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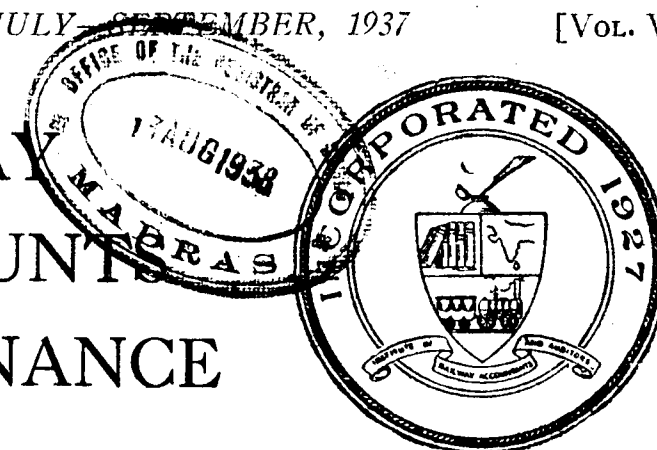
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RAILWAY ACCOUNTS & FINANCE



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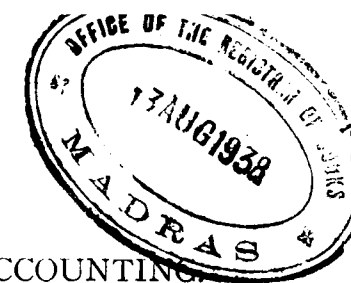
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COST FINDING AND RAILWAY ACCOUNTING

The application of the principles of cost finding to the transportation services rendered by railways has evoked considerable interest during recent years. Attempts have been made particularly in the United States to ascertain the actual costs of different classes of transportation services rendered. Some years ago attention was invited to the discussion on the applicability of cost accounting principles of railways in our former official organ, *The Indian and Eastern Railways*.¹ With the enactment of the Emergency Transportation Act, the Federal Coordinator was authorised to institute investigations with the object of introducing cost finding methods to the operation of the American railways. From the theoretical aspects there can be hardly any doubt as regards the value of a successful method whereby the costs of transportation services might be arrived at. But on account of certain inherent difficulties consequent on the joint character of several parts of railway expenditure it was not easy to allocate precisely the joint expenses between the different sorts of transportation services. Thus, for example, the railways undertake passenger and freight transportation, in each of which the particular service rendered may vary in accordance with the average length of the journey, the average haul, the type of equipment used, the ancillary services rendered and the motive power used. It is not easy in this bewildering mass of complicated operating factors to assign precisely the amount of expense incurred in connection with the movement of passengers or goods. The same vehicle, for example, might carry sand or coal along with valuable freight such as bullion, silk, etc. The attempt has, therefore, been rendered extraordinarily difficult and not been adopted for these reasons.

Some knowledge even in an approximate degree was necessary for the regulation of rates, and the regulatory bodies or commissions who were entrusted with the task of defining and prescribing reasonable rates have had to make some sort of compromise by grouping the expenses broadly between the passenger and freight transportation. Detailed instructions for the allocation of the expenses directly attributable to the passenger and freight traffic

1. Volume IV, pp. 239-42.

system is the "logical solution of the difficulties of railways." In an address to the annual meeting of the National Association of Railroads and Utilities Commissioners in Salt Lake City in August last, he declared that the formation of a single system "should result in a simple rate structure under differently rated territory, uniform tariff classification, transportation wastes reduced to a minimum and many other manifest benefits." Speaking about rate making he stated: "Rates are often fixed by making comparisons with the existing rates. When such a process is followed the history of the latter must be taken into consideration, otherwise, errors may continue to pile up until finally some rates thus arrived at may be entirely too low or too high. It is well to check them with the costs of operation when there is any doubt in prescribing just and reasonable rates, fares or charges, for railway transportation. The Interstate Commerce Commission has found it extremely difficult in the past to consider the cost of providing transportation, as one of the important factors in rate making.

The railway business is so complex that only a small portion of the expenses can be charged directly against any particular service, and most of the so called 'common expenses' are incurred for the joint benefit of several services. Hundreds of cost exhibits have been submitted to the Commission by carriers and shippers but the methods of assigning and apportionment of the common expenses have varied widely, and the unfortunate result has been that such cost figures could not be accepted with confidence and often have been almost wholly disregarded in the decisions reached by the Commission. The necessity to ascertain the actual cost of the transportation service rendered is becoming increasingly insistent with the emergence of road motor competition. The need for a reasonably accurate cost data for both railway and the road services has become imperative. This is indicated by a marked increase in the number of cases before the Commission where either one or both classes of carriers attempt to analyse their costs. Mr. Miller referred to the important measures adopted during the last two years in perfecting the existing technique of costs analysis. The first of these was the revision of the rules for separating freight and passenger expenses which had been effective since January 1, 1920. The revised rules introduced on the 1st of January, 1936, have met certain defects in the earlier system. Secondly the annual and monthly report forms used by railways in their reports to the Commission were revised to provide refinements in the separation of certain expenses and more statistical information as to the transactions of the railways. Thirdly an attempt is being made to localise expenses if and when necessary by providing for the assignment and apportionment of railway systems, freight expenses between *accounting divisions* and further separation of such expenses between those chargeable to road, yard, water transfer, station, special services, general overhead and taxes. Similar rules for analysing the expenses of the road transport undertaking are also stated to be under consideration.

rates and analysing railroad statistics which contains within itself the means of making perfecting amendments as further experience is gained in the actual operation of the system." The proposal is one of extraordinary interest to all railway accountants and its adoption is calculated to introduce an altogether new method of approaching the financial aspects of railway working. As the problems of rate making and of accounting are essentially similar for all railways, no apology is needed in reproducing a summary of the principal features of the proposed system of cost finding described in the Report.

"In most manufacturing industries, sales are in terms of products whose cost consists largely of materials entering directly into the different products and labour entailed in processing them, and in determining the cost of the products, the indirect and over-head expense (representing the rest of the cost) is divided among the products largely on the basis of the value of the direct labour and material charged to each.

In the electric utility industry, which in many respects is more nearly comparable with railroading, the product (electricity) cannot be manufactured in advance of the time of use, and there is no direct labour or material that can be identified with the electricity sold to each consumer upon which to distribute indirect and over-head expense. This makes it necessary, as in the railway industry, to distribute indirect and over-head expense very largely on the basis of arbitrary factors rather than on direct labour and material. Because electricity is usually sold on a *sliding* (kwh) rate scale according to the amount used, it is difficult to determine cost in sales units (kw hours registered on consumers' meters) that are comparable with revenue. Instead, revenue and expense are more usually divided between the same prescribed customer classifications, and comparison is made in terms of the totals for each class rather than in the units (kwh) in which it is sold.

In railroading we have most of the problems of the electric service industry complicated by a much greater number of variables. In it, dependable costs cannot be obtained either by computing cost on the basis of direct expense *plus* a *pro rata* proportion of indirect and over-head expense as in manufacturing, or by dividing revenue and expense into a limited number of customer classes as in the electric utility industry. Trains vary in length, tonnage, motive power, and character of service, and most of them

carry a wide variety of commodities ranging from baby carriages to tomb stones. One shipment may be handled by several roads. The distance, the equipment, and the number of interchanges, yarding and re-classifications are different for almost every shipment.

In order to deal with this unusual number of variables it is necessary, as in the insurance business, first to determine an over-all base cost per car for the rate in question predicated on only a limited number of basic factors, and then to modify it to meet any special requirements of the particular rate.

The proposed plan is based on this idea, and permits of a continuation of the present I.C.C. Classification of Accounts, Accounting Procedure, form of Annual Report with only minor changes, and the Rules for the Separation of Passenger and Freight expense in effect on January 1, 1936.

It contemplates the division of all expenses of each railway between passenger and freight services, and the freight portion in turn between the accounting divisions of each railway. The above-mentioned base cost is to be determined on the basis of a given year or period of years and selected accounting divisions of the roads to which the rate in question is to apply.

The "base cost" would be arrived at by, in effect, dividing the freight expense of each road, or accounting division where the road is divided into accounting divisions, between CL and LCL freight, and CL portion in turn between box, refrigerator, stock, open top, tank and flat cars; and the LCL portion between box and refrigerator cars, all as described at length in the Section "Cost Data to be Furnished by Carriers in the Form of a Supplement to their Annual Report to the I.C.C." These eight divisions of expense (6 CL and 2 LCL) are, for practical purposes, comparable with major commodity groups. Each type of car has been developed through the years to serve a group of commodities. The proposed plan assumes that the line haul cost of 50 tons of sand in an open top car would be the same as the cost of handling 50 tons of coal in a similar car.

There would be the four following over-all costs for each of the above "eight divisions of expense":

Terminal Service—Originating and Terminating
Line Service—Way Train

Line Service—Through Train
Line Service—Other than Train (Intermediate)
(Yarding, etc.)

Terminal services include those portions of the road, yard, station, water transfer, and other services that relate to the originating and terminating of a shipment and *do not* fluctuate with the length of the haul. Line services include portions of the road, yard, station, water transfer and other services that relate to moving a shipment between origin and destination and do fluctuate with the length and the haul.

All expense in connection with certain services* would be excluded from the foregoing figures, and the estimated expense of only such of these as were involved in the rate in question (and not separately paid for) included in arriving at the base cost. Expense in connection with all other services and special conditions would be left in the figures used in computing the base cost and dealt with separately.†

The figures up to this point would be based on operating expense, taxes, and joint facility and equipment rentals including actual maintenance expense, but no allowance for return on investment. At this point they would be adjusted to reflect average maintenance expense over a period of years and to include return on investment as described in the Section "Adjustment".

After being so adjusted the cost per car would be divided by the number of tons or hundred weight of the load to arrive at the cost in terms of a freight rate.

The Commission would have a small organization unit, whose duty it would be to study the proposed plan and the costs produced under it as a going concern. It would be the duty of this organization unit to follow all decisions of the Commission with relation to cost finding for rate making, and to make such modifications of the plan as were necessary to give them effect; also to accumulate, coordinate, and catalogue all decisions of the Commission bearing on policies to be followed in determining base costs and modifying factors, with a view to making them avail-

* Lighterage, CL and LCL; protection against freezing; refrigeration; slating-stock cars; racking flat cars; weighing cars; storage; grain elevators; grain doors, etc; coal and ore wharves; stockyard and handling live stock; and loss and damage-freight.

† Not described in this summary.

able for reference purposes. It would be expected to make recommendations to the Commission, from time to time, for the simplification and improvement of the plan.

COST DATA TO BE FURNISHED BY CARRIERS IN THE FORM OF A SUPPLEMENT TO THEIR ANNUAL REPORT TO THE I.C.C.

Each carrier would be required to prepare a Supplement to its Annual Report to the Commission containing the necessary information for determining costs as described in the succeeding sections. The basic material for this report would be taken largely from existing accounting records, and transformed by statistical procedure into cost data.

Following is a description of the Schedules that would be contained in the Supplementary Reports, arranged in the approximate sequence in which they would be prepared. The description is in sufficient detail to show the cost structure. The rules for the separation and distribution of expense are given on each schedule, reproduced in the Appendix to the Report.

Separation of All System Expense—Between Freight, Passenger, and other Services; and the Equipment Portion of Freight Expense in Turn—Between Types of Equipment.

- A-1. Same as Schedule 320 in Carriers Annual Report to the I.C.C., showing separation of Operating Expenses, Taxes, and Equipment and Joint Facility Rents between: Freight, Passenger, and Other Services; based upon the rules promulgated by the Interstate Commerce Commission's order of November 11, 1935.

Separation of System Freight Expense—Between Accounting Divisions.

- A-2. Separation of Equipment Items of Freight Expenses (from A-1) between Types of Equipment, with Car Maintenance Items further separated between Types of Cars, and each of these in turn between that attributable to Use and that attributable to Time. (To A-3).

Separation of System Freight Expense—Between Accounting Divisions.

- A-3. Separation of All Freight Expense (from A-1, with Equipment Maintenance Items subdivided as in A-2), and Incidental Revenue for Special Services from Schedule 310 Annual Report, between Accounting Divisions. (To B-1 and B-2).

Separation of Accounting Division Expense—Between: Road, Yard, Water Transfer, Station, Special Services, and General Overhead.

- B-1. Separation of Car Maintenance Expense by Types of Cars (from A-3) between those:
In Road Freight Trains (To B-2, C-1).

In Road Passenger Trains (Not dealt with in this report).

In Yards (To B-2, C-3).

In Water Transfer (Car Floats) (To B-2, C-4).

- B-2. Separation of All Expense (from A-3, with Car Maintenance items subdivided as in B-1) between:

Road (To C-1).

Yard (To C-3).

Water Transfer (To C-4).

Station (To C-5).

Special Services (To E-1).

General Overhead (To D-1, D-2, D-3, E-1).

Separation of Road, Yard, Water Transfer and Station Expense—Between Services.

- C-1. Separation of "Road" Expense (from B-1 and B-2) between:

Terminal Service:

- (a) Way Trains—Station Platform (To C-5).

Line Service:

- (a) Through Trains (To D-2).

- (b) Way Trains—Running (To D-2).

Common:

- (a) Way Train—Switching (To C-2).

- C-2. Separation of "Common Way Train Switching" Expense (from C-1) between:

Terminal Service including terminal interchange:

- (a) House Tracks (To D-1).

- (b) Team and Industry Tracks (To D-1).

- (c) Switch connections (To D-1).

Line Service:

- (a) Intermediate Interchange (To D-3).

Special Service:

- (a) Icing Tracks (To E-1).

- (b) Corral Tracks (To E-1).

- C-3. Separation of "Yard" Expense (from B-1 and B-2) between:
Terminal Service, including terminal interchange:

- (a) House Tracks (To D-1).

- (b) Team and Industry Tracks (To D-1).

- (c) Switching Connections (To D-1).

Line Service:

- (a) Intermediate Interchange (To D-3).

- (b) Intermediate Switching between connections and connections (To D-3).

- (c) Intermediate Yardings between reporting carriers, road trains (To D-3).

Special Service:

- (a) Icing Tracks (To E-1).
- (b) Corral Tracks (To E-1).
- (c) Weighing Cars (To E-1).

C-4. Separation of "Water Transfer" Expense (from B-1) and (B-2) between:

Terminal Service (Car Float):

- (a) Terminal Transfer LCL (To D-1).
- (b) Terminal Transfer CL (To D-1).

