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AMERICAN METHODS of RAILWAY ACCOUNTING. By SAMUEL CHAPMAN, *formerly Chief Accountant of the Inter-Oceanic Railway of Mexico, and Honorary Member of the Association of American Railway Accounting Officers.*

[Read before the Royal Statistical Society on Tuesday, 15th December, 1908, Mr. ARTHUR H. BAILEY, F.I.A., in the Chair.]

It is not possible within the limits of a single paper to review in detail the various branches of railway accounting in the United States, and the following notes are only intended to give some idea as to the reasons which have led to the building up of a system differing widely from the general practice in this country.

One of the first things to strike an Englishman is the apparent uniformity in the making up of accounts of railways throughout the length and breadth of the United States; this, of course, has its origin in Government supervision. In accordance with Section 20 of the "Act to regulate commerce," classifications covering both earnings and expenditures are prescribed by the Interstate Commerce Commission.

The Association of American Railway Accounting Officers which plays so important a part in the general harmony had its birth at Washington D.C., 28th March, 1888, when sixty-six officials, representing 72,453 miles of railway, met for the purpose of taking under consideration the form of annual report to be made by railways to the Interstate Commerce Commission, and it was resolved "that a committee of fifteen be appointed for the purpose of organising a permanent national organisation of railway "accounting officers."

The Association at its last annual meeting, held at Washington D.C., 29th April to 2nd May this year, reported 498 active members, representing 280 companies with about 238,000 miles of line, and Dr. H. C. Adams, Chief Statistician of the Interstate Commerce Commission, has been an honorary member since 1893.

In order to explain the *modus operandi* between the Government and the railways, it may be stated that the Association of American Railway Accounting Officers has seven Standing Committees, one of which, on Corporate, Fiscal, and General Accounts, is in close touch with the Division of Statistics and Accounts of the Interstate Commerce Commission, which issues from time to time circulars addressed

to the accounting officers of railways, raising questions for individual replies. These are afterwards dealt with by the Standing Committee and in turn passed upon at the annual meeting. At the end of the Paper I give the text of the letter covering Circular No. 11, of 5th July, 1907, which will serve to show how careful the Government officials are not to lay down any new rules without first giving the railways every opportunity of raising questions. The circular in question is too lengthy to reproduce, consisting as it does of thirty-five pages dealing with thirty-seven subdivisions of expenditure relating to additions and betterments.

At the last annual meeting of the Association no less than 352 cases which had been under discussion between the Inter-state Commerce Commission and the Standing Committee on Corporate, Fiscal, and General Accounts were dealt with, as well as 31 criticisms. Of the cases 3 were withdrawn and 25 declared vacant, and of the criticisms 4 and 2 respectively.

This Committee, through the President of the Association, had submitted all queries not passed upon by them to the appropriate Committees for the benefit of their judgment, and the action of these Committees and of the Standing Committee referred to was adopted by the meeting except in the case of 16 queries and one criticism, which were referred back again. One of these cases may serve as an illustration of the amount of detail dealt with, and of the care taken so that answers may not be misconstrued:—

Case 169. *Query.*—A new freight car, valued at \$665, was destroyed in the month of July. Estimated salvage \$100, net loss \$565, no depreciation so far charged. Kindly advise full treatment of this matter.

Answer.—Where a new freight car went into service on 2nd July, or later during the month of July, and was destroyed during the month of July, salvage being \$100, original cost \$665, net loss \$565, the \$565 should be charged to account “freight-train cars—renewals,” the \$100 should be charged to materials or the equivalent account, and the “freight train cars—replacement” fund should be credited \$665. If, however, the car was in service on 1st July, 1907, depreciation charges should be made in respect of that car for one month’s depreciation, in which case the renewals charge will be less than above stated by the amount charged on account of one month’s depreciation. If the car was in service prior to 1st July, 1907, account must be taken of the depreciation accrued prior to that date, in accordance with the principles given in Accounting Series, Circular No. 13. When any car goes out of service, the principal sum upon which depreciation charges for this class of equipment are to be based should be adjusted accordingly.

The Interstate Commerce Commission have now issued Accounting Bulletin No. 1, effective 1st July, 1908, containing decisions upon questions raised under classifications prescribed by them, and they state that most of the answers recorded have received the approval of the Association of American Railway Accounting Officers.

The twentieth section of the Act to regulate commerce was amended 29th June, 1906, and an enormous amount of work in the way of modifying and amplifying classifications has been done and is still in progress.

In consequence of the "Hepburn Bill" railway accounting in the United States may be regarded as in transition, but the following definite work has so far resulted :—

On 3rd June, 1907, a general session of the Interstate Commerce Commission was held at Washington, when the following classifications were approved and ordered to become effective, as from 1st July, 1907 :—

- A. Classification of operating revenues.
- B. Classification of operating expenses.
- C. Classification of expenditures for road and equipment.
- D. Classification of locomotive-miles, car-miles, and train-miles.

