on the other hand, there is, however, one very important point that also requires to be mentioned in this connection. When a railway has a debt which is producing an appreciably higher nett receipt than the interest paid on it, it would appear to be to the advantage of a railway and of the country, and of the coming generation also, to let such a debt stand over until

its repayment is due or is claimed. Cheap money, if available at any time and can be had on loan for a long term, is most useful to create works that would bring better nett returns than the interest paid on it, because even if the earnings derived from the works, *provided out of such loans*, are solely used to pay interest on the loans and in creating a Sinking Fund to repay the principal, such debts are distinctly for the benefit of a country and its people. Even foreign money, if it is cheap and involves no control and can be had on loan, is not a thing to be despised. Of course indigenous capital is the best if it can be had at reasonable rates of interest. This point will be touched upon more fully towards conclusion of this paper.

55. Further, when the debts are heavy, very great care is necessary in sanctioning construction of new railways and additions and improvements to the present railways. In fact, this is most important to be observed in all circumstances. Before any work is sanctioned its necessity in public interests must be established; then it has to be seen whether such work requires immediate execution or may be deferred. And when both these issues are answered in favour of an early execution of the work then it has to be examined what additional nett return such work will bring to the railway. And unless the work is such as cannot be delayed in public interests it should not be undertaken until it is proved that the additional money that it will bring in will be a source of extra nett revenue and more than cover the interest

on the money spent. If a railway is a company line this last point will have to be settled first and foremost, but with a State and its railways public interests may, sometimes, demand railway expenditures which may not bring in a direct commercial return on the investment.

56. Then any railway construction or improvement involves a larger expenditure, than actually required for its execution, if the construction is started and goes on for some time and then the works are stopped for want of funds. This was one of the difficulties which the Railways of India had to contend with in the past, owing to railway expenditure and improvements on old and new lines being dependent on annual government grants or funds available yearly for railway expenditure. A work started and left half finished for sometime and then taken up again means a heavy waste and, consequently involves a higher expenditure than is really necessary to finish the work. Such inflated capital expenditure must also affect the nett railway earnings and the power of the railway to grant reduced rates and fares. But if the Railway Finance is separate and there are adequate and cumulative funds for railways such a state of affairs would be avoided as no work would then be started unless the Government of India Railway Department was sure of funds for its finish, for the supply of which the Railway Department themselves would be responsible and would not be dependent on the

general finances of the Government. We will come to Railway finance later on.

DIFFERENCE BETWEEN MANAGEMENT OF STATE LINES AND COMPANY LINES.

57. So far as management of railways is concerned it was said that in India there was not much difference between the State worked and the Company worked lines. The Government Railway Officials, the Railway Board and half the members of the Acworth Railway Committee said that so far as efficiency of working went there was not much to choose between the Company worked State lines and the State worked State lines of India. But the Indian public wanted State management of State lines, and one of reasons assigned for this demand was that the State lines ought generally to aim at affording the greatest amount of service to the public, whereas the Company lines worked mainly to earn dividends. State railways, if economically run, should be able to earn profits, and they could forego the profits, or at least a share of it, and utilise the nett returns in granting extended facilities or reduce the nett profits by granting cheap rates and fares provided that the finances of the Government were sound. The German and the Belgian State Railways, before the war, were said to be no unimportant factors in assisting development of industries of those countries. In fact, it was asserted that the German State Railways so regulated their tariffs as to encourage

their home industries against importations of foreign goods. But on the other hand, we have also the examples of the Company lines of Great Britain and of U. S. A. They render first class service, and are, at the same time, effectively controlled by the Government in the matter of rates and fares, public safety and facilities to the public, so far as justice and fairness and laws of equity and public interests demand such control. About 35 years ago in an article on "American Railways and British Farmers" (in which article it was pointed out that the American Railways, by reason of their opening out that country fast and developing agriculture, had indirectly affected the British farmers by placing American products on a large scale in the British market) it was pointed out as follows:—The rail roads of the United States were the prime factors in enabling the people of that country to overcome the losses of the Civil War and in enabling the Government to resume specie payment and in establishing prosperity on a sound basis." The British and the American Railways are the finest examples of what private railways can do for a country.

58. But, on the other hand, it was argued in the past that while State railways would strive to carry maximum of traffic at minimum of profit, the Company lines would want to carry minimum of traffic at maximum profit. And it was pointed out, some years ago, that while the Government, whose chief object in building the railways was to give the mass the full advantage of railway travelling and

railway transport, would like to see that the people were enabled to use the railways to their utmost by grant of the cheapest rates and fares possible, the railway companies would aim at making as much profit as possible out of the railways. And those who held these views showed by way of illustration, that to earn a sum of say Rs. 30/- per mile a Company might want to carry only 2,000 passengers at 3 pies per mile whereas the Government would be interested in carrying 3,000 passengers at 2 pies per mile to earn the said sum of Rs. 30/- (or 5760 pies). The gist of this argument was that if a Company could earn a given sum by carrying 2,000 passengers it would be against its interests to carry 3,000 passengers, and thereby incur the expenses of carrying extra 1,000 passengers, to earn the same identical gross receipt, as this would mean reducing the profits of the Company by their being required to meet the cost of carrying additional 1,000 passengers. It was also observed that the Government (which was first and foremost interested in rendering service to the public and, only secondly, in making profits from railways) would naturally want to see the largest number of persons carried at as cheap fares as can be levied without, of course, rendering the railways a source of burden to the tax-payers. There is no doubt a great deal of force in this argument. A reply came to these arguments. It was observed that high rates and fares and high profits were not always synonymous and that as larger the amount of traffic was carried the greater

would be the amount of profit to the railway, and that since a small profit per unit, repeated several times on a larger amount of business done, brought in the best results to a concern in the long run than higher profit per unit on a smaller volume of business done, it was distinctly in the interests of a railway company to attract the largest amount of traffic by such rates and fares as would attract that traffic. Therefore, it was argued that as big traffic could not be secured without reasonably cheap rates and fares it was but natural to expect that the Company lines would always quote reasonably low rates and fares in their own interests. It would of course be possible for State Railways, if they were economically run, to give cheaper rates in case the Government were in a position to waive a large share of the profits, but such is not so far the case in India.

NECESSITY FOR EACH RAILWAY BEING
MANAGED AS IF IT WERE AN
INDEPENDENT COMPANY LINE INSPITE
OF STATE OWNERSHIP.

59. It is recognised that each member of a community by doing the best for himself also does the best for the entire community, and what applies to a community again applies to a nation. Acting perhaps on this broad principle the State Railways of this country were divided into manageable groups, and each group was placed under a separate

management or administration which was allowed to do the best for itself, for it was held that by each Railway trying to do the best for itself and its users, the whole of India would be best served and Railways best worked. It was however necessary to see that a railway in trying to do the best for itself did not do the worst for other railways such as by entering into reckless competition. It is, however, noticed that in the present days in their own interests even Company owned lines are keen upon avoiding wasteful competition, and co-operation and combination is now the order of the day in preference to competition. Co-operation has been found healthy not only to railways, which are quasi public corporations, but also to the public, for stability of railway finance is secured thereby and all interests (and not the competitive interests alone) are equally served, and a progressive and stable policy can be pursued in the matter of railway facilities and railway rates and fares, and wastes are avoided. Competent judges would admit that of all the methods of securing good service to the public at cheap and reasonable rates, competition is the most expensive and the least efficacious in the long run.