Line Service (Car Float):

- (a) Intermediate Transfer (To D-3).

Special Service (Lighter):

- (a) Pier Stations and House Tracks (To E-1).
- (b) Industries and vessels at piers or at anchor (To E-1).

C-5. Separation of "Station" Expense (from B-2) and "Way Train Station Platform" Expenses (from C-1) between:

Terminal Service.

- (a) Office Expense—Originating and Terminating CL (To D-1).
- (b) Office Expense—Originating and Terminating LCL (To D-1).
- (c) Platform Expense—Originating and Terminating CL (To D-1).
- (d) Platform Expense—Originating and Terminating LCL (To D-1).

Line Service:

- (a) Office Expense—Intermediate Interchange CL (To D-3).
- (b) Office Expense—Intermediate Interchange LCL (To D-3).
- (c) Platform Expense—Transferring LCL Shipments en route (To D-3).

Summary of Terminal and Line Service Expense with General Overhead Added—By Types of Cars.

D-1. Summary of Terminal Expense (from C-2, C-3, C-4, C-5) and Pro Rata Portion of General Overhead (from B-2), separated between:

CL Box Cars
LCL Box Cars
CL Refrigerator Cars
LCL Refrigerator Cars
CL Stock Cars
CL Open Top Cars
CL Tank Cars
CL Flat Cars

To F-1. According
to Type of Equip-
ment involved.

D-2. Summary of Through and Way Train Line Expense (from C-1) and Pro Rata Portion of General Overhead Expense (from B-2) separated between:

CL Box Cars
LCL Box Cars
CL Refrigerator Cars
LCL Refrigerator Cars
CL Stock Cars
CL Open Top Cars
CL Tank Cars
CL Flat Cars

To F-1. According
to Type of Equip-
ment involved.

Passenger Train Cars in Freight Trains (Not dealt with in this report).

D-3. Summary of Line Expense, other than Through and Way Train (from C-2, C-3, C-4, C-5) and Pro Rata Portion of General Overhead Expense (from B-2) separated between:

CL Box Cars
LCL Box Cars
CL Refrigerator Cars
LCL Refrigerator Cars
CL Stock Cars
CL Open Top Cars
CL Tank Cars
CL Flat Cars

To F-1. According
to Type of Equip-
ment involved.

Summary of Special Service Expense with Overhead added—By Services and Commodities.

E-1. Summary of Special Service Expense (from B-2, C-2, C-3 and C-4) separated between:

Grain
Storage
Coal and Ore
Live Stock—Originating or
Terminating
Live Stock—Resting, Feeding
and Watering
Lighterage CL
Lighterage LCL
Protection Against Freezing
Refrigerator Cars—Initial
Icing
Refrigerator Cars — Interme-
diate Icing
Boarding Stock Cars
Racking Flat Cars
Weighing Cars
Loss and Damage CL
Loss and Damage LCL

To F-1. According
to Type of Equip-
ment involved.

The preparation of this supplementary report would be the only work to be done by the carriers in connection with the determining of costs in units comparable with freight rates as part of their regular routine. They would not be required to complete costs in such units for other than their own purposes. Such costs would be computed only as needed by the parties having need for them. Where needed by the Commission, they would be computed by the Bureau of Statistics of the Commission."

ROUTINE COST ACCOUNTING—ITS HISTORY AND PROBLEMS.

In contrast with the progressive and reforming zeal of the Cost Finding Report, the attitude of the American Railways towards cost finding proposals has been very critical. An able exposition of the arguments of the railways is contained in an address by Mr. J. J. Ekin, Vice-President and Comptroller of the Baltimore and Ohio Railroad Company, before the Accounting Division of the Association of American Railroads, on April 30, 1937 at Chicago. Mr. Ekin's survey of the evolution of the principal ideas on the subject of cost accounting raises certain fundamental problems of Railway Economics, and provides on the whole a stimulating contribution to the current discussions on the subject. We are indebted to Mr. E. R. Ford, Secretary of the Accounting Division, for facilities to reproduce the following extracts from the address.—Ed. Note.

If we are to talk about Cost Accounting, I think we should give some of the background or early history.

I. Genesis.

In the Transportation Act of 1920 the Interstate Commerce Commission was directed to make an investigation into, and establish, accounting for depreciation, in the following language:

"Section 20, paragraph 5: The Commission shall, as soon as practicable, prescribe for carriers subject to this part, the classes of property for which depreciation charges may properly be included under operating expenses, and the percentages of depreciation which shall be charged with respect to each of such classes of property, classifying the carriers as it may deem proper***."

This feature was of particular importance in connection with recapture as then included as Section 15-A in the Act of 1920.

The Commission instituted proceedings in the matter of depreciation known as Docket 15,100. Later the scope of the investigation was broadened to include a proposed general revision of accounting rules for steam railroads. That docket was known as *Ex Parte 91*.

The effective accounting classification for steam railroads has been styled a system of financial accounts, and it was stated in Commissioner Eastman's proposed report in *Ex Parte* 91, August 15, 1929—

“***It does not purport to show unit costs or receipts. To some considerable extent, however, these can now be derived from the financial accounts with the aid of the operating statistics which ** carriers ** record and report. It is possible, for example, to determine costs and receipts per ton mile or per car mile, and various other unit results. Principles of what is known as cost accounting also have been instituted to a limited extent, as in the separation in the annual report of receipts and expenses as between passenger and freight services and of various items of expense as between road and yard expenses.”

In the year 1927 a proposed new system of accounts prepared by Cost Accountants and submitted by the National Industrial Traffic League and others carried the principles of cost accounting very much further. Their presentations provided for elaborate segregations or allocations of receipts and expenses to particular services or operations. The allocations involved apportionment of various common items of expense upon ratios derived from statistical information currently maintained, or to be maintained as a result of the installation of the proposed scheme.

After this presentation the hearing in *Ex Parte* 91 changed radically from a general revision of the accounting rules for steam railroads to cost accounting.

II. *Initial and Subsequent Steps of Interstate Commerce Commission—Base from which Cost Accounting in Railroad Service must flow:*

The history of cost accounting as identified with the Interstate Commerce Commission, commenced with their issue of the first annual report on “Statistics of Railways” for the year 1888. In that issue an observation was made by the Chief Statistician of the Commission that an apportionment of expenses between passenger and freight service must in some manner be made.

In the next five years, 1889 to 1893, the Interstate Commerce Commission statistics reported receipts, cost and profit per ton mile and per passenger mile. This practice, however, was abandoned for the following reason, as shown in Report of Statistics of Railways, 1892, pages 86 and 87—

“Not more than half the items of operating expenses can by any means be assigned to passenger and freight service. This fact, taken in connection with the fact that the average cost per ton per mile and per passenger mile, which was obtained upon the basis of the computation in question, was rarely used by Commissioners in judging of fair rates, induced the Railway Commissioners to abandon this classification.”

Thereafter for a number of years attempts to find costs of particular railway services were opposed by the Chief Statistician of the Commission, although conceding that appropriate cost statistics were useful for checking efficiency of operation.

In 1907 the then effective classifications included in “Transportation Expenses” separations of yard and road expenses in the hope that this would throw some additional light on the question of transportation costs. In that year there was renewed interest and extended discussion concerning the applicability to railroads of cost accounting methods used by manufacturing industries. At that time (1907) the general conclusion was reached by the National Association of Railway Commissioners that—

“From the facts presented the conclusion can be justly drawn that the principles and methods of cost accounting which have been adopted in other industrial and commercial undertakings can in the main also be applied to the railroad services. Some changes as to details may be necessary in the application of those principles owing to difference in the respective enterprises, but no radical changes would seem to be required.”

This National Association of Railway Commissioners have from time to time agitated on the question of cost accounting.

In 1910 the Commission found that many railroads, although not required to do so, had continued to separate expenses between freight and passenger services, and, in some instances, between territories.

In 1911 the Bureau of Statistics was directed to take up with the Railway Accounting Officers the question of again including in annual reports at least a partial separation of expenses between passenger and freight services. The attitude of the Accounting Officers is expressed in the following resolution, adopted in 1913:

“Resolved, that this Committee concurs in the view expressed by the Special Committee on Corporate, Fiscal, and General Accounts in the year 1906, and that this Committee, after due and deliberate consideration, reiterate that no fixed rule for the division of common expenses between freight and passenger can be devised which will be equitable to all carriers, or to the same carrier under all conditions, or to all divisions of the same carrier, and be it further,

"Resolved, that the attention of the Commission be called to the fact that even the partial separation suggested by the Commission of stating amount of expenses directly assignable to freight or passenger will involve some additional expense to carriers with no appreciable benefit to the Commission ***".

In 1914 the Interstate Commerce Commission held hearings with respect to the expense separation, and under date of July 1, 1915, despite the opposition of the carriers to such a requirement, specified the basis for dividing all accounts, excepting maintenance of way and structures which were, at that time, left undivided.

During Federal Control the Commission's requirements as to the separation of freight and passenger expenses were suspended. Beginning with 1920 they were reinstated in revised form, and methods of apportionment prescribed for all the accounts. In 1924 the Railway Accounting Officers requested the Commission to make the separation optional. This request was denied, the Commission stating that experience had shown that the separation served a very useful purpose and evidence based upon it was frequently adduced in rate cases by both the railroads and shippers. The separation was in effect until January 1, 1936, at which time the rules were revised and extended to include hire of equipment, joint facility rents, taxes, etc., thereby dividing total net railway operating income between passenger and freight.

So much for the history of the separation between freight and passenger expenses, and data which must be used in establishing a basis for any cost accounting system.

III. Suggested Cost Accounting System.

In 1927 the National Industrial Traffic League introduced in the hearing, *Ex Parte* 91, the "Alternative Plan". This, it was stated, was based upon alleged requirements of Federal and State regulation, covering a greatly enlarged and diversified traffic offering correspondingly increased opportunities for discrimination and complaint, and the consequent need for adequate cost data for offensive and defensive purposes, especially when the provisions of Section 15-A with respect to "honest and economical management, and re-capture" are taken into consideration. The proposed plan attempted, among other things, to—

- (a) State the periodic financial status.
- (b) Classify expenditures and receipts according to their character.

- (c) Protect capital by accounting facts which relate to its exhaustion and subsequent restoration—depreciation.
- (d) To promote efficiency and economy in operation and maintenance by disclosing performance costs.
- (e) Differentiate between public service, cost thereof, compensations received therefor, and private enterprise, its costs and compensations—construction by the carriers in their own shops of equipment and other items of property which would otherwise be purchased from industry.

etc., etc.

This would require accounting data separately for the three major railroad transportation functions—

1. Line Haul.
2. Station.
3. Train Terminal.

It was proposed that under the general headings would be groups of "Line Haul", "Station", and "Train Terminal" primary accounts. Under "Station Accounts", for example, would be included the following:

- General station structures.
- Special structures for agricultural products.
- Special structures for animals.
- Special structures for mine products.
- Special structures for other freight.
- Special structures for passenger service.
- Station motor service structures.

etc.

Individual repair cost data, etc., would be required for refrigerator, stock, tank, gondola, hopper, box, and flat cars.

The plan intended to account separately, in addition to the orthodox maintenance of way, maintenance of equipment, transportation, traffic and general expense groups, for water line operations, motor line operations, and the large group of so-called incidental operations, which would include dining and buffet car service, hotels and restaurants, grain elevators, etc. Elaborate analyses of the expense of each was provided and to extend the cost accounting scheme there were two primary accounts, one through which credit would be allowed for transportation for investment, and another, credit for the transportation for conducting operations, the latter a radical step. Through the operation of clearing accounts which would include general over-head expenses, etc., all expenses would

finally lodge in the primary accounts provided, from which it was intended to draw the cost data in order to show net results from the following service—

Freight Train.
 Suburban—Passenger Train.
 Coach—Passenger Train.
 Sleeping—Parlour Car.
 Dining—Buffet Car.
 Baggage—Mail—Passenger Train.
 Express—Passenger Train.
 Milk—Passenger Train.

It must be remembered the plan ambitiously provided for the further separation of all those services between the three functional costs originally mentioned—Line Haul, Station, and Train Terminal. The proponents of the Alternative Plan were careful to explain that it is not intended to eliminate the necessity for special cost studies.

At the same hearing another cost accounting plan was submitted by the Chairman of the Statistical Committee of the National Association of Railway and Utility Commissions. This plan was not as comprehensive nor as ambitious as the one introduced by the National Industrial Traffic League. There would, however, be separations of the expenses in the general groups into functions of Line Haul, Terminal, Station Service, Yard Service, etc. Equipment expenses were to be divided between owned cars, foreign carrier cars, privately owned cars, and those divisions, in turn, subdivided, for example, in the cases of owned cars—between repairs made by the owning carrier, by foreign carriers when cars were on their lines, and repairs made by outside shops. As in the case of the Alternative Plan, the distribution of common expenses for various services involved in many instances, apportionment upon ratios derived from statistical information available or to be furnished by the carriers. One thing was clear the proponents of this plan did not claim that it would, in itself, show the costs of the various services, but, rather, that it would lay a much better foundation for special cost studies than at present existed.

They desired, in connection with their plan, a uniform and better method of allotting revenues and expenses to States, the annual reporting of property values by States, using Interstate Commerce Commission primary valuations as a base and utilis-

ing subsequent net annual additions and betterments; and, apportionment of revenues, expenses and values by rate scale territories, coupled with the definition by the Interstate Commerce Commission of the precise boundaries of those territories.

The Taylor Society, a professional society whose chief interest is the study of management in an attempt to derive and formulate principles which will promote what may be called the science of management, presented evidence with regard to the application of cost finding, or cost accounting in use in private industries and to some extent, also, in the public utility field. The theoretical and practical sides of the question were developed by this evidence. Mr. J. H. Williams was their chief witness. Some observations of the witnesses of this Society were—

"Those units of cost must be derived by a close analysis of the operating facts based upon observation and experiment."

"The number and kind of summaries or reports which are worked up from the unit data should be determined by the needs of the particular managerial situation."

"Cost finding should be dynamic rather than static * * * it must grow and solve out of experience and should be subject to continual study, modification and expansion to meet developing needs."

The railroads' position was one of unalterable opposition to any form of continuous, routine cost finding, advancing as some of the reasons the following:—

The plans submitted did not provide any yardsticks for measuring economy of operation.