COMPETITION, COMBINATION, GROUPING AND AMALGAMATION OF RAILWAYS.

60. It must however, be admitted that competition in the days gone by was no unimportant factor in the matter of fixing of rates; even to-day

competition has some bearing to rates charged at different places in India between points, which have the advantage of alternative routes, and also where railways from rival ports serve the same areas. Fortunately, however, for India, competition was never ruinous in the same sense that it was in U.S.A., where many railways had become bankrupt, and competition was ended, in many cases, by the stronger Railway Companies absorbing the weaker ones, and a large portion of the money originally spent on railways had to be written off. In India, there was no competition between railways till 1881, as railways till then served more or less separate territories, but as the railway mileage in India was extended, and alternative routes became available, or the same territories came to be served by railways from different ports, competition was started, and it went on for some years viz. till, say, 1905. During 1894 to 1905, competition was rather acute between some railways and in some parts, but gradually all competitions were settled, either by fixing of equal rates between alternative routes, or on the basis of competitive difference in rates between the routes or in rates to two ports, that is, the difference in favour of or against a route or a port was that difference, which would exist if the rival railways went to extremes of competition in the matter of rates, limited by the maximum and the minimum rates fixed by the Government. In certain cases, the railways came to arrangements, under which some portion of the territory, which

was competitive, was allotted to one Railway and the other portion to another Railway or the rates were kept equal and the earnings were divided between two or more railways, such as is done between the B. B. & C. I. Ry. and the G. I. P. Ry. for traffic between Bombay and the Northern India. Competition did its share of work in India and was of some value, mainly as it was to a large extent healthy competition; the spheres of influence of various railways, of various ports and markets were decided, and competition also helped in a small way to decide which Railways could be amalgamated into one system, whereby working expenses could be reduced by doing away with the duplicate or triplicate costs of separate administrations, by better and freer, and more economic utilisation of rolling stock, by avoiding detentions to traffic and wagons at interchange junctions of 2 Railways, where the process of taking over and making over traffic between 2 different railways occupied much time. In Great Britain, Railways have been amalgamated by legislation and in India, we have in the past seen amalgamations of the Sindh Punjab, the Indus Valley, the Punjab Northern, the Sindh Peshin, the Sindh Sagar into one Railway system, now known as the North-Western. The G. I. P. Ry. and the Indian Midland Railways of old now form the present G. I. P. Ry. system; the old B. B. & C. I. and the old the Rajputana-Malwa Ry. form the present B. B. & C. I. Ry. system; and the Madras and S.M.Ry. comprises the old systems of railways,

which were known as the Madras, the Southern Maharatta and part of the old East Coast Railway. In the near future, we hope to see the amalgamation of the Oudh & Rohilkhund with the East Indian, and subsequently the broad gauge section of the E. B. Ry. may also be merged with them. In the matter of through running of passenger trains, through rates and fares the public are directly benefited by such amalgamations of railways, which besides helping to reduce the railway working expenses benefit the public.

Competition also showed what were the actual rates that were required to develop traffic and how far they could be raised or lowered. Besides competition between railways themselves, the Bengal the Behar and the Assam Railways had to face competition with boats and steamers plying on inland rivers; the B. B. & C. I. Ry. had to meet competition with sea going vessels running along the Guzrat coast; the G. I. P. Ry. had to compete with steamer service for traffic between Bombay and the Southern Maharatta country. On the East coast of India the B. N. Ry. and the Madras Ry. had to lower their rates in order to attract traffic by rail, for which steamers were available, and the South-Indian Ry. had to contend against severe competition with boats and steamers. And traces of some of these competitions yet remain although, as far as possible, only such traffic has been retained by railways as can be carried at paying rates i.e. all ridiculously low rates have been withdrawn and

traffic takes the route best suited to it at rates available by different means of transportation.

MAIN FEATURES OF DIFFERENCE BETWEEN COMPANY LINES OF U. S. A. & GREAT BRITAIN & COMPANY MANAGED LINES OF INDIA.

61. There is no doubt that there is a great deal of difference between the Company lines of other countries (e.g. U. S. A. and Great Britain) and the Company lines of India. The Company lines of those countries are the sole property of the individual shareholders while the railways of India are mainly owned by the Government, and the Companies, to whom they are leased for purposes of working, own a comparatively small share of the capital. And naturally, therefore, the funds for expenditure on new railways, for rehabilitation of old lines of railways and for improvements and additions thereto mostly come from the Government. This being so, it is said that the Company worked lines of India are somewhat handicapped in the matter of giving the full benefit of commercial enterprise to the railways they work, but at the same time it is held that it cannot be overlooked that this method of company management has one advantage over wholesale company ownership. India for a long time yet would not be able to repay its loans on Railway account and to redeem the original capitalists by fully paying up the old companies, who are

mostly being paid off by annuities, and, therefore, a great deal of money would be required out of the gross Railway Revenue to meet all expenses and obligations and to pay up the capital of all State railways. It is, therefore, argued that State ownership, with State management or with lessee Company management, where necessary by reason of present contracts or cheaper or better management, must continue for some time to come. Moreover, retention of Government ownership in Company worked lines would seem essential because when the capital is once paid up State railways would be very great financial assets to the Government and to the people. And further experience alone can prove whether it would be best for India that all its :—

- (1) State owned railways should be managed by the State or that
- (2) they should be leased to Companies for purposes of working so that the profits remain mainly with the Government while the public get the benefit of commercial management.

62. Partially on the ground that past experience of management of Indian Railways had shown, on the admission of the Government and of State Railway Officials, that there was no difference between the managements of State owned railways by the State and of State owned railways by Companies it is held by the Indian public that State railways had best be managed by the State, who are the real owners of railways. It was also claimed that Company

management without entire Company ownership is lacking in that incentive and enterprise which must be natural to a railway owned entirely by a Company and treated as a purely commercial undertaking and that as the Indian railways are not solely owned by Companies they should be managed by the State which is the chief owner. And, further, it was argued that as State railways would be more amenable to Indian opinion it would be best to the interests of the Indian people that the State railways should be managed by the State whereby cheap railway rates and fares, Indianisation of the higher railway services and purchase of railway stores and materials of Indian Manufacturers would be secured and, it was also held that no part of the profits would then be divisible between the Government and a Company but that the entire profits earned would be credited to the Government.