The basic data, voluminous and unwieldy, to be compiled currently, without avoiding necessity for special cost studies and field investigations.

Necessary bases for making the apportionments were not, as a general rule, provided.

One of the large items of expense—car repairs—has not, to date, been divided upon any scientific basis between types of cars, or between line and terminal service, and that no suggestion as to how this might be accomplished was contained in any of the plans presented.

They would not, as suggested, produce costs of particular commodities transported, or the cost of transporting commodity groups.

New statistical data required for the purpose of allocating expenses, necessitating expensive clerical help, for such allocating factors as speed gross ton miles, allocated car foot space, gross ton transfer miles, etc.

Would disarrange and distort for comparative purposes the component parts of not only departmental accounts, but also operating ratios.

Provide for the distribution of taxes and rents to primary maintenance accounts, etc.

The proposed report issued after the hearing, stated, among other things, that relative costs are, on the whole, more important than absolute costs, and it is seldom necessary to assign the responsibility for common expenses with meticulous detail and that notwithstanding the problem of allocation or apportionment is plainly an important one and much more extended inquiry into the matter is necessary than has so far been had. Further, the report showed the proponents of neither the Alternative Plan, nor the Bitney Plan, were able to advocate their proposed methods with entire confidence, and it is also evident that the matter of additional expense involved and general practicability is of great importance and in need of extensive research, particularly because of the great magnitude and unusual characteristics of the railroad industry as compared with private industries, which are successfully using a system of cost accounting.

As a result, the Commissioner recommended in his proposed report:

"That the Commission find that it is not justified on this record in prescribing a system of continuous, routine cost finding, with accompanying statistical requirements, but that it has been shown that there is clear warrant and need for further intensive research into this subject and that it should be carried on under the auspices of the Commission * * *".

On the twenty-eighth of March 1936, under the Commission's order, the proceeding in *Ex parte* 91 was discontinued.

So much for the first "Chapter" on this subject.

In the Emergency Transportation Act of 1933, Section 13, the Coordinator was charged with the duty of improving transportation conditions throughout the country, including cost finding in rail transportation, in the following language:—

"Section 13. It shall further be the duty of the Coordinator, and he is hereby authorised and directed, forthwith to investigate and consider means, not provided for in this title, of improving transportation conditions throughout the country, including cost finding in rail transportation and the ability, financial or otherwise, of the carriers to improve their properties and furnish service and charge rates which will promote the commerce and industry of the country and including also, the stability of railroad labour employment and other improvement of railroad labour conditions and relations.* * *"

Pursuant to the duty imposed the Federal Coordinator employed Mr. John H. Williams, the expert witness for the Taylor Society in *Ex Parte* 91, who with Mr. C. H. Crandall, of the Bureau of Accounts of the Interstate Commerce Commission, and a Committee of Railroad and non-railroad men, were to investigate and report upon a cost finding plan for railroads.

The Coordinator stated that *State Commissions* and the *National Industrial Traffic League* were to be invited to appoint representatives for service on this advisory committee. The impelling motive suggesting research by this special committee, was made clear by the Coordinator in his statement of September 19, 1933 (taken from his report in *Ex Parte* 91, August 1929):

"It is also sufficiently clear that while a public hearing in an inquiry of this kind serves a very useful purpose in focussing attention upon the problem and bringing to light the essential underlying questions, it is an ineffective and inefficient means of arriving at definite and detailed conclusions. The tendency in a public hearing is to array against each other very positive and emphatic statements of conflicting views. Partisan antagonism is magnified and accentuated. For many purposes this method of inquiry has positive merits, but when the subject matter is an accounting system, involving innumerable details which ramify and extend into all manners of questions of practical administration, operation, and even applied mathematics, the better method of inquiry is plainly something akin to scientific research which can be carried on away from the forum, can penetrate into the field of actual operations, and can even, if need be, undertake various tests and experiments."

Shortly after embarking upon the study, Mr. Williams expressed the desirability of having the reaction of railroad men not engaged with him in the work. For that purpose he invited Mr. Fell on the Pennsylvania, Mr. Thomas of the Chesapeake and Ohio, and myself to meet with him and discuss the problem. The outcome of this conference, generally stated, was a severe criticism of the proposed report; the pointing out of many defects; the impractical and difficult features involved; and the great expense

of the continuous cost finding system proposed; and, that the current expense would be occasioned in the compilation of data for which there would be no current need.

The members of the Advisory Committee of the Association of American Railroads, after full discussion of the plan with Messrs. Williams and Crandall, declined to lend approval to any cost plan which their judgment condemned, and which they believed would eventually lead to the abandonment of the carriers' rights. Mr. Williams' plan did not receive gentle treatment within the Coordinator's own family. The Section of Transportation Service criticised the expensive, continuous routine cost finding features, and presented their revised creation. Their plan provided that objectives—

- (1) Personnel responsible;
- (2) Kind, type, and quantity of labour, service or materials acquired or applied;
- (3) Carrier and geographic location;
- (4) Facility, individual and type to which the application is made;
- (5) Service in which it is incurred, both generally, and particularly, etc.;

were to be obtained without disturbance of the present classification of accounts by earmarking expenditures at the time of original entry with respect to the matters just enumerated, and correlating them with primary traffic and operative service units similarly localised. The purposes of the correlation would be:

- (1) To localise all services and directly allocate many expenditures which at present must be apportioned statistically, if cost studies are to be made;

and

- (2) To furnish data by which joint costs might be apportioned accurately between locations, facilities, or services, by using the service factors, such as train miles, gross ton miles, locomotive ton miles, and the like, which apply at the particular location, or in the particular service, instead of system wide average factors such as are now necessary.

Under the proposed Section of Transportation Service plan each debit item—voucher, payroll, journal entry, etc.—would be analysed and mechanically recorded on tabulating cards in such form as to permit subsequent tabulation, *if, as and when required from every standpoint*. Such records would contain full accounting as well as statistical data, resulting in complete harmony of

accounts and statistics at all times. The plan was accompanied by the somewhat paradoxical statement—

"The total expense of keeping accounts in this matter should be less than the present cost. While the expense of accounting might be increased, this increase would be offset by the elimination of much statistical work in the other departments and the avoidance of duplicate work thereby entailed, not only in compiling present statistics, but in attempting to reconcile them with one another or with the accounts."

The section of Transportation Service plan, while prepared in quite some detail, was not, as far as we are informed, released publicly, and remains in the cost finding records of the Coordinator.

Action on the Williams cost finding plan, the carriers were led to believe, had been deferred by the Coordinator; and, the Bureau of Statistics of the Interstate Commerce Commission delegated to develop such costing as was deemed necessary, by easy stages. However, due to the Coordinator's tenure of office ending June 16, 1936, the Williams plan was hurried to completion and released.

Representatives of the Commission's Bureau of Statistics also believed the Williams plan was too meticulous, too extensive, too expensive, and a continuous effort for which there is no plain need. Based upon that conviction, the Bureau of Statistics is endeavouring, in carrying out the duty imposed upon them, through the medium of actual studies, tests, etc., to arrive at uniform methods for analysing the expense of types of service, which will be sufficiently accurate to warrant the confidence of the carrier and the Commission officers, with a minimum of disturbance to carrier accounting routine, and a minimum cost of carrier preparation of the necessary exhibits. The exhibits to be used when, as and if the carriers, or the Commission, desire to localise expenses, would provide for assignment and apportionment of system freight expenses, between accounting divisions, and a further separation of such expenses between road, yard, water transfer, station, special services, overhead taxes. The data thus obtained may be supplemented by such other exhibits as carriers may desire to furnish in particular cases. The futility of preparing elaborate and expensive exhibits based upon formulæ, never approved by the Commission, and, therefore, given little, if any, consideration due to lack of confidence in their accuracy and the inference that the apportionment methods used were those selected

after trial of several factors to produce the desired result, will no longer be emphasised.

As stated, due to the Coordinator's tenure of office ending June 16, 1936, the plan prepared by Mr. Williams was hurried to completion and released by Mr. Eastman, Federal Coordinator, under date of June 5, 1936 as a "Report on Cost Finding in Railway Service for Regulatory Purposes". It so happens that today, April 30, 1937, this report of the Federal Coordinator of Transportation is on the docket for consideration by the Board of Directors of the Association of American Railroads at its meeting in Washington.

The important feature, as I see it, is contained in Mr. Eastman's introductory statement, from which the following is quoted:

"In recent years, however, new interest in railroad cost finding has developed and grown rapidly. One reason for this has been the extent to which other large industries have found it both practicable and beneficial to adopt continuous routine systems of cost finding, not only for the control of expenditures, but also for product pricing. Another and more important reason has been the great development of competition from other forms of transportation, making it essential for public regulatory authorities as well as the various transportation agencies to have as definite knowledge as possible of service costs in order, particularly, to prevent rate cutting from being carried beyond sound economic limits."

The inference is that the continuous routine systems of cost finding might be of advantage in the control of expenditures and fixing rates to prevent rate cutting beyond economic limits. We do not believe that continuous routine cost finding systems such as have been proposed would add to the value of the present system of accounting in controlling expenditures, nor could it be used as a basis for fixing rates, and would be of little, if any, use in preventing rate cutting. This will be dealt with in more detail later.

VI. Conclusions.

All who have been associated with this subject for any length of time will appreciate the particular problems that confront the carriers. The Commission knows, also, the particular problems in which they need help; all of those problems, through cooperation, it is hoped, may be solved, and ways found to produce data desired in the most efficient and inexpensive manner. It may also be the means of avoiding releases such as "Average Railroad Freight Transportation Costs" issued by the Bureau of Statis-

tics in December 1936. In this release the Bureau states that the data:

"* * do not * * show the cost of carrying traffic by a particular route or in a particular region, or for a type of traffic which involves an unusual amount of interchange of other extra service.

"Again these costs as rate guides, take no account of the fact that it is customary to classify freight to some extent as to its value and in other ways vary rates according to what the traffic may bear, nor do they take account of the fact that it may be justifiable to add an extra profit to freight charges to cover the deficit which may be incurred in passenger service. In other words, these costs treat the freight service as a separate business which is made to bear only a part of the return on roadway investment and a part of the cost of maintaining the roadway according to the use made of it by the various services."

Also,

"These cost rate tables make no allowance for the fact that rate scales are commonly based on the short line distance, although much traffic moves via circuitous routes."

"Such average costs as are here presented can rarely alone be determinative of what a rate decision should be in a particular case, because it is necessary in rate cases to consider the place of a particular rate in the general rate structure, the regional differences in cost of operation, commercial conditions, and many other factors."

With those shortcomings, any presentation of that character is premature, and has a detrimental effect upon the efforts being made to ascertain in a simple, comprehensive, inexpensive way, the data necessary for use in individual localised rate cases.

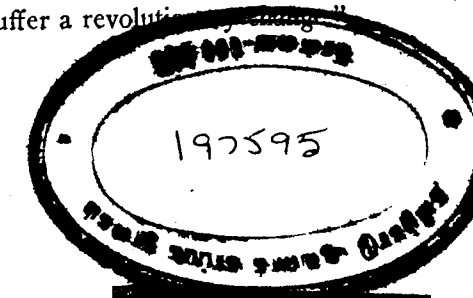
That procedure which may be characterised as the special study method, has been advocated by the carriers from the beginning of the cost accounting discussions. They have repeatedly advanced the thought that if the Commission must have cost data in connection with its duties in establishing rates the data should be obtained by the "special study" method.

Rates if based upon cost alone, would create chaos. Twenty-five years ago it was stated by the Commission—

"If a carrier may raise all rates to a basis where each will bear its share of cost, including all costs, and no lower rate is reasonable, then it must follow that all rates are unreasonable which yield to the carrier a greater return than such cost. Under such theory what would be the rate on tea or silks, or high priced horses, or delicate machines? Is there to be no classification *plus* insurance risk? If so, the tariffs of every railroad in the United States must suffer a revolution."

All that is true to-day—

Xmas 1937



"There is no flexible limit of judgment if all rates must be upon a level of cost, and out of every dollar paid to the carrier must come a fixed amount of return for capital invested."

After a thorough consideration of this subject the conclusion may be offered that there are no new recommendations contained in any of the material recently released that would make necessary an alteration in the position which the carriers have taken in opposition to the principles involved in continuous routine cost finding.

The conclusion may also be reached that carriers are definitely opposed to efforts to establish rates based upon cost alone, for the reasons that in their experience they know that rates thus established will not be responsive to the necessities of commerce, and that they will not be satisfactory to either the shipping public, or the railroads. It would be impossible to generally revise the present railroad rate structures based upon cost of service theory without seriously affecting the economic structure of the country.

It may also be concluded that the present progress along lines of establishing standard methods for all special cases, resulting in localised studies, as now suggested by the Commission's Bureau of Statistics, should receive the wholehearted cooperation of the carriers. The method of approaching this subject suggested by Commission representatives, should be endorsed by the Accounting Officers. It may be briefly stated as follows:

- (1) Develop a standardised method to be applied as far as practicable in all Commission cases, but which can be supplemented by any special exhibits which the carriers may wish to present.
- (2) This method should be based primarily upon the operating statistics generally kept by railways for managerial control purposes, supplemented by special tests to be made only when necessary.
- (3) The expense of maintaining a continuous system of cost accounting would be far in excess of any possible value to the railways so long as the Public Policy requires a stabilised system.

These tests when agreed upon should not include all of the railroads, but what may be termed "typical roads" should be selected and the experimental tests made in order to develop facts before the adoption of any general plan for preparing such a special study.

In considering this problem and establishing any proper method of accounting facts must be recognised. The great portion of transportation in this country is still performed by railroads; at least 70 per cent. of the volume of traffic is still handled by the rail carriers, which, as pointed out many years ago, are the arteries through which the commercial life blood of our nation flows. There is a difference between the railroad industry and other industries.

The railroad is engaged in producing train miles to haul passengers, mail and freight traffic, and, unlike other industries, it cannot manufacture these in advance and store them for market—the railroads have to be ready to perform the service when demanded. Industries may establish cost accounting systems for determining the market relations of the many thousand products manufactured but the railroad cannot do this with respect to the commodities handled in its trains.

The foregoing is a fact that must be recognised when comparing the accounting necessities, particularly when the rates charged by the railroad for transporting persons and goods are regulated by State and Federal authorities, which is not true as to the industries manufacturing goods.

As before stated, there should be no mystery in railroad accounting. It is simply auditing into the treasury the receipts from the sale of transportation through the medium of tickets and freight bills, and auditing out of the treasury, through the medium of time cards, material orders and service bills, the cost of producing this transportation, as represented by labour, fuel, material and supplies.

There should be a reduction instead of an expansion in the number of accounts. The accounts, as few in number as possible, should be constructed so that a distribution can be made from the detail of timekeeping, material disbursement, etc., with the least expense and so stated that they may be of use when it is necessary to make special cost studies for a specific purpose.

In the past I have stated, and I am still firm believer in obtaining actual cost of performing transportation as represented by the fundamental items of payroll, fuel, material, taxes and other items. My views on so-called cost accounting as submitted by those not directly connected with the railroad industry have been expressed as a witness and in discussion. The situation,

as I see it, is absolutely different between a public regulated railroad transporting the goods and the unregulated industry which produces or manufactures the items to be transported. I do not subscribe to the belief that there is going to be a fixing of prices for commodities nor a fixing of freight rates, but these will change from time to time as social and economic conditions change.

With the rail transportation carriers performing a service at the demand of the public, I am opposed to any expensive attempt at routine cost accounting for the expressed purpose of measuring rates. If, in the judgment of the Interstate Commerce Commission, the necessity arises for a study of cost in connection with the establishment of a rate, then that can be done under rules prescribed by the Commission without incurring the expense of a national continuous routine cost accounting system. I believe this fact is recognised by the Interstate Commerce Commission and we, as Accounting Officers, should cooperate with the Commission in securing whatever facts may be necessary in the interest of all concerned, including the public, but without incurring the useless and endless expense of so-called routine cost accounting.

PAYMENT BY RESULTS.

Payment of a fixed rate of wages, irrespective of the quality and quantity of the outturn, is not always the best way of getting the maximum out of labourers. This mode of remuneration no doubt gives the workers a sense of security by ensuring a particular sum on the expiry of the wage-period and thus indirectly exercises a healthy influence over their mental and physical well-being, but it, on the other hand, deadens, to a large extent, their individual energy, initiative and efficiency, as they know that nothing will be gained by putting in exceptionally hard work and the *will to improve* ceases to inspire them, when improvement is not followed by pecuniary rewards.

Various methods have been devised in factories and workshops to encourage payment by results without abolishing altogether the benefits of time-wage. In addition to retaining the daily or monthly wage, they provide that workers possessing intelligence and faculties of a superior order will not merely draw their fixed salary, but also additional remuneration in proportion to the excess of their output over that of an ordinary, average worker. Under this arrangement, the labourers are actuated in self-interest to complete their jobs as quickly as possible and they do not require close attention from supervisors. Moreover, workshop machinery are utilised to their fullest capacity, because rate of production becomes faster than under ordinary circumstances. Thus, overhead charges are cut down in two different ways.

Indian Railways own big workshops and are large employers of labour. So, they too had to solve the problem of remunerating workmen in a way which would draw the best out of them. While simple piece-work system still preponderates, some railways have adopted other methods which appeared to them more suitable for their local conditions. So far, no serious attempt has been made to study how far the theoretical advantages claimed for the bonus system have been actually realised and if it has at all yielded the good results which are expected of it, nor has it been ascertained which particular method of payment is the most

suitable for railway purposes. It is worthwhile to have such an enquiry and to introduce, if possible, a uniform procedure over all the Indian Railways. The nature of work done in railway workshops is practically the same everywhere, there is therefore no reason why the manner of payment which, after careful examination, is considered most advantageous from the point of view of the employer and the employee jointly, will not successfully replace the divergent practices which are at present in vogue in different places.

The various systems of payment chosen on Indian Railways—from the ordinary piece-work to the complex premium bonus—were all based on English practice. In England, bonus payments have undergone many refinements and some of these are named after their respective authors, *e.g.*, Halsey-Weir, Rowan, Emerson bonus and so on. It cannot be stated that any one of these principles of remuneration has been found uniformly more useful than the remainder. On the other hand, some of these seem to be specially suited to the peculiar needs of a particular industry, *i.e.*, textile, iron and steel, ship-yard, etc., although they may not possess an absolute advantage over others. As far as the railway workshops are concerned, there is a strong argument for adopting a common procedure everywhere, because the nature of work, *viz.*, manufacture and repairs to rolling stock, is the same at all places.

The various modes of payment by results now followed on Indian Railways are briefly described below—

N.W., E.I., B.B. & C.I., and B.N. Railways—Simple piece-work—A rate (labour value) is fixed for each job. The difference between this rate and the amount earned by a workman as his ordinary wages during the time which he takes to finish the job is either profit or loss to the man.

G.I.P. Railway—Piece-work System is not in vogue except in Matunga where Rowan Bonus payment has been applied only to one job, *viz.*, wheel-turning.

M.S.M. Railway—Halsey-Weir System—A job-rate is adopted for each piece of work. This job-rate or “standard” time is arrived at by adding two-thirds to the “estimated time”

(1) time taken to read the drawing and instructions; which consists of the following:—

- (2) time taken to set the machine; and
- (3) time taken for the actual operation.

Whatever time the workman is able to save out of the standard time is divided between himself and railway in equal proportions. In other words, the bonus payable is half the difference between the job-rate and the time taken.

E.B. Railway—Rowan Bonus System—The “standard” or “basic” time is fixed by adding 50 per cent. to the time actually taken by an average worker to complete the job in the presence of an investigator. If a workman is able to finish the job in less time, the time saved is shared between him and the railway according to the following formula:—

$$\frac{\text{Time taken} \times \text{Time saved}}{\text{Time allowed}} = \text{Bonus in hours.}$$

If the time taken is more than the standard time, it is treated as loss and noted for recovery from subsequent profits.

All these systems which appear theoretically sound are not free from vulnerable points. The work of determining piece-work rates or job-rates is a technical one and unless proper safeguards are taken to estimate the time accurately, “standard time” may be fixed too liberally which will allow bonus even to indifferent workmen. Again, recording of the time taken by a workman may be so manipulated that he may be credited with having saved more time than what he actually did. This is made possible by collusion between the workmen and their immediate superiors. Apart from what the railway may lose through such dishonest methods, there are certain items of additional expenditure associated with payment by result which cannot be avoided. For instance, rate-fixers are necessary to “time” various jobs, clerks are employed to calculate the premia earned by workmen. Expensive cards are used for recording the commencement and termination of operations. All these are not required when payment by time is in force.

In E.B. Railway workshops, a workman employed under the Rowan Bonus System for a part of the month earns as bonus 30 per cent. of his wages for the corresponding period. The total amount now disbursed as bonus at Kanchrapara is approximately Rs. 4,000 per month. As the extent to which work has been expedited due to the introduction of this system (*i.e.*, how

much additional time would have been taken for doing the same kind and quantity of work, had not the system been in existence) cannot be measured, it cannot be ascertained what amount has been saved in respect of wages and overhead charges. It is thus difficult to state whether, on the whole, the railway is suffering any loss or not on account of payment of these profits.

All these considerations naturally provoke the question—if it is worth while to retain and encourage payment by results or we should revert to the simple and straightforward time-wage. If it is possible to devise some plain means by which superior skill and efficiency of labourers can be rewarded, abolition of payment by results may be advocated; otherwise, it will be necessary to find out, by careful investigation, the particular system of remuneration which is most suitable for railway workshops and to adopt it as a general measure everywhere in the place of relatively wasteful methods which are at present in existence.

P. K. SARKAR.

REVIEW.

Railway Rates in Relation to Trade and Industry in India:
By R. D. Tiwari, M.A., L.L.B., (Longmans, Green & Co. 1937.
xii + 333, Price Rs. 6.)

This work is issued as a recent addition to the "Studies in Indian Economics" series under the editorship of Professor C. N. Vakil of Bombay. The work is based on a thesis originally prepared by the author for his M.Sc. degree and was later expanded into its present form.

There are so few books in India on Railway Economics and particularly on the subject of Railway Rates, that an up-to-date study emphasising the industrial aspects is welcome. Mr. Tiwari discusses in the opening chapter the theoretical basis of rates and fares and gives a good summary of the theoretical principles which hold the field at the present day. In the remaining seven chapters the author examines the railway tariffs which operate on a number of industries namely, raw cotton exports and the the cotton, woollen, cement, coal, sugar, wheat and wheat flour and paper industries. Mr. Tiwari has made use of the important literature available, specially the Railway Rates Advisory Committee's reports. His method is admirable and he has succeeded in giving an interesting picture of the changes in the railway rates. At the conclusion of the survey of each industry he gives his suggestions for improving not only the rates adjustments of the railways but also the internal organisation of the industry. Thus, as regards the coal industry he proposes an internal organisation and a rationalisation of both production and disposal. He recommends that the collieries in Bengal should extract only first class coal which runs counter to the conclusions of the Indian Coal Mining Committee. As a result of his studies on the conditions of the different industries the writer finds the rates policy of the railways unduly individualistic, competition between the railways themselves, difficulties arising from the break of gauge, absence of rate regulations and preferential rates. He urges a national rates policy as a true

supplement to the scheme of discriminating protection. While one might sympathise with these views it is difficult to see how when industries and business themselves are in a formative stage the railways can automatically react without the pressure of demand from them.

One would have wished very much in a work which deals with the details of railway tariffs a chapter devoted to a brief treatment of the existing rates structure, the scheme of goods classification and the rating system.

OFFICIAL PAPERS.

RAILWAY APPROPRIATION ACCOUNTS.

The Appropriation Accounts of railways in India for the financial year 1935-36 has appeared as usual in two parts, one containing the review and the other, the detailed appropriation accounts. There is, however, a change in the authority in whose name these two documents are issued. It is now brought out in the name of the Chief Commissioner of Railways instead of the Financial Commissioner. This, however, as may be gathered from the proceedings of the Public Accounts Committee does not imply any real change of procedure. The present review, it is stated, had been written as in the past, by the Financial Commissioner, and has been subsequently passed by the Chief Commissioner. By so doing the Railway Board have made themselves formally responsible for the publication while the documents represent the views of the Financial Commissioner. It appears that the view adopted is that the Officer mainly responsible for the spending of money should accept responsibility for the review and in this view the Auditor-General has also agreed.

The financial review somewhat reduced in size this year deals with its principal object of comparing the actual expenditure of the year with the grants and appropriations under the various heads of grants as voted by the Legislative Assembly or sanctioned by the Governor-General in Council.

It is gratifying to find that the Railway Board's estimates have on the whole been very much nearer the mark. The expenditure of the railways is examined under the groups adopted in the reviews for the previous years and explanations on the variations on the Budget and the Revised Estimates are explained. Among the voted grants excesses occurred on the expenditure on Grant No. 1, Grant No. 4; Grant No. 6c and Grant No. 11. The highest however was in connection with Grant No. 6c to the extent of Rs. 3.86 lakhs. Of the non-voted appropriations there were excesses in two cases Grants Nos. 6a and 8. It is stated that there were no cases of irregular re-appropriations from one grant to another during the year but in allotting to the various railways out of the supplementary grant of Rs. 20 lakhs under Grant No. 6c, March, 1936 the distribution was different from that given in the book of supplementary demands for grants owing to ambiguity in the orders. There were a number of cases as usual in which the estimates showed room for improvement. The stores balances showed a slight increase of Rs. 6 lakhs, and amounted to 41 per cent. of the issues during the year as against 45 per cent. in the previous year and therefore nearer the normal figure of 40 per cent. of the issues.

A change in the form of accounts consequent on the revised procedure of calculating the amount of the contribution to Depreciation Fund is also referred to. The account in its present form gives nominal balances in the Depreciation Fund and temporary withdrawals met from the fund on account of the loans to Revenue for special expenditure and to meet the deficit. In making allowance for loans for special expenditure there is a surplus of contribution for withdrawals in respect of each railway with the exception of the Bezwada extension and the Dhond-Kurnool and the Jodhpur railways. In the case of the former two lines, the deficiency is attributed to the fact that in earlier years the credits to the fund were included with those for the M. & S. M. Railway while the debits were shown against these railways. It is now impossible to disentangle the credits. In the case of the Jodhpur railway the deficiency is ascribed chiefly to heavy renewals and replacements expenditure having been incurred in some of the years from 1924-25 to 1927-28.

THE AUDIT REPORT.*

The Report on the Appropriation Accounts of railways for 1935-36 by the Director of Railway Audit is very much a smaller document than during the previous years. The Director has limited his comments to audit points on such matters as defects in budgeting, anticipated credits, financial irregularities in allocation, delays in the submission of estimates, defective agreements, irregular payments, under charges, frauds and postponement of expenditure. The general conclusion reached in regard to the financial administration of railways is that the position as judged by the results of test audit is satisfactory.

PUBLIC ACCOUNTS COMMITTEE'S REPORT.

The report of the Public Accounts Committee on the railway accounts of 1935-36 continues the legislature's post-mortem scrutiny of the financial transactions of the railways during the period. The report is rather brief and deals with a number of financial matters. There were excesses over the voted grants in the demands No. 1, 4, 6c and 11 amounting in the aggregate to about Rs. 9 lakhs. The Public Accounts Committee recommended that the excess grants be voted by the Legislative Assembly. It is gratifying to find that there have been no irregular re-appropriations or special items of expenditure to be mentioned. As regards accuracy of budgeting and control of expenditure the position is stated to be satisfactory so far as revenue expenditure is concerned but there appears to be still considerable room for improvement in connection with capital grants. The Committee have commented upon the reduction in the capital at charge of railways by applying the current statutory rate of exchange to yet unliquidated liabilities which had previously been converted at the rates in force at the time when they were undertaken. Some of the members in the Committee have expressed the view that even if this decision was in accordance with correct accounting principle

* Railway Audit Report, 1937—Report on the Audit of the Accounts of Railways in India including the Appropriation Accounts for 1935-36 issued by the Director of Railway Audit, 1937.

the burden of the interest charges in respect of the amount in question could not in present circumstances be transferred from the railways to the general tax-payer. Another matter which was discussed at great length related to the number of saloons maintained for the use of railway officers: "It is somewhat difficult to believe that it is really necessary to maintain as many saloons for the use of railway officers as exist at present; it is therefore recommended that the possibility of reducing the number of such saloons should be further investigated and that pending the completion of the enquiry no further expenditure should be incurred on renewals.