63. Against these arguments it was pointed out that the reason why there had been no difference in India between State managed State railways and Company managed State railways, in the past, was that the management had been identically the same in both cases, and that instead of the Company managed lines following the State managed lines, the State lines had adopted the commercial management of the Company lines, under directions of the present Bureaucratic Government; the Secretary of State for India. It was also said by State Railway Managers that one of the reasons for the efficiency of the State lines had been that because of their

existing and working side by side with Company managed lines, the State managed railways had been supplied with the incentive and enterprise of the Company lines, which induced the State railway Managers to see that the State railways did not fall below the standard of efficiency of management of the Company owned lines. It was also claimed that owing to the Companies getting a share of the surplus profits over and above the guaranteed interest on the Company's share of the capital, the Companies had to use their best endeavours to earn this surplus profit, and that these endeavours had always induced the Companies to try to carry the largest amount of traffic, which they could only attract by just and reasonable rates and fares, and to economise in working expenses. It may, however, be argued that in their anxiety to earn more profits, and particularly larger surplus profits, the Companies might neglect repairs, renewals, etc., but it was stated against this argument that when the contracts were for long periods the Company lines could hardly afford to do this, for such a course would reduce their capacity to earn more money steadily, because worn out rails, engines, wagons and carriages would not do full work and thus reduce the money earned. Of course, it cannot be denied that when the contracts are coming towards the end, *and there is no chance of its renewal*, there may be a tendency on the part of the lessee companies to neglect the repairs and renewals so long as the railways would last without such repairs and renewals up to the end of the

contracts. Against this it is said that, in the first place, there are Government Inspectors to safeguard against such a contingency, and that contracts may contain a clause that if it were found, at the end of the term of the contracts, that the Government property had been neglected by the Company, the Government would have to be compensated on this account. A standard of efficiency may be fixed in this respect, and at the time of taking over the property inspections may be made rigidly and may start a year or so before the contract is due to expire, in order to ascertain that the property was kept well up to the standard. This is what is practically done. In any case, it has been seen in India that, so far, the Companies have maintained the railways and given them up to the Government in a good state of repair and maintenance.

64. Next in connection with Indianisation of the higher and upper subordinate railway services it has to be admitted that in the past Indians were not freely given such posts and in this respect the Government Railways were only a little better than the Company lines. The Railways argued that this was due to the fact that in their opinion Indianisation would have affected efficiency, whereas the Indian public held the view that the Railways kept back Indians from such posts. During recent years the policy in this respect has changed and Indians are getting a chance, but the process is yet said to be slow and still slower on some Company lines. Along with Indianisation that is ex-

pected to come on Indian State Railways, it is most essential that Indians should be given every facility to qualify themselves as efficient Railway men in every branch of railway service for it is essential that railways must be efficiently run. It is therefore, necessary to turn out efficient Indian railway men, and it is only by proper training and experience that it can be expected to Indianize the railway services and at the same time to turn out best railway men. The Railways can only render the best and greatest amount of public service, if they are run efficiently and economically. It is the opinion of the ablest and of the best Railway men of the world that lower salaries do not necessarily mean eventual economy or efficiency. Efficient and capable men alone can get the best results out of the concerns they run and such men can only be had when proper prices are paid for them. It is most essential, however, to see that it is really the fittest person that gets the salary intended for the best man and that there is no favouritism or undue preference shewn to any one.

65. It may be observed in this connection that a Railway school was started in Germany at Breslau so far back as October 1897 to train men, who wanted to eventually become Superintendents in the Traffic Department (of course the railroad Engineers and the Locomotive Engineers received their training and education in Engineering Colleges and in Works). In this school at Breslau in Germany training was provided for in the following subjects :—

1. Constitutional Law of the States and of the

- Empire, Organisation of the Departments of the States and of the Empire, of the Executive Government of Prussian Railways and internal regulations of the offices.
2. Principal provisions of the Law of Procedure and of Jurisdiction of Administration.
 3. Geography.
 4. Political Economy.
 5. Cash & Accounts.
 6. Train Work.
 7. Freight & Passenger Work.
 8. Stores Department Work.
 9. Audit Department Work.
 10. Rates Work.
 11. Customs and Taxes.
 12. Utilization of Rolling Stock.

Commercial Geography, Higher Mathematics and Statistics might have been usefully added to the above subjects.

66. Such railway Schools or Colleges might have been started in India about 20 years ago, and students, who had passed the I.A., or I.Sc. or the old F.A. Standard of the Indian Universities, might have been allowed to enter such Schools or Colleges at an age not exceeding 19 years, and a course of $3\frac{1}{2}$ to 4 years would have been sufficient. Such Schools or Colleges even at the present time ought to do very useful service. The Government of India Railway Department, it is true, are starting a Railway Training School at Chandunsi in U. P., and there is already one at Asansol, but these are more

or less intended for men who are already in Railway Service. It is a matter for consideration whether the Education Department of the Government or the Railway Department of the Government should take in hand Schools and Colleges of the type that was started in Germany in 1897, because it would perhaps be better if young people, who want to make rail road their profession in life, received their higher education and Railway education at the same time. It will be also useful to note that some of the best Railway men of the world have been those who started work from the bottom rung of the ladder and kept up their further education along with their work.

67. Now to come to manufacture of railway stores and materials in India and the training of Locomotive Engineers. In all other countries with the introduction of railways, industries at once grew up to manufacture railway materials, and in one such country, Economists in writing on the point as to what the railways had achieved for the people claimed that apart from the industrial and economic encouragement which the railways generally brought in, they further helped to create works and industries on a large scale for the manufacture of rails, rolling stock, engines, machinery and plant for railways and thus found employment for a large number of people of the country, both inside and outside the railways. In these respects the Indian Railways have partly found employment for people outside of India. It is true that of recent years, rails and a few other things are being made in this country, but still the

major part of iron and steel goods are being imported for both the State worked and the Company worked State lines of India. Of course, it was private enterprise in other countries that had started manufacturing railway materials, and lack of private enterprise in this respect in India has been one of the reasons for keeping India behind times in this respect. But this is not at all. India wanted protection for its Steel and Iron industries. We find that the only big Iron and Steel Industry is struggling at the present moment. It is however said that in the same way as the Government made railways in this country they might have also started the making of steel and iron goods for the requirements of railways in India, but there was lack of funds available in the past even to make railways. It may be mentioned that some railways in Great Britain and in U. S. A. make their own engines, carriages and wagons. Concentrated works to manufacture steel and iron bridges, wagons, carriages and engines, etc., for the Government owned railways might be started in India by the State. Even if State works were started to make steel rails for the State railways the Government would not be wrong for the benefits to the country and to its railways will be great, as railways are the largest consumers of iron and steel goods in India. Ordinarily, it may be said that railways are carriers and as such it is not their business to be manufacturers as well. This would perhaps be all right from the point of view of purely Company

owned railways, more especially if the railways of a country are getting their requirements from indigenous factories. But in India (where such a large amount of things has to be imported yet for its railways and money goes out of India for their purchase, where railways are the property of the Government and where indigenous private enterprise is yet lacking) conditions are somewhat different, and the claim of the Government to make their own materials for Government owned railways cannot be altogether disregarded. If State railways get their goods from State works the imports will decrease even without a protective tariff because such State works will by themselves be of a protected nature. The Financial Supplement of London Times of 27th August, 1911 spoke of the manufacturing works of railways of Great Britain as follows :—

“The works trade in a closed and fully protected market and therefore are not in any sense commercial enterprises.”

So that the State railway works of India, if made, will also work in a similarly protected market. Such works will enable the Government and the people to save middlemen's profits.

68. The main reasons for the suggestion that such works should be started by the State are that the products of these works would be almost entirely for State railway requirements, and that the money paid to workmen employed in such works would remain in India, and India could then

and then only be called self-contained in connection with its railways. Above all, with the establishment of such works in India the work of training mechanics, engine builders and locomotive engineers will be very greatly facilitated.

69. The Railway Board, *i.e.*, the Railway Department of the Government of India, in their Administration Report for 1920-21 pointed out that the Indian Railways were yet dependent on supplies from abroad for bridge work, engines, plant and workshop machinery and tools, rolling stock and electric plant, and the Railway Board sincerely expressed the hope in the said report that "both in interests of India generally and Railway managements in particular further industries on the lines of Tata's Iron and Steel industry might be started in this country". So the necessity for such industries in India was admitted at least by the Government of India Railway Department to benefit India generally and the Indian railways in particular. The next consideration is whether the Government or Indian private enterprise or both should start these industries. The late Mr. Alfred Marshall, one of the world's greatest Economists, had said in his last book "Industry and Trade" that one of the main reasons for some of the railways in Great Britain and U.S.A. having their own works to build engines and rolling stock was that Railways could get money cheaper than purely private enterprise and the same remarks apply to Indian State owned railways.

GOVERNMENT CONTROL OVER RAILWAYS.

70. It has been previously stated that out of 38,000 miles of railways about 28,000 miles are owned by the state. Of the latter mileage 7,868 miles only are worked by direct State Agencies but by the 1st July, 1925 the mileage under direct state management would be enhanced from 7868 miles to about 13,049 miles by the state taking over the managements of the E. I. R. and the G. I. P. R. so that there will yet remain, say 15,000 miles of State owned lines under Company management. The Companies, who work this mileage of 15,000, have their Board of Directors in London. This is so, because the Railways were first made in India out of British Capital. Later on, the railways were purchased by the State and while some were retained for management by the State, others were handed back to new Companies, formed out of the old Companies. It would not be before 1950 that the contracts with all the remaining lines would expire and they could be taken over by the State for working.

71. The main basis of the argument put forward in the near past that State owned railways of India had better be left to be managed by Companies was that with a democratic government, such as, it is hoped, India would get some day, the management of State railways could not be maintained on a commercial basis. It was asserted that as the executive and the administrative officers of the

railways, would, under a democratic government, be State servants responsible for the management of State railways to the Legislature they would be handicapped in the management of the State railways owing to, what may be called, interference on the part of the Legislature and that efficiency would be sacrificed to no small extent.

72. No one can dispute the right of a Government, or of a Legislature in a democratic country, to control railways and intervene in the interests of the public. Even in the case of Company owned lines, the intervention of the State in matters of general character is desirable, such as the approval of the classification of goods, of maximum rates and minimum rates for each class, of time tables of mail and other important trains, of conditions of carriage of goods and passengers. In matters of public safety and public interests the Government must exercise supervision, by inspections and by laying down standards and rules and regulations as to the construction, equipment, and the maintenance of the railways, as well as in matters relating to installation of safety appliances, rolling stock, station buildings. The Legislature should intervene as natural representatives of the people in their interests and as such it ought to determine, with the help of the experts, the mode of construction and equipment and approve all measures of traffic management of a general kind and protect the interests of the public investments by controlling the general financial arrangements of the railways in

matters regarding raising of capital, loans, debentures, etc. Further, the Government or the Legislature should have the right to see that financial condition of a railway company is sound and that the railway company is treating all interests with fairness and equity.

73. In the case of State ownership of railways, or even with part Company and part Government ownership of railways, it is held, not without reason, that the supervision of the Legislature as representatives of the people, who provide the entire or main part of the money forming the capital outlay of railways, ought naturally to be more effective than in the case of Company lines, for the Legislature has its responsibility to the people. On the other hand, a concern like a railway can only be best managed if the administration is not much interfered with in matters of actual railway operation and details of management.

74. In the case of real Company lines, the Board of Directors exercise general control over finances, find ways and means, after satisfying themselves that the railway is really in need of the money that the management wants the Board to provide. The Board lays down the general policy and sanctions the appointments of high officials, mostly on the recommendations of the General Manager in England or of the President in the case of the American Railways. The General Manager or the President is one man responsible to the Board for the management of the railways and all heads of

departments are under him, and the General Manager delegates a large amount of his powers to them and they in return give powers to their under officials, who are all (at least should be) competent men in their own work.

75. It is claimed that as Companies treat railways as business concerns they can only be run by competent men, and that efficiency and best financial results, attained by the staff, are generally considered foremost in matters of promotion, nay even for retention in service. Therefore, it is said no official can either be extravagant or sacrifice efficiency by having incompetent men under him, inspite of the fact that he may have full powers to appoint and dismiss all the men under him. By this method it is held that each man is allowed to do the best for the Company and thereby the Company and the public get the full advantage of each man's best endeavours.

76. A certain amount of general information must be given by published reports and returns to Legislature in matters of general details of working relating to administration, financial results, welfare of the staff, facilities to the public, rates and fares and such other matters that affect the interests of the public and of the owners, viz., the Government. The executive officers and the members of the Legislature may confer together and fix the powers within which the executive should be allowed to act without interference. And bodies like Rates Tribunal, the Local Advisory Board, the Central Advisory Board,

the Railway Finance Committee would deal with and advise upon matters concerning the interests of the public. At any time, the powers given to the railway managements may be modified if they are not being acted up to in the best interests of the people and of the owners or the tax-payers, but so long as certain powers are yet with the executive there ought not to be interference within them, and no powers should be withdrawn or curtailed without a fair trial and in the absence of distinct evidence of their abuse or misuse.

77. It is said that democracy and efficiency of public corporations are antagonistic, but yet we find that the tendency of the people of the present age is towards democratic Government and democracy in all public corporations. But on the other hand, we have it on the authority of Prof. Garner of the State University of Illinois (U. S. A.) who, in the course of his lectures at the Calcutta University in 1922, said that in connection with private business undertakings and in their management in U. S. A. principles, which applied to the democratic Government of that country, were not followed. The railways of America are owned by private Companies and thus there the principles of democracy are absent from Company's business. But even then in that country the railways being Quasi public corporations the State controls them in matters relating to the charges made by the railways to the public, the safety of the public, adequate public service, and the rights, privileges and conveniences of the public. It

is true, however, that in respect of the internal management of the railways this is left to those appointed by the Shareholders and the Directors to carry on the management and executive work. The Railway Presidents or General Managers of American railways are allowed an entirely free hand and they adopt more or less the same practice in connection with the officials that are under them. It is claimed that by this system of non-interference with the railway Managers, the owners of the railways as well as the users get the full advantage of the energy, enterprise and incentive of the railway officials. But such wholesale delegations of powers to railway Managers in regard to State railways, which are the property of the public, may not be possible on the part of the members of the Legislature, who are really responsible to the people of the country where democratic Government prevails, but yet it should be possible even then to confine supervision and control of the Legislature on very important matters only, which affect the policy, or finance or public interests and to leave the Management to the Executives and to judge them by results. Next let us deal with

RAILWAY OPERATION.

78. In European countries and in India the management was hitherto departmental in that under the General Manager (or the Agent as he is yet called in India) there were heads of departments for the

engineering, locomotive, traffic, and other departments; each department had its own independent organisation throughout the line. The idea for the future is to decentralise control from Head Quarters now exercised through so many Heads of Departments and to create divisional managements for various sections of a railway under Divisional Managers, who would control and be responsible for all the working of the operating branches of a railway on their respective divisions. Each Divisional Manager will practically be the General Manager of his Division and all work in connection with loading, booking, transport, unloading of traffic and movement of wagons, carriages, engines and trains and maintenance of permanent way or the railway road and of manning, cleaning, running and coaling of the engines and their distribution and movement will be done under the authority or control of one man for the Division, *viz.*, the Divisional Manager. Perhaps the issue of Stores, the auditing of bills will also be done on the Divisions. The heads of Departments instead of being responsible for, as they were in the past, for work both in connection with building and running of railways in the various branches will have their work divided between technical and operative. The actual operation of railways will be separated from the building of railways and of the railway property and also from the work of erecting, building and doing heavy repairs to and overhauling rolling stock and of work in railway workshops. Similarly the work of

procuring traffic, fixing of rates, settlement of claims for goods lost, damaged or delayed will also be separated from the work of operating the railways.