Other questions discussed related to the problem of regrouping or amalgamation of railways on the Wedgwood Committee report and the encouragement of third-class passenger traffic. On the first, definite opinion is expressed that "on the information available the Committee are inclined to favour amalgamation in principle provided that it offers financial advantages or at least means no financial deterioration." The views of the Committee on the recommendations of the Wedgwood Enquiry Committee's report have already received full publicity in the press. Expressing their dissent from certain other proposals made by the committee as regards the last the report expresses satisfaction at the constant attention of the railway authorities to the comforts and conveniences of the third-class passengers. The use of Indian languages in connection with railway timetables and notices is recommended.

NOTES AND MEMORANDA.

FINANCIAL RESULTS OF ELECTRIFICATION.

In deference to the wishes of the Public Accounts Committee the Railway Board have worked out the financial results of the Madras Suburban and the Bombay Railways' Electrification. As regards the Madras Suburban Electrification on the South Indian Railway the financial appraisal for the years 1932-33 to 1936-37 is stated in three different statements based respectively on the views of the Consulting Engineers in London of the railway, on the calculations of the Agent under certain instructions issued by the Railway Board and on a calculation jointly by the Agent and the Statutory Audit Officer. There are material differences between the three estimates and particularly between those of the Consulting Engineers and the other two as the following figures would indicate:

Year	Net train miles (In lakhs)	Percentage return according to		
		(a) Consulting Engineers	(b) Calculations of the Agent	(c) Calculations of the Agent and Statutory Audit Officer.
1932-33	6.77	8.64	5.79	4.98
1933-34	6.13	7.44	2.41	2.07
1934-35	6.01	0.53	4.23	3.79
1935-36	5.91	7.77	2.31	1.99
1936-37	6.11	8.57	2.73	2.39

The financial results of electrification on the B.B. & C.I. and the G.I.P. Railways indicate that those of the former have on the whole been more favourable. This is partly due to the fact that the gross capital expenditure in the former has been reduced to a much larger extent proportionately by the credit for the steam stock released and partly to the fact that only the suburban section of the B.B. & C.I. Railway has been electrified. Working out the net outlay involved because of the electrification and comparing it with the extra outlay that would have been required for increasing traffic if no electrification had been carried out the percentage of net savings on net outlay on the two railways has been as follows:

Year	G.I.P.		B.B. & C.I.	
	Traffic in train miles Gross	Percentage of net savings on net outlay.	Traffic in train miles Gross	Percentage of net savings on net outlay.
Estimate	55.40	10.51	16.60	16.93
1930-31	42.50	4.80	14.28	10.35
1934-35	41.80	4.42	14.07	15.54
1935-36	42.37	4.86	14.31	16.63
1936-37	42.65	5.33	14.64	18.95

Although the original estimates have been falsified it is argued that it is reasonably certain that extra outlay would have been necessary in any case even if electrification had not been introduced in order to improve the capacity of the line though of course it is impossible to state it with any degree of accuracy, and for the additional number of steam locomotives which would have been required. In the case of the B.B. & C.I. Railway for example the quadruplicating of the line would have been necessitated involving not less than a crore of rupees. It is therefore argued that the estimate of expenditure avoided by electrification is under rather than over estimate. The detailed computation of the net savings attributable to electrification (after allowing for depreciation) on actual gross outlay of Rs. 202.90 crores with traffic of 14.64 lakhs train miles are given below:—

	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
Estimates							
B.B. & C.I.	6.86	3.68	4.15	4.70	4.87	5.62	5.90
G.I.P.	10.51	4.80	5.37	5.23	4.90	4.42	4.86
							5.33

AUCTION SALES.

The working of the instructions issued by the Railway Board regarding Auction Sales of different railways to the effect that:

- (1) Proper care should be exercised to select auctioneers of financial standing;
- (2) that the auctioned materials should not be allowed to be removed until the full amount has been received from the auctioneers and;
- (3) that the arrangements with the auctioneers should be signed by duly authorised persons;

was recently reviewed by the Railway Board for the information of the Public Accounts Committee.

During 1936-37, the conditions 1 and 3 appear to have been followed by railway administrations. As regards the second, all railways except the Bengal Nagpur, the Eastern Bengal and the East Indian railways have taken necessary steps to implement it. As regards the Eastern Bengal and the East Indian there appears to be difficulties in adopting hard and fast rule. The auctioneers were not prepared to revise their agreements or to increase their security deposits sufficiently to cover the maximum value of the goods sold by an auction. But they were, however, agreeable to adopt an insurance scheme through some fidelity or guarantee bond to guard against loss to government in the realisation of the amount of sale proceeds in the auctioned material to the extent of Rs. 3 lakhs. This proposal has been approved by the Railway Board. But no insurance company is prepared to undertake risk against insolvency and the question is under their examination. On the Bengal Nagpur Railway in order to safeguard the interest of the railway

the agreement provides a clause under which the auctioneers are required to furnish a security deposit of Rs. 1 lakh in Government promissory notes whereas the outstandings due from them has rarely ever exceeded Rs. 75,000. In view of this the existing procedure has been continued.

POSSIBILITIES OF AMALGAMATION OF RAILWAYS IN INDIA.

In a memorandum of the Railway Board presented to the Public Accounts Committee the possibilities of economy by amalgamation of railways are discussed. The question stated is:

Can we further reduce the number of systems, and by so doing effect a saving in the administrative and operating expenses;

A scheme for three broad gauge systems; one combined broad gauge and meter gauge and two metre gauge systems making up a total of six against the existing ten systems is worked out. The mileage of each of these amalgamated systems would be as follows:—

<i>Broad gauge.</i>	<i>Route Miles.</i>
N.-W. Railway	7,091
E. I. Railway	7,110
G. I. P. Railway	6,826
Southern railways	6,137
<i>Metre gauge</i>	
Great Eastern railway	3,078
Great Western Railway	4,437

The probable savings claimed for the amalgamation of the British railways were:

- (a) elimination of uneconomical competition;
- (b) the consolidation of finances;
- (c) the pooling of rolling stock and equipment;
- (d) the co-ordination of workshop and repair facilities;
- (e) the running of through services on increased distances;
- (f) the centralisation of the purchase and stores organisation;
- (g) the unification of financial policy and managerial control with all that it stands for such as, standardisation of stock, the co-ordination of policy, the massing of advertisement and superior salesmanship of transportation;

It is pointed out that the economies actually accomplished in Britain have fallen short of anticipations. It is stated that a great many of the advantages obtained by amalgamations have been obtained by state railway

ownership and state control. In India even though certain railways are company managed they are state-owned. Examining in greater detail the possibilities of economy under the heads given above it is claimed that whatever might have been the competition now-a-days there is the closest co-operation between state-owned and state-managed railways and company-owned and company-managed railways. Thus, for example, all goods traffic over the G.I.P. and B.B. & C.I. lines between Bombay and Delhi is pooled. As regards the consolidation of finances the position in India is different as all earnings go into a common pool; the company-managed railways only drawing their share for cost of management and surplus profits depending on the amount of money invested in the undertaking and in accordance with their contracts with the Secretary of State.

With regard to the pooling of stock and running of through services amalgamation will not change the position. The broad gauge goods stock of the Indian railways has been pooled for the last twenty years and roughly 120,000 out of the 140,000 broad gauge wagons are pooled. Not much saving is to be expected on this account except possibly by the reduction of wagon examining stations which would be brought about by the reduction of junction stations.

Thus coaching stock is freely exchanged between railways and locomotives when in excess on one railway are sent to another to avoid purchase of new ones. Even as regards the prospective gain from the co-ordination of workshop and repair facilities there would not appear to be great scope. On a strict mileage basis the number of shops on the proposed Indian systems would not be excessive. Already certain railways have closed down locomotive shops and concentrated work at a smaller number of shops. Taking everything into consideration it is not considered safe to allow more than five per cent. saving in workshop costs as a result of amalgamation. The economies from centralisation of purchase are already effected at any rate in regard to the state-managed railways. A progressively larger volume of stores is being purchased through the Indian Stores Department and such stores as rails, coaching underframes and wagons are bought through the Railway Board. All coal for state railways is purchased by the Railway Board and even the company-managed railways are gradually coming into line with the state railways as regards the purchase of stores material. On the whole it is not considered that very great advantages would come through amalgamation but a ten per cent. saving may perhaps be expected in the administration of the Stores Department. The advantages indicated under the last item are already being obtained as all financial policy is laid down by the Railway Board. It is therefore concluded "that Indian railways cannot expect the same savings as British railways from amalgamations and that all the savings which can be counted on are a certain saving in administration, a certain saving in workshops and a certain saving in the stores purchase organisation aggregating to Rs. 60 lakhs. Against this there is the fact that conditions in India would entail the alteration of the whole rating structure involving probably sacrifice of some revenue and that there would be difficulties in the creation of unwieldy administrations.

STAMPS FOR PARCELS TRAFFIC.

In the Ceylon Report to which detailed reference was made in the last issue of the Journal an interesting suggestion is made towards the use of stamps for parcels traffic. Material economy can be effected in the system of charging for parcels traffic. The method of recording the charges on parcels traffic is complicated. When a parcel is handed in at a station, a waybill is made out in triplicate; one for the forwarding station as a record, one for the Chief Accountant and one to accompany the parcel and form the record at the receiving station. A summary of all parcels to be forwarded on a certain train is prepared in duplicate; one copy is handed to the guard and the second retained at the station, the guard's signature being obtained to prove receipt. The guard then enters on his roadbill all parcels in his van and obtains a signature from the member of the staff taking delivery of the packages at the station. Upon receipt at the station parcels are checked against the guard's roadbill and also against each individual waybill.

All this involves a considerable amount of clerical work and accountancy, and the Report recommends that the parcels stamps system should be introduced instead. This method abolishes all intermediate waybilling and is similar to that employed by the Post Office. A station is supplied with rolls of numbered stamps of different values and their value is debited against that station. All parcels under 2 cwt. must be prepaid and the charges accounted for by means of a stamp which before being affixed to the package must be cancelled by means of a rubber stamp.

All traffic must be recorded by the forwarding and receiving stations and a check should be made by the latter to see that the stamps affixed represent the correct carriage charges.

As over 1,300,000 parcels are handled in a year, the adoption of a simplified system will result in economy, not only at stations, but in the Accounts branch.

DEPRECIATION ACCOUNTING ON THE SOUTH AFRICAN RAILWAYS.

The system of depreciation of assets in relation to the fixation of adequate contribution towards renewals in South African Railways and Harbours has been set out with remarkable clarity by Mr. J. A. C. Jones, Chief Accountant, South African Railways and Harbours in a memorandum to the Southern Africa Transport Conference, 1936.*

The principles adopted on the South African railways for making good depreciation of wasting assets appear to be tempered with a judicious sense of the normal requirements of the system. The necessity for making adequate provision for depreciation is stated in section 127 of the South Africa Act of 1909 which states:

* With acknowledgments to the General Manager, South African Railways and Harbours.

"So far as may be the total earnings shall not be more than are sufficient to meet the necessary outlays for Working, Maintenance, Betterment, Depreciation and the payment of interest due on Capital, not being capital contributed out of railway and harbour revenue."

According to clause 12 of the regulations framed under this act and approved by parliament in 1911 provision was made for the establishment of a Depreciation Fund (now called the Renewals Fund) "for the purpose of improving and maintaining the railways, ports and harbours at proper standard of efficiency." The object of the Renewals Fund is to secure an even distribution of each year's expenditure that has to be incurred and large sums at irregular intervals to meet the renewals of assets:

- (a) no longer serviceable and past repair;
- (b) which have been obsolete by reason of altered conditions, progress in various directions and new inventions;
- (c) which are still useable but have become uneconomical to employ owing to increased cost in working and introduction of more modern devices.

Although at the outset the principle of making contributions to the Renewals Fund on the basis of the estimated lives of assets was adopted it could not be consistently followed owing to financial considerations. The procedure was under investigation by a committee which was appointed in 1935 to consider and report on the adequacy of the annual contribution which was then being made to the Renewals Fund in respect of depreciation of permanent way and rolling stock assets and consequentially the various practices connected with the expenditure of the fund monies including that of purchasing new assets as set off against depreciation accrued on assets on service. The committee which was composed of one Civil Engineering Officer, one Mechanical Engineering Officer and one Accounting Officer went into the whole question exhaustively and reviewed the expenditure on renewals for 45 years since the inception of the South African railways and the Engineering forecast for the next 55 years the expenditure that was likely to be incurred in that period. The estimated lives of the various assets which had been adopted were found to be on the conservative side. The recommendations made by this committee in 1929 in so far as the basis of the annual contribution to the Renewals Fund is concerned were as follows:—

(1) that the annual contribution for the renewals of permanent way and rolling stock during the next 10 years be 60 per cent. of the sum arrived at by applying the various percentages, corresponding to the respective lives of each class of assets to the full original cost of all such assets in service; and in addition in lump sum to provide for 1/5th of the estimated expenditure on reballasting during the next five years;

(2) that as a safeguard against the undue wear and tear of assets during any one year due to abnormal traffic the total contributions for the renewal of assets as indicated above shall not be less than 6 per cent. of the revenue of the current year *plus* a lump sum for reballasting;

(3) that contributions be calculated on the original cost of all assets in service and without regard to whether or not the full cost of all such assets has already been contributed to the fund.

(4) that the cost of reboiling locomotives (1 boiler in the life time of each locomotive) be a charge to the Renewals Fund for which an additional $\frac{1}{2}$ per cent. of the original cost of the locomotive be contributed to the fund—the rate for locomotives including the second boiler being $3\frac{1}{2}$ per cent. although the life is regarded as 33 $\frac{1}{3}$ years.