The various branches of technical work and operation of railways will be as follows : (All under the General Manager,)

1. Secretariat or Administrative forming part of General Manager's own office.
2. Operative, or actual railway operation, and management in charge of a Deputy of the General Manager for Transportation to control the Divisional Managers.
3. Technical *viz.*, building of the railway and its property, and its rolling stock, plant and machinery, and their overhauling and heavy repairs under the Chief Building and Road Engineer, and the Chief Mechanical Engineer also acting as Deputies to the General Manager in their respective branches of business.
4. Commercial (or soliciting of business for the railway), with a Commercial Traffic Manager also acting as one of General Manager's Deputies.
5. Cash and Accounts under the Chief Auditor and Accountant.
6. Stores and Purchases under a Stores Purchase Superintendent also under the General Manager.
7. The Operative branch under Deputy General Manager for Transportation (or General

Superintendent of Transportation), is intended to be the main working branch. This branch, it is intended, will control the movement of trains, wagons, carriages and engines, the working of stations, signals, and the operative branch will also carry out petty repairs to engines, wagons, and carriages that are in every-day use on lines of the railway and are employed in connection with the working of the traffic. The work of receiving, forwarding and delivery of traffic as well as their carriage will be the work of the Operative or Transportation branch. The Technical branch of civil engineering will build the roads, bridges, buildings, but will not maintain them as the Operative section also takes over the work of maintenance as is the case in U. S. A. and as has been done on the N. W. Ry. in India. The Mechanical Engineering branch will hold charge of building, erecting and repairing wagons, carriages, brake vans, engines and machinery; and the workshops (locomotive shops and the carriage and wagon shops) will be under the Chief Engineer for Mechanical Department. And the Commercial branch would look to the securing of and canvassing for traffic and to the fixing of rates and fares, and settlement of claims for goods, lost, damaged or pilfered.

80. The Operative department is intended to practically control all branches of working on the line through the Divisional Managers. Here will be the real difference between the old system and the

new system. Under the former, each department on the line had its own organisation and had its separate District Officers (for each department) doing the work and controlling the staff of that department. In future, as already stated, the length of a railway will be divided into certain sections and each section will be under a Divisional Manager or Divisional Superintendent, whatever he may be called. All the staff on a division whether at stations, or on trains, or on engines, or in yards, or in signalling houses, or engaged in connection with the maintenance of the roads and bulidings or in carrying out the ordinary repairs to engines, wagons, carriages (outside the work done in the workshops of the Mechanical Engineer) will be under the Divisional Superintendent. All branches of working on the line will be under his control so far as the length of his Division lies. This divisional system had its origin in America. It has now been adopted in Great Britain but with certain modifications. This system has just been brought to India and is expected to be very largely extended. It is claimed that under this system of railway operation, departmental frictions in actual working of a railway will be avoided resulting in greater harmony amongst all classes of staff and thus attaining best results to the railways and to the public.

81. It should, however, be pointed out that in connection with reforms in the system of management of railways one may be inclined to be led away too far by what is done in other countries if the results

in those countries by their methods have been successful but the conditions of all the countries are not always alike. What one should aim at is first to attain to improve the present system, even a great deal so, but without adopting at once a revolutionary policy and this is what one of world's greatest Railway men Sir Henry Thornton said not long ago. Each country has grown up with and developed a particular system and the railway staff and the public are used to it. Even in Great Britain all are not ready to adopt and apply wholesale the American railway methods to the railways of Great Britain. At the present moment, the separation of the Locomotive running department from the department that builds and repairs (in India this department mainly erects and repairs) the engines and the placing of the Locomotive Running work under the operative Department, and the transference of loading and unloading of goods and of work in purely goods stations from the Commercial to the Operative Department are the two problems that are occupying a great deal of attention in Great Britain. Opinions are divergent. In Great Britain, at the present moment, there is a dispute, or rather a discussion, as to the point where the Commercial and Operative Departments should meet or separate and also on the point as to how far the Operative Department should take over Locomotive running work and engine repairs when in traffic use.

In connection with goods working, opinion is said to be approximately and equally divided as to

placing of actual working under the Operative Department, "the Commercial Department dealing only with the obtaining of traffic and business associated with its conduct, the alternative suggestion being that it is best to so confine the duties of the operative department in regard to goods depots as not to extend beyond the arrival and departure of wagons, i.e. all work not directly associated with train working being treated as the duty of the Commercial or Goods department. On the contrary, others hold (not without reason) that as the success of the economic working of a railway operative department depends on good train loads and quick movement and turning round of wagons, and that as train loads are made up of wagon loads and since quick loading and unloading of goods turn round wagons quicker it is essential that operations in these respects should be under the Operative Department. Then in England also in connection with the repairs and maintenance of the railway roads it is not yet generally accepted that the Operative Department should take over this work from the Engineering department.

82. Further, in regard to execution of engine repairs while in traffic use, on some railways in Great Britain they have created a Locomotive Running Department as separate and distinct from the Operative (or Transportation) Department, and also from the Locomotive building and erecting (or the Mechanical) Department. As opposed to wholesale reorganisation of Indian railways on American

lines some think that all that is necessary at least for some time to come is to separate first the purely commercial work (such as securing of business, canvassing for traffic, fixing of rates and fares, booking of passengers and of goods, delivery of goods and parcels to the public, collection of railway charges, settlement of claims for goods lost, damaged or pilfered or for excess charges) from the work of transporting traffic, and, then also to separate the mechanical work of repairing the engines from the work of oiling, coaling, driving, and distribution of engines. It is accepted generally that there should be a separate Operative or Transportation Department, which should control all Station Masters, Telegraphists, Signalmen, Guards, Engine Drivers, and staff employed in shunting wagons and carriages in goods and passenger yards and also in connection with reception, formation, movement and despatch of trains. Some hold the view that in the Running sheds, where engines in traffic use are stabled, there should be a Foreman of the Operative Department who will have the control, distribution and running of engines under him, all Drivers, Firemen, Cleaners, and men employed in oiling, coaling and watering the engines being placed under him, but that in the said Running sheds there should be a Head Mechanic (under the Chief Mechanical Engineer) with his assistants and machinery and tools, to see that engines are kept in a thorough state of repairs and are quite fit to do the work for which they are about

to start and also that the engines are not misused by the drivers. Beyond these departures it is said that the railway organisation in India might remain as in the past without any inconvenience, loss or sacrifice of efficiency that is expected from improvements from any wholesale reform of the nature contemplated by the introduction of the American System.