The Committee, it will be noticed, recommended an immediate contribution from revenue equal to 6 per cent. of the current year's earnings but the administration subsequently decided that the maximum contribution in any one year should be limited to $7\frac{1}{2}$ per cent. of the transportation revenue for that year. The bases of the estimated lives of each class of asset falling under the category of Permanent Way and Works and Rolling Stock of the various percentages are as follows:—

Class of Asset	Estimated Life Years.	Rate of Contribution —Per cent.
Permanent Way and Works.		
Running Tracks—		
Rails and Fastenings	.. 33 $\frac{1}{3}$	3
Sleepers and Fastenings	.. 21	4 16/21
Ballast	..	
		Lump sum based on estimated requirements.
Buildings—		
Brick and Stone	.. 80	1 $\frac{1}{4}$
Steel and Iron	.. 50	2
Wood and Iron	.. 25	4
Garages	.. 20	5
Petrol Stores	.. 10	10
Bridges and Culverts	.. 50	2
Signals	.. 30	3 $\frac{1}{3}$
Telegraphs and Telephones—		
Poles, wires, etc.	.. 30	3 $\frac{1}{3}$
Instruments	.. 10	10
Electrification—		
Overhead equipment—Wires	.. 20	5
Track Bonds	.. 20	5
Foundations	.. 30	3 $\frac{1}{3}$
Steel masts and Structures	.. 50	2
Machinery	.. 20	5
Cranes	.. 25	4
Sundries—Fencing of Line, Pipe Lines, Water Supplies, etc.	.. 30	3 $\frac{1}{3}$

Class of Asset	Estimated Life Years.	Rate of Contribution —Per cent.
Rolling Stock—		
Locomotives—		
Steam	.. 33 $\frac{1}{3}$	3 1/2*
Electric	.. 33 $\frac{1}{3}$	3
Coaches and Electric Motor Coaches	.. 33 $\frac{1}{3}$	3
Road Motor Vehicles—self propelled—		
Petrol and Steam	.. 10	10
Wagons	.. 33 $\frac{1}{3}$	3

* Includes one half ($\frac{1}{2}$) per cent. for reboiling. The contribution to the Renewals Fund on all these assets is limited to 60 per cent. of the sum arrived at by applying the various percentages to the full original cost of the respective assets.

In addition to the contribution in respect of Permanent Way and Rolling Stock assets the renewals fund also receives various sums aggregating approximately £500,000 per annum in connection with other assets of the South African Railways and Harbours, such as:

Harbours,
Steamships,
Workshops, Buildings and Machinery,
Electric Light and Power Plant,
Subsidiary Services, etc. etc.

The contribution to the Renewals Fund in respect of these assets is also arrived at on the basis of the various percentages corresponding to the respective life of each class of assets and limited to 60 per cent in the case of harbours. The estimated life of the assets brought under this category and the percentages of the contributions are indicated as follows:

Statement showing the Estimated Life of all Railway, Harbour and Steamship Assets (including Subsidiary Services) other than Permanent Way and Works and Rolling Stock.

Class of Asset	Estimated Life Years.	Rate of Contribution Per Cent.
Jetties, Wharves, etc.—		
Steel and Iron	.. 33 $\frac{1}{3}$	3
Wood	.. 20	5
Tugs and Launches	.. 30	3 $\frac{1}{3}$
Lighters—		
Wood	.. 33 $\frac{1}{3}$	3
Steel	.. 30	3 $\frac{1}{3}$
Buildings—		
Brick and Stone	.. 80	1 1/4
Steel	.. 50	2

Class of Asset	Estimated Life Years.	Rate of Contri- bution —Per cent.
Wood and Iron	.. 25	4
Dredgers	.. 30	3 1/3
Boats, Pontoons, etc.	.. 20	5
Cranes and Transporters	.. 25	4
Coaling Bins	.. 20	5
Floating Cranes	.. 30	3 1/3
Dry Docks, Floating Docks, Repairing Pontoons, Slipways, etc.	.. 30	3 1/3
Wood	.. 30	3 1/3
Steel	.. 20	5
Permanent Way-Track	.. 30	3 1/3
Machinery	.. 20	5
Coaling Plant	.. 25	4
Pumping, Bowser Oil, Washout, Sand Drying and Lighting-up Furnaces, Ticket Printing and Creosote Plants	.. 20	5
Mobile Cranes-Petrol and Electric	.. 10	10
Stone-crushing Engines, Boilers, Compressors, etc.	.. 20	5
Crushers, Screens, etc.	.. 6	16 2/3
Road Rollers—		
Steam	.. 10	10
Petrol and Paraffin	.. 8	12 1/2
Water Carts	.. 20	5
Electric Generating Plant	.. 20	5
Distributing Plant	.. 25	4
Animals	.. 10	10
Trolleys, Trailers and Wagons	.. 25	4
Traction Engines	.. 10	10
Electric Lorries	.. 15	6 2/3
Harness, Hand-operated Machines, etc.	.. 13 1/3	7 1/2
Bookstalls	.. 25	4
Advertising Hoardings	.. 20	5
Automatic Machines	.. 10	10
Motor Vehicles—		
Cars, Passenger and Goods Vehicles	.. 8	12 1/2
Trailers	.. 20	5
Aerial Ropeways	.. 30	3 1/3
Life-saving Apparatus	.. 20	5
Sundries—Water Supplies, etc.	.. 30	3 1/3
Steamships	.. 25	4

In the case of certain assets such as Concrete and Masonry, it is deemed unnecessary to contribute as the life of these assets is assumed to be indefinite.

The most items of expenditure charged to the Renewals Fund are:

- (a) the total of replacing assets with same type;
- (b) the total of relaying re-sleepering and re-ballasting the running track in lengths of one half mile or over;
- (c) the cost of reboiling locomotives (one boiler in the lifetime of each locomotive);
- (d) the loans contributed to the fund in respect of assets withdrawn from service and not replaced;
- (e) the cost of additional rolling stock, workshop machinery, harbour craft and steamships to the extent of the *accrued depreciation* of the respective assets in service.

The contributions to the fund to-day amount to £250,000 per annum. During 26 years from the date of the Union to the end of March 1936 it is stated that the South African Railways and Harbours have contributed no less than £500,000 in round figures to the Renewals Fund out of which they have expended £450,000. Attention may be drawn to the last item of expenditure from the fund mentioned above. The existing practice has departed from the original intention that the fund should be drawn upon only to meet expenditure in renewals as and when necessary and has allowed purchase of rolling stock against accrued depreciation. In other words, renewal of vehicles is anticipated as for example, if 2000 wagons were in service for a period of 10 years depreciation to the extent of $\frac{10}{33\frac{1}{3}}$ has accrued on these vehicles and this amount is utilised to purchase additional stock when necessary so that in addition to 2000 vehicles another 600 or 700 in addition may be obtained, the cost being met from the Renewals Fund. Immediately the new vehicles are put into service provision is made for depreciation on these vehicles too. This is of course tantamount to investing the funds of the railways in their own business. Instead of going to the treasury and asking for loans to buy new rolling stock, they utilise their own balances which, from a business point of view, is far from an unsound practice to follow. As Mr. J. A. C. Jones, the Chief Accountant, South African Railways and Harbours observed: "It would be an extraordinary procedure to cause the national debt to be increased to say a couple of million pounds in order to pander to some accounting fetish while the administration has readily on hand a source from which the expenditure can be met."

The Renewals Fund as maintained and operated on South African Railways and Harbours is therefore different from a proper depreciation fund. The existing procedure is justified on the ground that if contributions were made to the fund to the full extent of the estimated lives of the respective assets there would in time be a considerable sum of money standing to the credit of that fund which would never be required. The policy followed is therefore one of contributing from revenue a sum per annum estimated to be sufficient to meet the replacements of assets as the necessity arises, namely 60 per cent of the depreciation calculated on average lives. Doubts are expressed at the present time whether the

amount is not on the low side. The limit of 60 per cent was to some extent influenced by financial considerations. During the last two years, therefore, out of the substantial profits earned, appropriations were made for the purpose of strengthening the position of the Renewals Fund. The procedure followed is to charge the contributions to Net Revenue.

ECONOMIC LIFE OF A LOCOMOTIVE

In an interesting article on the Economic Life of a Locomotive in the *Railway Age*, Mr. James R. Macken, Supervisor of Costs, Office of the Chief of Motive Power and Rolling Stock, Canadian Pacific Railway, examines the results of a case study of the shop repair costs of a new locomotive during a life of eighteen years. The period embraced eight general repairs. The first and the second were straight machinery repairs with all tubes removed and reset and driving tyres turned, during the fourth and the sixth years. The cost per locomotive mile on date of stopping for repairs was 4.18 cents and 4.85 cents respectively. The third general repair in the ninth year had in addition the provision of a new set of driving tyres applied and a new front tube sheet and the cost of repair was 5.23 cents. The fourth was in the eleventh year when in addition to covering the same ground a back tube sheet was applied and the cost per mile became 5.69 cents. By now the locomotive had become eleven years old and had done over 512,000 miles. The fifth general repair occurred in the twelfth year and the accumulative cost per locomotive mile was 6.56 cents. The sixth general repair was in the fourteenth year which included the first heavy fire box renewals, right and left side sheets, inside throat and door sheets renewals; and a general overhaul. The cost now had become raised to 7.61 cents. During the seventh and the eighth repairs which occurred in the sixteenth and eighteenth years the cost went up to 8.17 cents and 8.62 cents. It is found that shop repair costs per locomotive mile during the first five years of service was approximately one half of these at maturity and from this the writer argues that "the reduction in shop costs alone on a new \$100,000 locomotive during say the first five years of its life will pay for the amortisation of the investment and interest charges for this period with something left over for the second five years of service which will still be about 25 per cent. less than the costs at maturity. . . . The infiltration of modern power were added, is economically desirable, especially at a period of recovery in traffic, so that improvement in net earnings may be accelerated by providing reduction in operating costs, through retirement of worn out equipment and addition of modern equipment at a time when investment interest charges are at a minimum."

LOCOMOTIVE AVAILABILITY

For locomotives, operating on a railway the main line of which is only 366 miles in length, to make 13,393 miles in a single month, an average of 432 miles daily, is an achievement indicating a high standard of utilisation and maintenance. These figures refer to the working of certain modern locomotives on the Florida East Coast Railway in America during

the month of January in the present year. Another case is cited in which a passenger locomotive covered 13,150 miles in February, an average of 469 miles daily. Taking into account shed days and other non-working periods, the average must of course be very much higher in each case. On the railway referred to, passenger engines as a whole are averaging 7,500 miles a month and freight engines 3,000 miles in the same period of time. On the basis of through runs, the maximum daily mileage would be 366 miles. The results quoted have been accomplished by means of turn-round runs, a method of operation which has also reduced shed expenses. In most cases, the locomotives make a round trip each day between the former place and Jacksonville. This assignment, whilst not delegating one locomotive to each engine crew, does in fact keep the same crews operating from day to day on the same engine. The principal advantage of the arrangement is, however, that each locomotive comes into the running shed regularly each day at a scheduled hour, and is dealt with by the same employees, which has the effect of concentrating the responsibility for shed attention to the particular members of staff employed.

FASTER SPEEDS AND REDUCED LOADS

The Wedgwood Report advocated the adoption of shifting the emphasis on the maximum load to that on speed. The proposal sounds somewhat different from the traditional dictum for freight traffic operation. Exactly the same question was discussed at the South African Transport Conference in 1936 at which Mr. H. Cheadle, Chief Traffic Manager, South African Railways and Harbours replying to a question regarding the extent to which it really pays to reduce loads to get more speed said: "The experience of the South African railways has been that on sections where the grades are heavy and the loads are light, and the traffic is intensive it has paid us to reduce loads and to run faster. I can quote an instance that occurred some years ago in Natal when we were working over an old line from Durban to Cato Ridge when the greatest number of goods trains we could place on the section—a single line section—with one in 30 grades with 300 ft.—reverse curves—was 27 per day. By reducing the load from 270 to 255 tons we found we were able to get 29 trains through, and do it in less time with the 29 trains that we were doing previously with the 27 trains. Another thing was that we were able to save a truck load of broken buffers a week on the section between Pinetown and Hillcrest. On other sections of the line we found that by reducing the loads and accelerating the transit we have made up probably a day in the saving of trackage where the time taken in transit involves too late arrival for traffic to be dealt with that day as against bringing it to its destination in time to be dealt with the same day. Thus a few hours saving in transit time results in practically 24 hours saving in turn round of trackage. We have had many examples of that where the traffic is not intensive, however, it pays to take advantage of the full hauling capacity of the engine and increased loads."

EFFECTS OF PUBLIC WORKS PROGRAMME DURING DEPRESSIONS.

Proposals are usually made to the effect that the serious effects of depressions on employment may be minimised by an active programme of public works initiated by government. The record of the Public Works Administration in the United States which is constituted in the United States under the emergency economic legislation during the depression has been recently scrutinised. It is stated that the Public Works Administration undertook in all 2,513 projects. The construction materials which were hauled in this connection required the equivalent of a train 30,417 miles long and 105 million man-hours of railway employment in three years. The Bureau of Railway Economics analysing the implications stated that the P.W.A. traffic was greater than the commercial tonnage passing through the Panama Canal in the seven years 1930-36; it was the equivalent of 1,000 freight cars travelling around the world at the equator 25 times; this represents the equivalent of loading twice during the 1935-36 period of the freight cars owned by the Class I railways; the railway employment created (not including that of loading and unloading) was the equivalent of a full year's work for 46,000 men using railway employment averages.

WHAT IT COSTS TO PROVIDE A RAILWAY JOB

Speaking before the Veterans Association and the Ladies Auxiliary of the Burlington Lines at Denver, in September last, Mr. Ralph Budd, President of the system emphasised the fact that the "railway enterprise rests on a three legged stool represented by the patrons, employees and investors. Fair dealing by all three and towards each by the other two is essential for permanent success; failure of any one of the three legs will bring disaster." Treating the property and the business of the Burlington system in terms of its average employee he pursued, "For each employee there is \$25,000 worth of plant which has been built up and is being maintained for his or her use; carrying the thought along, it is possible to follow the operations of this \$25,000 unit to the final disposal of every dollar that is earned. Each unit which represents \$25,000 investment for each employee took him approximately \$3,860 last year. Let us see how this \$3,860 was disposed of; a total of \$1,750 of it was paid to the employee; \$850 went for materials and supplies; \$325 for taxes; \$200 for hire of equipment and joint facilities; and \$180 for depreciation of equipment. There remained \$555 which represents the return earned on the \$25,000 investment—about 2 1/5 per cent. of that \$555; \$355 went for interest on bonds and \$200 for dividends. Interest on bonds means that there is \$8,600 of debt on each \$25,000 unit and that the average interest rate is 4 1/8 per cent."