83. In any organisation it has to be recognised that local officers on the spot should have a reasonable amount of latitude in regard to details of operation. It is said that best results are only obtainable when the executive officers are the ablest men selected for the appointments they hold, and when, once they have been appointed they should be trusted and allowed to do their best, allowances being made even for bonafide mistakes, because the best results can only be attained through a system under which each man feels that he has a duty to perform and that he should use his best brains and energy and bring his full initiative into play in the work he undertakes to perform. Each man should be judged by results. Next to turn our attention to the question of uniformity of management in connection with the various Railway systems.

UNIFORMITY OF MANAGEMENT AND STANDARDS AND SAFETY OF THE PUBLIC.

84. It has been said already that the principles of separate management of each railway as a com-

mercial concern doing the best for itself has been recognised as the best for the public as well as for the railways, but this does not mean that there is no attempt to attain uniformity of management or standardisation as to building, construction, maintenance and working of railways, and in regard to railway wagons, carriages, engines, etc. In fact quite the reverse is the case. Ever since the railways were made in India the aim has been to attain uniformity in connection with railway organisation, working, rolling stock, construction, etc., but, at the same time, it is to be remembered that every railway has its own local conditions, which require in certain instances particular type of rolling stock and special engines due to the nature of the traffic to be carried and the nature of the country to be traversed, or the loads to be hauled. Beyond what is necessary to suit such conditions the aim is to attain standardisation and it is this standardisation that has enabled the Indian railways to exchange rolling stock so very freely in the matter of goods traffic between railways of the same gauge. The standard drawings, the standard specifications for bridges, rails, rolling stock, engines and standard specifications for works, materials, etc. are all there and they are more or less the same for all Indian State Railways. The railways of India have their conferences, associations, committees, the object of these all is to improve the efficiency and working of railways and to attain uniformity and simplicity. It should also be mentioned in this connection that the safety of the

public, along with matters relating to the other Railway subjects, receives the most careful consideration at all the meetings and conferences, and the railway signalling department of each railway administration might be very rightly called the "Railway Safety Department" and the chief aim of the general rules laid down for the working of Indian railways is to attain the safety of the public in all matters relating to working of traffic and trains and of railways generally.

POOLING OF WAGONS.

85. As a sequel to uniformity of working, and to meet the demands of Railways for carriage of traffic there is now-a-days pooling of wagons between railways of broad-gauge, under which a certain number of wagons of each railway is brought into the pool or common use and they can be used by any one railway and sent anywhere. Formerly, wagons arriving with traffic on one railway from another railway had to be sent back loaded or empty to the particular railway, which owned them, and especially in the case of colliery lines, such as the E. I. Ry., and the B. N. Ry., wagons had to be sorted for loading to each railway i.e., say traffic for the G. I. P. Ry., could either be sent in a wagon of the G. I. P. Ry., if it was available on the Railway sending the traffic, or in the wagon of the Railway on which the traffic originated. It was held that this meant a large

amount of sorting work at the ports, when returning the wagons after they had discharged their cargo at the ports, and in colliery districts in loading them with coal to different parts of India and that this meant delays, and caused cross movement of empty wagons. Now a days, so long as railways get back the number of wagons or the capacity of wagons equivalent to what they send to another railway it is not essential that they should be the wagons of that particular railway, which originally sent the wagons with traffic. This arrangement might have had some advantages in the directions in which such advantages were sought by pooling of wagons but there have been disadvantages as well. Distances in India are great and the balance of traffic in two directions on no railway is even. On some railways there is a large return empty running of wagons in one direction, owing to traffic being heavy in one direction and light in another and pooling of wagons would not eliminate this. Moreover, as wagons of owning railways are constantly away from such railways and for long periods thorough repairs to and overhauling of such wagons in the workshops of those railways, who own the wagons, is delayed. Endeavours are being made to minimise these difficulties by establishing depots to keep spare parts of wagons of foreign railways and by starting repairing shops at centres, where there are large concentrations of wagons. While pooling of wagons is good in many ways it has been seen in India at least,

that one effect is that wagons are out of proper repairs for long periods and thereby deteriorate and require more and constant petty repairs and patch work which again means detention to wagons and traffic. Besides distances in India being great, the southern, northern and western Indian Railways carry traffic more or less to and from defined areas, and even in the case of coal traffic southern India and northern India can easily be separated for purposes of supply of wagons. If, therefore, pooling of wagons is confined to various groups of railways (instead of being extended over all railways on broad gauge in India such as from Bombay to Parbatipur in northern Bengal, or from Madras to Lahore or Rawalpindi) it might be more economic and wagons might be better attended to in the matter of proper repairs to them in the workshops of railways, which own the wagons and have spare parts for them readily available in their shops. And in connection with movement and utilisation of wagons there might be an improvement owing to wagons of a certain group of railways being moved between points in a grouped area, whereby they would be turned round quicker and run back empty for lesser distances *i.e.*, they would be available sooner at loading points than if they were used in carrying traffic throughout India *i.e.* from anywhere to anywhere. The railway authorities, and Railway Conference must be doing their best to arrive at the best arrangement in these respects suitable to India as a whole. Now to come to

RAILWAY FINANCE.

86. This subject has been touched upon at several places in this paper before and not very much more remains to be said in this connection. When the railways were first made in the country, British capitalists provided funds, under the guarantee system, and, then, after the railways were acquired by the State all further capital was provided for by the Government or under guarantee of the Government (*viz.* of the Secretary of State) from the following sources :—

1. Out of surplus of general revenues of the Government of India.
2. By raising capital by the Government in Rupee loans in India or by Sterling loans in England.
3. By issue of debentures in England on the guarantee of the Secretary of State for India.
4. From Savings Bank deposits.
5. By appropriation of famine Insurance grants for avoidance of debt.
6. Half profits on Rupee coinage.

And at the same time the nett revenues of State Rys., after payment of annuities and share of surplus profits to companies and interest charges were credited to the general finances of the Government.

87. The result was that no continuous supply of railway funds was available, and the money available for railway expenditure came out of what

could be spared out of the surplus of general revenues each year, or from borrowings of the Government, by loans in India and in England. Of course, when the railways were non-paying on the whole there was no other alternative but to depend on the general revenues, as there were constant deficits in the railway nett revenue and, sometimes, Government raised money by taxation to make up deficits of railway expenditure. Gradually, the railways became paying concerns, but owing to the railway finance forming part of the general finances of the State, money available for railway expenditure was uncertain until the annual General Budget was passed, and the borrowings were also on a limited scale, with the result that forecasts and estimates for improvements and additions or for new lines were often futile or very much upset. Sometimes, a work would be started and some progress made, and if such work required more than a year or one working season to be finished it had often to be stopped in the middle, with the result that there were inevitable wastages, and as the grant for each year lapsed at the end of the year there was often extravagance due, sometimes, to the hurry with which the sanctioned money had to be spent within the year for fear of lapses. For these reasons and for the continuance of railway improvements in a businesslike manner, to finish the needed works in time and economically, and for stability of railway finance and railway policy it had been urged for years that the railway finance should be separated

from the general finance so that the Railways would know what money they would have available to spend. And no works would then be taken in hand unless money was available to complete it. The Indian State Railway finance has now been separated and the Railway expenditure will have to be met from State railway earnings. First and foremost, the railway working expenses will have to be met, and the balance utilised in paying up liabilities on account of borrowed and of unpaid capital of the railways, and in subscribing towards depreciation and sinking funds, and then after this a certain amount based on a fixed percentage on the capital outlay of the railways has to be paid to the credit of the general finances of the country. And the balance is to be spent on railway account alone, e.g., in new works, in increasing the Railway reserve fund, in granting more facilities or in reducing the surplus by granting lower rates and fares. The individual State Railways would be allowed to take loans from reserves. Fresh loans for new works, for improvements to and rehabilitation of railways would have also to be raised in future and this will be raised, it is true, by the Government on the guarantee of the Secretary of State on the general credit of India but all the liability for interest on and for repayment of such debts will be that of the State railways.