"One of the most important things for us as employees to understand, and something I firmly believe to be true, is that this plant which we operate is absolutely essential to the conduct of the business and social life of the country. Furthermore, it is rendering a quality of service never before equalled. From the employers' standpoint it is provided without any application on our part except that we shall efficiently and honestly apply our-

selves and do well our part of the job of handling it. Those who provide the plant pay for keeping it up, pay the taxes, and make the financial provision for necessary improvements as occasion arises. They also contribute to pension and unemployment funds for the benefit of the employees.

Management has at least three definite obligations; the first is to the public because our business is one which must wholly rely on general and voluntary patronage, the shipping and travelling public pay the bills. We must see that charges are not prohibitive and that the service is the best that can be provided. Failure in this regard would be reflected in loss of traffic which of course would have an immediate unfavourable effect on all of us. Traffic is the life blood of the business and its loss would deprive the owners and works of the opportunity of maximum employment. Then we have the obligation to the employees to see that their working conditions are well maintained, that wages are sufficiently high to attract capable help in competition with all of the various other lines of industry and that our employees' work is as efficient as possible. We have also the obligation to the owners of the railroad both because it is good ethics to meet the definite obligations incurred on the capital invested in the plant which serves the public and gives us employment and also because it is necessary to do so in order to maintain the credit which will encourage investors to let us use their money."

RAILWAY TAXATION.

Because railways cannot adjust their rate structure promptly to fluctuations in the cost of operation, the steady rise in the taxes imposed on railways is an economic problem demanding serious attention, observes the *Commercial and Financial Chronicle*. When compared to the net railway dollar (net operating revenue), taxes in 1936 absorbed 28.5 per cent. or a little over one-fourth. That is, more than one-fourth of the property, activities, and traffic of the railways in 1936 was devoted to producing net operating revenue sufficient to pay the tax on railway property as a whole. The remaining three-fourths had to earn the interest and owners' return on the whole rail investment including both that part of the plant devoted to paying the tax and the rest of the plant as well. So far as federal taxes are concerned, railway corporations are taxed on the same basis as other corporations, although even here special accounting regulations or other conditions often call for special treatment. In the field of local taxation, however, where the bulk of the railway tax is raised and where the complex question of property appraisals and valuation plays an important role, intelligent study and application of sound economic policies is of prime importance.

RAILWAY DEVELOPMENT IN THE U.S.S.R.

According to statistics published in the Soviet organ *Izvestia* the total length of the railway system in the U.S.S.R. is 53,043 miles, 621 miles having been added last year. During 1937 new construction is estimated to amount to 725 miles. In addition 696 miles of second track and 350 miles of electrified line are expected to be completed. Considerable prog-

ress is reported to have been made in locomotive construction including a type with a tender-condenser. The total provision for railway works and improvements for 1937 is 5,500 million Roubles. The U.S.S.R. railway system employs 2,200,000 workers.

RAILWAY PENSION IN THE UNITED STATES.

After two attempts, the American Railway Employees have succeeded in obtaining a pension system which the railways are committed to leave unmolested by attacking the courts. The first National Pension Law was passed in 1934 only to be declared unconstitutional by the United States supreme court. At the second attempt which divided the plan into two acts; one setting up the retirement scheme and the other levying taxes to finance it, the railways challenged the legality of the act and obtained from the Federal Court for the District of Columbia an injunction staying the collection of the taxes as the constitutionality of the Retirement Act was no question. The Railroad Retirement Board has continued to certify persons to the treasury for payment of pensions. Meanwhile the railway management and the employee representatives met at a series of conferences ending in a compromise agreement which has now been embodied into law. According to the new act a permanent schedule of taxation is set up, the rates being different from those adopted originally. The new law provides for income taxes on employee earnings up to \$300 a month and an excise tax on the railway pay rolls at the following rates:—

1937-38 to 1939	2¾ per cent.
1940 to 1942	3 per cent.
1943 to 1945	3¼ per cent.
1946 to 1948	3½ per cent.
1949 and after	3¾ per cent.

The scope of the tax act has been broadened so as to include in its coverage additional persons brought into the pension plan under changes in the Retirement Act. The estimated yield under the new rates is \$121 millions for the fiscal year 1938 and thereafter increasing amounts up to the 1950 peak when the yield is expected to stabilise at \$165 millions.

BRANCH LINE ECONOMIES.

Mr. G. C. Palmieri, Chief Inspector of Operations of the Italian State Railways, summarising the various methods employed in the reduction of operating expenses on branch and light traffic lines by railways of the different countries discusses in the *International Railway Congress Association Bulletin*, four main classes of expense reduction common to all the countries. They are: (1) restriction of signal facilities, grade crossing protection, and roadway inspection; (2) adoption of simplified operating rules, with attenuation of customary main-line regulations; (3) limitation of station-duty hours; (4) simplification of station work in connection with freight service. Examples are given of the specific practices on the different railway systems such as that of dispensing with the firemen on small steam engines and utilising the conductor for aid when required as on the French railways; the abandonment of approach signals on light

traffic lines and complicated interlocking signals in favour of simple marker plates specifying speed reductions, etc. Reference is made to considerable station staff economies on the French railways through the utilisation of accountancy "center-stations" which perform the billing and report work for branch-line communities.

INDIRECT BENEFITS FROM RAILWAY EXPENDITURES.

An interesting analysis of the railway payments to public for incidentals has been made by the *Railway Age* in a recent issue. According to the analysis during 1936, the railroads are shown to have spent approximately \$11,400,000 for telephone and telegraph service and at least \$39,600,000 for electric light and energy. Their purchases of water from municipalities and other water companies totalled approximately \$14,700,000, and their payments to contractors of construction amounted to at least \$41,400,000, while expenditures for cartage and other contract work, including welding and water softening services by commercial firms, amounted to approximately \$25,500,000. The expenditures included approximately \$4,500,000 for outside legal services, over \$11,000,000 for advertising in newspapers and magazines, approximately \$12,000,000 for rent of offices, buildings, land, etc., and approximately \$9,300,000 for insurance premiums. In addition, approximately \$3,000,000 was spent for postage, \$900,000 for grain door agencies, \$3,300,000 for doctors, druggists, hospital expense, etc., and approximately \$7,500,000 for associations, bureaus and clubs. It is also estimated that the railroads paid \$2,700,000 in 1936 for purchases of land and buildings, \$600,000 for miscellaneous contributions, \$300,000 for subscriptions to periodicals and \$70,000,000 of rent for privately owned cars.

The payments in the aggregate were equal to 37 per cent. of the purchases made by the railroads in 1936 for materials and supplies and fuel, and 62 per cent. of the purchases made for materials and supplies exclusive of fuel, and they were larger in the aggregate than the payments made last year for local, state and federal taxes.

The payments reported by different roads show wide variation in the actual expenditures made, and the ratio between these payments and the corresponding expenditures for material were far from uniform. These ratios varied from 9.3 per cent. of the purchases of material and fuel to 64.5 per cent. This variation could result from a lack of completeness with which all the payments were reported as well as the size and kind of the railroads reporting figures. In every instance, however, substantial expenditures were shown to have been made for those materials and services which are not ordinarily included under railway purchases, and, in several instances, the aggregate of such expenditures exceeded the purchases made by the railroads for materials and supplies, exclusive of fuel.

NATIONWIDE CONSOLIDATION.

According to Mr. Carroll Miller, Chairman of the Interstate Commerce Commission, the consolidation of the railways into one national

system is the "logical solution of the difficulties of railways." In an address to the annual meeting of the National Association of Railroads and Utilities Commissioners in Salt Lake City in August last, he declared that the formation of a single system "should result in a simple rate structure under differently rated territory, uniform tariff classification, transportation wastes reduced to a minimum and many other manifest benefits." Speaking about rate making he stated: "Rates are often fixed by making comparisons with the existing rates. When such a process is followed the history of the latter must be taken into consideration, otherwise, errors may continue to pile up until finally some rates thus arrived at may be entirely too low or too high. It is well to check them with the costs of operation when there is any doubt in prescribing just and reasonable rates, fares or charges, for railway transportation. The Interstate Commerce Commission has found it extremely difficult in the past to consider the cost of providing transportation, as one of the important factors in rate making.

The railway business is so complex that only a small portion of the expenses can be charged directly against any particular service, and most of the so called 'common expenses' are incurred for the joint benefit of several services. Hundreds of cost exhibits have been submitted to the Commission by carriers and shippers but the methods of assigning and apportionment of the common expenses have varied widely, and the unfortunate result has been that such cost figures could not be accepted with confidence and often have been almost wholly disregarded in the decisions reached by the Commission. The necessity to ascertain the actual cost of the transportation service rendered is becoming increasingly insistent with the emergence of road motor competition. The need for a reasonably accurate cost data for both railway and the road services has become imperative. This is indicated by a marked increase in the number of cases before the Commission where either one or both classes of carriers attempt to analyse their costs. Mr. Miller referred to the important measures adopted during the last two years in perfecting the existing technique of costs analysis. The first of these was the revision of the rules for separating freight and passenger expenses which had been effective since January 1, 1920. The revised rules introduced on the 1st of January, 1936, have met certain defects in the earlier system. Secondly the annual and monthly report forms used by railways in their reports to the Commission were revised to provide refinements in the separation of certain expenses and more statistical information as to the transactions of the railways. Thirdly an attempt is being made to localise expenses if and when necessary by providing for the assignment and apportionment of railway systems, freight expenses between *accounting divisions* and further separation of such expenses between those chargeable to road, yard, water transfer, station, special services, general overhead and taxes. Similar rules for analysing the expenses of the road transport undertaking are also stated to be under consideration.

MUSICAL ATTRACTION.

Music will be played to passengers during meals on India's famous 'Frontier Mail' running between Bombay and Delhi. Four small loud

speakers have been installed in the dining car connected to an electric gramophone in an adjoining compartment and an attendant plays selected records during lunch and dinner. The scheme is an experiment and if it proves popular it will be continued. But breakfast should be musicless as the railway administration does not wish to irritate those suffering from that 'early morning feeling'.

ACCOUNTING FOR ROAD TRANSPORT.

The Highway Research Board of the American National Research Council discussed during the Sixteenth Annual meeting the proper system of Highway Accounts.

Mr. Anson Marston, examining the subject of the uniform classification of Highway Accounts believes that the cause of the inadequacies and inconsistencies of the present highway accounts in America is mainly a fundamental error in the concept of the true status of highway systems. What he states about the situation in United States is capable of a very much wider application. Mr. Marston observes: "We have thought of them 'highway systems' as merely special examples of governmental general activities like legislative, executive, judicial and police activities, of house maintained and rehoused by taxes levied on all rather than by charges to individuals for the actual services rendered to each. In contrast to this erroneous concept our highways are simply great public utilities comparable to publicly owned Power and Light Plants, Water Works and the like. The so-called highway "taxes" and "fees" are comparable to the bills against customers of Power and Light Plants for the service rendered every individual. Highway revenue charges should be distributed among highway users in equitable proportion to service rendered. Highway accounting system should provide all the accounting data needed to show true present actual "depreciated" values of highway property, and the true annual actual total costs of highway systems including their true annual actual depreciations.

Unless highway depreciations are correctly determined each year, and are recouped each year from current highway revenue, present highway "taxes" and "fees" cannot be proved justifiable on the basis of services rendered. * * * It is not uncommon however for highway officials to say that if a highway depreciation reserve were established politicians most likely would divert it to other uses. Actual depreciation appropriations are not accumulated as liquid trust funds; *they are correctly reinvested in the property*, for replacements of former property units for *betterments* of existing property units, and for the construction of *additional* new property units. The various state highway systems already have highway "depreciation reserves" consisting of highways built out of current highway revenues instead of from new appropriations of additional public funds".

On the basis of the six well-known groups of double entry primary accounts which accounting experience has shown to be necessary for every utilities, Mr. Marston recommends the following accounting system for road transport:

"Highway Fixed-capital Primary Accounts.—A complete but simple classification should be developed. Property ledgers should be set up for all items of property not consumed within one year. These ledgers should show the total actual costs new (both direct and overhead), and the annual depreciations year by year of each property item or age-group of like items.

Note.—Until correct inventories of all *present* existing property items can be prepared, the property ledgers might be required for *new items only*.

Highway Operation Expense Primary Accounts.—Operation expenses include operation expenditures and depreciation costs of production. A complete but simple classification of operation expenditures should be developed. Both direct and overhead expenditures should be accounted for. The true annual actual depreciations of all fixed-capital property items (road, structures and equipment) should be included in the different classes of operation expense.

Highway Revenue Primary Accounts.—These should be developed to serve two purposes; (1) accounting for highway revenues in accordance with State laws; (2) accounting for highway revenues classified with reference to their ultimate sources (*e.g.*, bonds, property road taxes, motor vehicle license fees, fuel taxes, tonmile taxes, miscellaneous).

Highway Income Statement Primary Accounts.—These should include miscellaneous income accounts, but merely summaries of the various highway revenue, construction expenditures, and operation expense accounts.

Highway Surplus-and-Deficit Primary Accounts.—(Profits-and-Loss Accounts). These should show expenditures for bond redemption and interest; miscellaneous adjustments, disposition of surplus or deficit.

Highway Balance Sheet Primary Accounts.—By summaries of various fixed asset and funded accounts, and by original ledger accounts of current assets and liabilities, these should show the total assets, liabilities and net worth at fixed dates.

In conclusion, the author would say that the successful development, the general adoption and the faithful maintenance of a complete, satisfactory uniform classification of highway accounts would, in his judgment, constitute a very great public service to the United States".

INSTITUTE NEWS.

THE PRESIDENT FOR 1937-38.

Mr. K. V. Iyer, Fellow of Council and Chief Auditor and Accountant, M. & S. M. Railway, Madras, has been elected President of the Institute in succession to Mr. B. N. Mitra.

ANNUAL GENERAL MEETING.

The Annual General Meeting of the Institute was held at Calcutta on August 4, 1937, at 4-30 P.M. in the Committee Room of the East Indian Railway, Calcutta, with Mr. P. Mohan Rau, Fellow of Council in the Chair.

Before proceeding to the business before the meeting, the Chairman said:

"Gentlemen, before proceeding to the business items of the meeting I would like to refer to the loss sustained by the Institute since the last meeting in the demise of Mr. Dermot Frederick Woods, who was Chief Accounts Officer, N.-W. Railway. Mr. Woods was a Foundation Fellow of the Institute and had taken an active part in its activities. I would, therefore, like to propose the following resolution in the name of the members of the Institute.