88. With the separation of the Railway Finance from the General Finance it is, however, not yet contemplated that each State Railway

Finance will be entirely separated in this sense that each railway will be allowed to utilise its surplus profits in the best way suitable to, or considered necessary in the interests of that railway, or to make its own independent contribution to the General Finance, or create new works out of its surplus revenues. The idea is that the nett revenue of each railway, after meeting all charges against gross revenue, will go to the credit side of the Government of India Railway Finance, the trustees of which will be the Railway Department of the Government of India, who will use their discretion in allotting funds for expenditure on Several State owned railways according to the urgency and needs of the demands made by them. Under this system, it may happen that in one year, or even during a series of years, say the G.I.P. Railway or any other Railway may not earn surplus revenue but the E. I. Railway or the B. B. & C. I. Railway may do, and yet there may be more urgent need and necessity for execution of certain works say on the G. I. P. Railway than on the E. I. Railway or the B. B. & C. I. Railway. In such a case, the Government of India Railway Department will allot funds to the G. I. P. Railway, out of the total money available in their hands from the revenues of all State owned railways taken together, or from loans. So that in the matter of granting substantial reductions in rates and fares over any one railway, which is earning very satisfactory revenue, in order to afford cheap fares to the users of that

railway, more with a view to afford relief than to create more revenue, it is not only that the good financial results of that railway alone, but the general financial condition of all State railways taken together, will have to be taken into account, for it may so happen that while one two or more State owned railways may be showing satisfactory results the total State Railway Revenues of the Government of India may not be satisfactory on the whole.

89. I would like to add a few words more on the Subject of Railway Finance *viz.*, on the question of raising money for Indian Railways in India. From the point of view of Railway dividends, or the nett receipts, after meeting interest on loans, besides working expenses, there is no doubt that the money borrowed for capital expenditure should be got at as cheap a rate of interest as possible, because if a very high rate of interest has to be paid the money available for sinking funds, for depreciation funds and, in the case of our state owned railways, the money available for contribution to the General Finances of the Country, out of Railway Finance, would be considerably reduced. A transportation agency like a railway sometimes brings in a return of 8 or 9 per cent on the capital outlay but generally the return is on an average 4 to 6%. It seems, therefore, natural that a higher rate of interest than 5% ordinarily (or 6 or 7% under exceptional circumstances) would mean that railways would take long time to repay the loans, apart from the fact that the nett contribution, out of Railway Revenues, to the

General Finances of the Government of India and money available for railway improvements and extensions would be reduced. Cheap transportation would also be difficult. Cheap money would, therefore, seem essential. But against the advantage of raising cheap money it is argued that this advantage is more than counter balanced by the factor that most of this money is raised out of India and that, therefore, the interest paid on it goes out of India. And it was also noticed in the past that from time to time it was said in England in respect of Stores purchased out of India that England should supply the most. The appointment of High Commissioner for India is intended to protect the interests of India in the matter of supply of its Railway materials from the markets most advantageous to India, but the High Commissioner does not purchase Railway materials and stores for such state Railways as are worked by companies. It is, however, natural to assume that the Companies working such Railways in their own interests, *i.e.*, to earn an increased dividend, would not purchase Railway materials at high prices in England if they could get them at lower prices elsewhere. It is, however, held by some in India that the benefits of national debt of India for its productive works, in the shape of interest earned on such debts, should be that of the Indian people and that therefore such loans should be rupee loans rather than sterling debts. One often sees remarks in news papers that the power of India for absorption of gold is great, and

it also asserted, at the same time, that the gold brought into and absorbed in India remains idle because it is mostly turned into gold ornaments. It is said that it is difficult to bring this gold out at 5 or 6% interest. It is to the interest of India that if there is really a very large amount of gold lying idle in the country it should, as far as possible, be used in productive works, so that the nation might be both directly and indirectly benefitted thereby, *i.e.*, if this gold can be exchanged for money and utilised for Railways at not more than 6 per cent interest. I am not a financial expert and so I can not say whether a still higher rate of interest, if considered necessary, to attract really indigenous money (and not foreign money imported into India and utilised as rupee capital) on account of railway expenditure, could be paid. Having regard to the large outstanding debts that yet remain to be paid on account of Indian railways, and also to the fact that they are to be repaid out of the railway revenues (as well as the interest on loans), and as there is necessity to spend more money yet on railways, and to arrange for depreciation and reserve funds, and also to contribute out of Railway Revenue to the General finances of the Govt., a rate of interest higher than 6% would appear to affect the financial condition of the Indian Railways, whatever the other benefits derived from purely indigenous capital raised at a higher rate of interest than 6% may be to the people of the Country. Indigenous capital is most welcome and it should be raised for

railways but for the sake of steady and progressive policy and sound financial condition of railways the rate of interest ought not to be higher than 6 percent. A still lower rate would seem desirable.

INDIAN RAILWAY REORGANIZATION.

90. Before I conclude I want to return once more to the question of Railway Reorganization in India, as this is one of the most important of railway problems in India today. I feel that this subject requires to be somewhat more fully dealt with than has been done previously in this paper, and hence I return it to it once more in conclusion. As previously stated, the main idea is to do away with departmentalism on the districts, as far as possible, and to replace it by American system of divisional organization. Whatever might have been its defects, departmentalism had one distinct advantage; under it there were on the line and on the spot District officers for each branch of railway work, who had specialised in their respective branches. Under departmentalism efficiency in each particular line of railway operation was assured, but with the growth of and extension to railways, and their business, both co-operation and combination have become essential along with specialization, particularly between the transportation (Traffic) and Locomotive departments. In the past, Traffic Transportation and the Traffic Commercial branches were combined together and, similarly, the Locomotive Running and the Mechanical Engineering branches were parts of one Depart-

ment. The main idea is to separate the Traffic Commercial from the Traffic Transportation branch and the Locomotive Running from the Mechanical branch and to bring about a close combination between the transportation (traffic) and the Locomotive (Running) Departments. But at the same time, it is essentially necessary that Locomotives and Rolling Stock (Carriages and Wagons) should be kept up in a thorough state of repairs and in an efficient condition of working, but this can hardly be attained unless mechanical experts (under the Chief Mechanical Engineer's Department) are looking after them constantly. In the same way it also essential that the bridges and important structures should be looked after under the supervision of experts. Therefore, it is a matter for very careful consideration how far the transportation department should take over the responsibility for the technical side of the work relating to rolling stock and the railway lines, bridges and structures. Apart from heads of departments there were under departmental system District Traffic Managers, District Transportation Superintendents, District Loco and Carriage Superintendents, and District Engineers of roads, bridges and buildings, working under their respective heads of departments and it is to be considered how far the work of these officers could be taken over by the Transportation Department.