1. "The Institute of Railway Accountants and Auditors, having learnt with deep sorrow and regret of the death of Mr. D. F. Woods the meeting record their sense of the valuable services rendered by him to the Indian Railways and particularly to the Institute since its foundation, and request the Secretary to communicate to his family the expression of the sympathy and appreciation of his former associates and friends in the Institute."

Other resolutions unanimously carried were:

2. That the Annual Report for the year 1935-36 and the Audited Accounts for the year be adopted.
3. That the Council for 1937 be constituted as recommended by the outgoing Council under Article 33 *et seq* of the Constitution.
4. That Messrs. Batliboi & Purohit, Incorporated Accountants (London) and Registered Accountants (India) be thanked for their Honorary services during 1935-36 and re-elected Auditors for the ensuing year.

NEW MEMBERS.

The following gentlemen have been admitted to the Institute to the class of Membership indicated:

Honorary Life Fellowship—

Mr. A. C. Badenoch, Dy. Auditor-General.

Sir P. Raghavendra Rau, Financial Commissioner of Railways, 1932-37.

Mr. B. M. Staig, Financial Commissioner of Railways.

Honorary Membership—

Mr. G. E. Cuffe, Agent, A.B. Railway.

Mr. A. Duncan, Agent, B.N. Railway.

Mr. L. Wilson, Agent, G.I.P. Railway.

Lt. Col. G. F. Carson, Agent, N. W. Railway.

A. B. RAILWAY LOCAL ASSOCIATION.

At a special meeting of the Local Association, with Mr. J. H. Bavin in the Chair, a discussion was initiated on certain recommendations of the Wedgwood Committee in their report of 1937. There were two sittings on September 4th and 11th, 1937.

The topics examined in the course of the discussions were:

- (a) Expenditure in the Accounts Department and apportionment of Revenue between railways;
- (b) Salary cut and revision of scales of pay;
- (c) Return on Capital outlay;
- (d) Position of the Accounts Department in the railway organisation;
- (e) Railway Audit Department;
- (f) Taking over of Company-managed railways and amalgamation and redistribution of railways.

Several members took part in the discussions, and the points brought out at the meetings are briefly summarised below:

1. *Expenditure in the Accounts Department and apportionment of Revenue between railways.*—The comparison of the expenditure on the English Railways on the Accounts Department with that on the Indian Railways was not proper especially when that comparison is made with reference to the gross revenue of the two systems of railways. In England, the audit of Railway revenue was done at a considerable reduction of cost due to the wide application of machines for that work. The cost of accounting on the expenditure side in England was also low, owing to those railways having reached a saturation point in their capital expenditure, while in India the accounting of the expenditure side was very costly, as we are still having many capital works done from year to year. Among the various avenues still left to be explored on the side of reduction of the cost of

the Accounts Department on the Indian railways, may be mentioned prominently the need for further mechanisation and reduction of the present intensive check of initial documents. While mechanisation can bring about considerable reduction of cost in accounting, it can be successfully launched and worked, only if the expert advice of specialists in this line can be blended harmoniously with the efforts of the departmental men to get the maximum benefit out of the machines brought into use, and not by the technical experts in the mechanisation line alone. Any reduction of the scope of intensive check of original documents, can only be effected, after the results of such reductions are carefully watched and tested as to their propriety, for experience has shown in many cases that with the present staff of which the employees responsible for the compilation of the initial documents are made, it is mostly detrimental to the financial interests of the railway to reduce the extent of the present intensive check of initial documents. The suggestion of the Committee on the apportionment of Revenue between railways was unanimously applauded as a very useful one.

2. *Salary cut and revision of scales of pay.*—Opinion was expressed that even though the salary cut was restored at a time less favourable for railway finances than at present, its restoration was not justified in view of the fact that the railways are still very far from paying their way and every avenue of reduction of expenditure should continue to be explored. It was not also difficult for the employee to reconcile himself to this situation, as he was bound to co-operate with the undertaking in its efforts to stabilise its position. But the other side of the picture also deserves equal consideration. It is very difficult to expect the employees, human as they are, especially the lower paid portion of them, to realise the moral implications of the salary cut; and it is, therefore, rather doubtful if they would give their best service to the administration if cut was imposed on their salaries. Salary cut admittedly creates discontent among the staff and a discontented staff would never give the best service to the employer. Further, the imposition of salary cut goes but a small way in propping up the financial position of the railways and as they are improving on this side in recent years, it is correct to hold that the railways are not now really so hard up as to require assistance through the imposition of a salary cut.

As regards new scales of pay, though it was contended that, they were enough in consideration of the economic condition of the country, there was hardly any doubt as to the number of men of the right type offering themselves for service in the Railways under the new scales being an extremely poor percentage of the total number of such men available for service. Unless, therefore, the scales of pay compared favourably with those of other occupations in life, there would be hardly any chance of the railways securing the services of the best men in the country.

3. *Return on Capital outlay.*—The Committee have visualised the economic condition of the country in its true perspective when criticising the Capital expenditure on the railways but have apparently been guided

by the too lavish programme of Capital expenditure in the past, in making their recommendations regarding the return of 10 per cent. on any future Capital outlay. While a return of 10 per cent. is too much to expect in public utility organisations like the railways, there are other factors contributing to the need for investment of Capital on various works at the present time on which the return of 10 per cent. may not be secured. The borrowing rate of Government is as low as 2 3/4 per cent. at the present day and this is therefore the best time to think of investing Capital on works which are either necessary or desirable for the advancement of the railways. Again the railways in order to popularise their service have to undertake several Capital works with a view to provide more amenities to the travelling public the effect of which cannot be specifically and directly measured in terms of any percentage return on such Capital invested, but can only be reflected in increased earnings which might result in course of time therefrom. To stipulate a 10 per cent. return as such outlay would amount to curtailment of such improvements and consequent unpopularity of the railways as a public service concern. Further large areas of the country are still lying unexplored and undeveloped and this is just the time when the money market is cheap to survey how far these regions can be served by new railway extensions and to undertake the construction of new lines wherever financially justified. Considering all the above aspects, one cannot but feel that the Committee's recommendations on this question have been rather shortsighted and that they should have been made more liberally.

4. *Position of the Accounts Department in the Railway organisation.*—Opinion was almost unanimous on the soundness of the recommendation made by the Committee in this respect, viz., that the accounts staff should be definitely railway staff and that the head of the Accounts Department should owe allegiance to and be under the disciplinary control of the Agent of the railway. It was brought forth that such a position for the Accounts Officer does not preclude him from discharging his duties as the financial watchdog of the administration, as no Agent would go against the wishes of his Accounts Officer in financial matters as he would be taking a serious responsibility on himself by doing so. In fact the arrangement has worked very satisfactorily in all the Company-managed railways and there is no apparent reason why it should not work equally well on State-managed railways. On the other hand the advantages of having the Accounts Department as an integral part of the concern with whose working it is vitally connected and with whose interests it should thoroughly identify itself, cannot be overstressed as such a position contributes to create that extent of mutual sympathy and understanding between the accounts and other departments which is so very essential for the smooth working of the administration as a whole.

5. *Railway Audit Department.*—There was severe criticism on the observations of the Committee in respect of the Railway Audit Department. It was held that the Committee in making their observations were entirely guided by the reports made to them by the railway administrations and the evidence of no railway audit official which could have contri-

buted to clarify the position, was taken by them, before arriving at their conclusions. The railway audit department owes a responsibility to the tax-payer by way of having to conduct the audit, on sound financial principles and not on mere figures alone as possibly visualised by the Committee, of the transactions of the railway most of whose Capital is contributed by him and whose working vitally affects his prosperity. The department has been so formed as to provide for this audit from a detached and impartial point of view and particularly free from the influence and routine of the administration concerned. The monetary value of this department can rarely be assessed for obvious reasons, though even on the several recurring cases of reduction of expenditure or increase of earnings on the various railways secured at the instance of this department, it has paid its way. The only factor which contributes to the audit department not having its proper share of recognition, is the want of mutual understanding and cordial relationship between this department and the other departments of the railway, and once this understanding is developed, the proper position of the audit department will be correctly understood and implemented.

6. *Taking over Company-managed Railways and the Amalgamation and re-distribution of Railways.*—It was expressed that the Committee's recommendations on the extension of contracts of the Company-managed railways were definite and that as the amalgamation and redistribution of railways were dependent on the taking over of the Company-managed railways, the two questions should be reviewed together. The detailed discussion had to be postponed.

With a vote of thanks to the Chair, the meeting terminated.

RAILWAY STATISTICS.

TABLE I.—TEN DAYS APPROXIMATE GROSS EARNINGS OF ALL STATE-OWNED RAILWAYS.

Period.	1936 (In lakhs of rupees)	1937 (In lakhs of rupees)
Ten days ending 10th September	.. 2,06	2,22
Ten days ending 20th September	.. 2,00	2,31
Ten days ending 30th September	.. 2,31	2,52
Ten days ending 10th October	.. 2,35	2,48
Ten days ending 20th October	.. 2,45	2,43
Eleven days ending 31st October	.. 2,69	2,76

TABLE II.—MONTHLY PROGRESS OF WORKING EXPENSES OF THE PRINCIPAL STATE-OWNED RAILWAYS.

Railway	(In lakhs of rupees.)			
	Up to August.		Up to September.	
	1936	1937	1936	1937
A.B.	.. 44	46	56	58
B.N.	.. 212	221	271	285
B.B. & C.I.	.. 217	217	279	282
E.B.	.. 153	152	183	183
E.I.	.. 389	404	462	480
G.I.P.	.. 270	268	335	333
M. & S.M.	.. 141	145	179	182
N.W.	.. 370	367	457	456
S.I.	.. 110	102	138	130
Tirhoot & Lucknow Bareilly	30	30	40	43
Other Railways	.. 11	11	12	12
Total	.. 1947	1963	2412	2444

TABLE III.—PROGRESS OF UP-TO-DATE EARNINGS OF ALL THE PRINCIPAL STATE-OWNED RAILWAYS.
(In Lakhs of Rupees.)

(in Lakhs of Rupees.)

Railway.	Total earnings for the period (ten/eleven days) ending					
	September 10th.	September 20th.	September 30th.	October 10th.	October 20th.	October 31st.
A.B.	{ 1936 .. {	68	72	77	82	93
B.N.	{ 1937 .. {	73	78	83	88	99
B.B. & C. I.	{ 1936 .. {	360	378	398	421	468
	{ 1937 .. {	410	432	456	483	531
	{ 1936 .. {	483	509	538	566	593
E.B.	{ 1937 .. {	521	550	580	610	674
	{ 1936 .. {	215	229	247	267	310
	{ 1937 .. {	228	245	264	284	320
E.I.	{ 1936 .. {	820	860	907	957	1067
	{ 1937 .. {	909	963	1019	1078	1195
	{ 1936 .. {	528	553	584	612	640
G.I.P.	{ 1937 .. {	536	564	599	631	677
	{ 1936 .. {	298	314	330	345	360
	{ 1937 .. {	302	319	336	351	368
M. & S. M.	{ 1936 .. {	641	679	724	770	817
	{ 1937 .. {	711	750	793	838	872
	{ 1936 .. {	229	243	258	272	287
N.W.	{ 1937 .. {	237	252	269	283	302
	{ 1936 .. {	87	91	95	99	110
	{ 1937 .. {	97	101	106	110	121
Tirhoot & Lucknow Bareilly	{ 1936 .. {	20	21	22	24	27
	{ 1937 .. {	23	24	25	27	30
	{ 1936 .. {	3749	3949	4180	4415	4660
Other railways	{ 1937 .. {	4047	4278	4530	4783	5026
	{ 1936 .. {					
	{ 1937 .. {					
Total	{ 1936 .. {					
	{ 1937 .. {					

TABLE IV.—COMPARATIVE STATEMENT SHOWING THE PROGRESS OF UP-TO-DATE WAGON LOADING ON CLASS I RAILWAYS.

Commodity.	Period ended					
	September 10th.	September 20th.	September 30th.	October 10th.	October 20th.	October 31st.
Coal and Coke	452,218	476,051	503,119	532,170	560,693	586,168
	{1936-37 ...{1937-38	481,397	548,377	581,141	604,840	644,348
Grain and Pulses	315,876	330,312	358,058	365,543	383,759	403,115
	{1936-37 ...{1937-38	341,819	372,771	387,690	403,886	422,185
Oil seeds	88,626	92,956	97,072	101,152	105,984	111,833
	{1936-37 ...{1937-38	78,459	87,862	92,145	96,786	102,120
Cotton	65,500	67,196	69,601	73,281	77,244	82,661
	{1936-37 ...{1937-38	51,070	55,663	58,606	62,856	67,796
Miscellaneous Smalls	705,665	747,779	792,986	841,856	889,789	943,284
	{1936-37 ...{1937-38	754,864	846,731	892,249	938,834	993,442
Miscellaneous full wagons	1,013,475	1,068,436	1,132,626	1,198,046	1,265,961	1,338,276
	{1936-37 ...{1937-38	1,130,872	1,191,052	1,320,987	1,386,854	1,464,593
Home Line Stores and Materials.	161,706	170,747	181,167	191,713	202,777	211,943
	{1936-37 ...{1937-38	188,507	199,977	222,949	233,238	246,527

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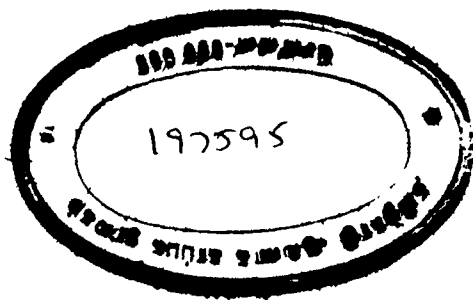
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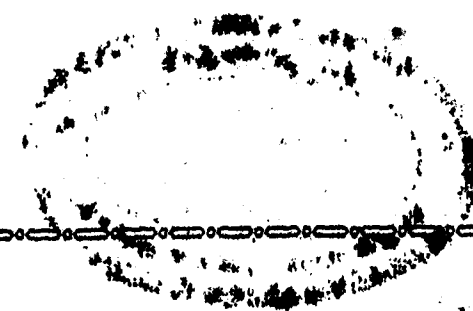
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