91. Now as to repairs to rolling stock and engines it is to be remembered that when they are taken out of traffic use for repairs they reduce the

capacity of the railways to carry traffic. But supposing the transportation department was in charge of ordinary repairs and it was entirely their business to decide when engines and rolling stock should be sent for such repairs or for thorough repairs there would be the danger of hurrying up ordinary repairs resulting in more patch work, and delays in sparing stock for thorough repairs and the stock may deteriorate for want of timely and proper repairs. The transportation department, whose main business will be to move more and more traffic, may not look to the mechanical side of the work as carefully as mechanical experts would naturally do. It is recognised at least by some railways in other parts of the world that all technical work, relating to building, erecting, fitting and repairing of rolling stock, should be in the hands of the mechanical department and that in the District shops (*i.e.*, in the shops where engines are stabled in between runs and are attended to in regard to petty and ordinary repairs or in the District or sectional carriage and wagon repairing depots) there should be head mechanics responsible to the chief mechanical engineer for repairs and maintenance, and that there should also be a running foreman of the transportation department, who would control engine drivers, firemen, cleaners, as these men belong to the train service and that the said foreman should also look after storage and issue of fuel, stores and oil for engines.

92. The Transportation Manager or the Chief

Superintendent of Transportation, as he might be called, would include in his Department the latter work (*i.e.*, the work supervised by the Foreman) and he may have a Deputy for Locomotive and Carriage and wagon running in his office, *i.e.*, the office of the Transportation Manager; but it is debatable whether on the Districts the District transportation Officers, whose main work will be traffic transportation, should take charge of the work of Locomotive Running. As already stated, there were and there are District Locomotive, Carriage and Wagon Superintendents, under the mechanical department, for each District. The Offices of the District Transportation Officers might be at the same place, and, if possible in the same building, as the Offices of the District Loco, Carriage and Wagon Superintendents, and the latter might have an assistant Supdt., who would look after the work of the Locomotive Foremen, and this Assistant of the District Loco Superintendent, while working under orders of the District Loco Officer, may work in close co-operation with the District Transportation Officer, but the District Loco Officer should have the responsibility for such work *i.e.*, his responsibility will be joint, *viz.*, for mechanical work to the Chief Mechanical Engineer and for Locomotive Running to the Transportation Manager or Chief Superintendent of Transportation. The District Transportation Officer would be in charge of Stations, Station Masters, Signal Cabins, Signalmen, Telegraph Offices, Telegraphists, Guards, Brakesmen, Ticket Collectors, Yards, Yard

Staff, porters, pointsmen and be responsible for wagon, carriage and train movements, distribution of wagons, but in respect of selection of engine crew and supervision of their work, for supplying fuel and oil to engines one assistant superintendent in the office of the District Loco Superintendent might be given this work, who would be practically working for the Transportation Department, and in close consultation with the District Transportation Officer, but should be subject to the control and supervision of the District Loco Superintendent who, as it is said, will have joint responsibility to the Transportation Manager and to the Chief Mechanical Engineer. The District Loco Superintendent because of his technical knowledge would know better where to look for defects and how to remedy them than the District Transportation officer. In any case as there would a Deputy to the Transportation Manager for Locomotive Running he would be able to see that the District Loco Officers are not neglecting the transportation side of their work.

93. And, further, in order to bring about Co-ordination and Co-operation between the several adjoining Districts and between the several Departmental District Officers there might be appointed a new Supervising and Co-ordinating Officer of senior rank and he might be designated Divisional Superintendent or Divisional Manager. His charge may include three contiguous Districts, and his Head Quarters might be at a central position. This Divisional Officer ought to be directly under the Trans-

portation Manager, but he might act as a liaison officer between the Transportation, Traffic, and the Mechanical Departments, so far as executive work on Districts is concerned and a co-ordinating and supervising officer for the District Officers of several departments and also of the adjoining Districts. He need not have a big office but he may have one or two assistant officers attached to his office. His main duty may consist in seeing that there is no wastage of transportation or departmental frictions or inefficiency or delays to traffic or in execution of works. He should exercise supervision through daily, weekly or monthly returns as required for specific purposes and through statistics and committees. There might be several committees; say one for yards consisting of Transportation Officers, Loco. Officers and Engineers from Districts; another Committee for traffic facilities in the way of sidings to mills, factories; another Committee for coal sidings; another for extensions to waiting rooms, to stations and platforms, to booking and goods offices or to goods shed lines, consisting of transportation and commercial officers and engineers. Another Committee may be arranged for staff quarters consisting of one District Officer of each of the three departments of Engineering, Loco and Transportation. Still another Committee may be appointed to deal with matters relating to labour. And a strong committee should be appointed to deal with Time tables of trains and detentions to trains and wagons.

94. These Divisional Managers might have

certain powers in staff matters too. Changes of responsible staff at important stations or increases or changes of grades, or additions to staff, and all matters involving questions of principle or of changes in important rules or procedure may pass through him, and there should be meetings of Divisional Managers. They will be a few in number but they should be able to move about more freely, not being tied to office for any particular work. Each District Officer should deal with his head of department direct in all but every important matters or such matters, as may be named from time to time to pass through the Divisional manager, who should be kept informed in a general way of what is going on in Districts but he need only interfere where and when necessary.

95. Lastly to come to the Commercial Department. As already stated, this Department would look to development of traffic, canvas for traffic, fix rates and fares, take charge of the goods and booking offices, collect revenue and settle all claims for loss, damage, pilferage, or excess charges. At stations, where there are no separate and independent goods sheds or City booking offices, the goods and booking clerks will be under the Station Master, who would be under the transportation department for purposes of discipline, but he may also attend to matters relating to goods and coaching work of the Commercial Department. This has been carried on in England and in India for years. All transshipment work and labour should be under the Transportation

Department. The Commercial Department should supply information to the Transportation Department in regard to traffic developments and although the distribution of wagons should be under the Transportation Department, this Department should conform to the wishes of the Commercial Department in matters where wagon supplies might be given preference or more or better supplies should be given or supplies curtailed. If it were possible, in all cases, that the District Commercial Officer should also be at the same place as the District Transportation Officer then the District Commercial Officer might look to the wagon distribution list of the Transportation Department everyday and suggest changes and modifications where necessary, but whereas it is possible for the offices of the Transportation, the Loco and the Engineering District Officers to be at the same station it may be necessary in certain cases that the District Commercial Office should be at a commercial centre. If the Transportation Department allotted a certain number of wagons to each District and left their distribution to the commercial department this may lead to delay and inconvenience. Where the District transportation and the commercial offices are at the same place then, as already said, the commercial officer might scrutinise the station wagon distribution list every day, but where this is not so the district commercial officer and his inspectors would see and advise the transportation District Officer beforehand at which stations the wagon demands should be met first or

when there is likely to be a rush or increase of traffic, temporarily or permanently, and so on. The Commercial District Officers should assist the Divisional Managers in forming estimates of additional rolling stock required for the future by furnishing estimates of traffic developments as the preparation of the programme (for each division) of expenses for improvements in facilities, additions and extensions to railway lines and to rolling stock should be one of the duties of the Divisional Managers, who might appoint a committee for this work also. As far as possible, the Divisional Manager or the Divisional Superintendent, as he might be called, should preside over committees, at least over important meetings of Committees.