A. This is known as the "First Issue," and does not apply to electric railways. Permission is given to carriers to sub-divide any primary account to suit their own requirements or to assign an amount credited to any such primary account to operating divisions, individual lines, or States, provided that a list of such sub-primary accounts or such assignments made be first filed in the Office of the Division of Statistics and accounts of the Interstate Commerce Commission, subject to disapproval by the Commission.

It was also ordered, so that the basis of comparison between the fiscal year ending 30th June, 1908, and previous years be not destroyed, any carrier may, during the twelve months ending 30th June, 1908, keep in addition to the prescribed accounts such portions of its present accounts as may be deemed desirable. It was further ordered that any carrier may keep any temporary or experimental accounts, the purpose of which is to develop the efficiency of operations, provided that any such accounts be open to inspection by the Commission.

A supplement to this classification, effective 1st July, 1908, has been issued, and operating revenue is now divided into two general accounts :—

- 1. Revenue from transportation.
- 2. Revenue from operations other than transportation. These in turn are divided into primary accounts.

1. 1. Freight revenue.
2. Passenger revenue.
3. Excess baggage revenue.
4. Parlour and chair car revenue.
5. Mail revenue.
6. Express revenue.
7. Milk revenue (on passenger trains).
8. Other passenger train revenue.
9. Switching revenue.
10. Special service train revenue.
11. Miscellaneous transportation revenue.
2. 12. Station and train privileges.
13. Parcel room receipts.
14. Storage-freight.
15. Storage-baggage.
16. Car service.
17. Telegraph and telephone service.
18. Rents of buildings and other property.
19. Miscellaneous.
20. Joint facilities revenue—Dr.
21. Joint facilities revenue—Cr.

It is expressly stated that this classification was worked out with the co-operation of the accredited representatives of the Association of American Railway Accounting Officers, and with a few minor exceptions embodies their recommendations relative to the proper classification of operating revenues.

B. In the letter from Mr. H. C. Adams, addressed to carriers and dated 3rd June, 1907, it is stated that the first revised issue of the classification of operating expenses took effect 1st July, 1894, and the second revised issue became effective 1st July, 1901.

The classification now referred to is known as the third revised issue, and similar orders are given in regard to sub-division of primary accounts, keeping of additional accounts on old basis up to 30th June, 1908, for purposes of comparison, and the keeping of temporary and experimental accounts as in the case of the classification of operating revenues.

Mr. Adams in his letter says, "It is eminently appropriate that "public acknowledgment should be made to the Association of "American Railway Accounting Officers and to the standing and "special committees appointed by that Association for their hearty "co-operation in working out the details of this classification. In "no other way would it have been possible for the Commission to "avail itself of that special knowledge and expert experience,

“necessary for the successful accomplishment of the task undertaken” :—

This classification is divided into general accounts :—

1. Maintenance of way and structures.
2. Maintenance of equipment.
3. Traffic expenses.
4. Transportation expenses.
5. General expenses.

The sub-divisions into primary accounts for large carriers are too numerous to include here, but as they contain many points of interest, a list of same as modified by supplement, effective July 1st, 1908, is given as an appendix. The adoption of this classification greatly facilitates the comparison of expenditure for one period with that of another. It is not desirable to discuss the classification in detail, but special attention may perhaps be called to a new feature, namely, the establishment of formal depreciation charges, calling for seven new primary accounts. Mr. Adams in Circular No. 13 accounting series quotes from an English writer, “No profit can exist until expired outlay on productive plant has been provided out of gross revenue,” and in the course of lengthy and closely-reasoned arguments says, “Depreciation accounts are submitted as an important part of a general system of accounting, the chief purpose of which is to enable the Interstate Commerce Commission, as well as investors, to arrive at the facts relative to the administration of railway properties.”

It is also stated in the circular that certain correspondents either state directly or imply that the total of operating expenses will be increased as compared with previous years; but Mr. Adams says: “This can be true only in the case of a carrier that has failed to maintain its property in the past.” In the case of a well-maintained property the three primary accounts — “repairs,” “renewals,” and “depreciation”—would only equal what, under the old classification, would have been charged to “repairs” and “renewals.”

Perhaps one other item—the treatment of per diem and mileage payments between carriers on interchanged or loan equipment—may be referred to, inasmuch as, with this exception, the classification conforms to the recommendations of the Association of American Railway Accounting Officers.

Many railway accountants claimed that the amount paid by one carrier for the use of cars and locomotives of another carrier is in its nature a rent and not an operating expense; but, Mr. Adams points out, this view involves a result which, from the statistical standpoint, cannot be wholly approved.

It may be noted that at the annual meeting of the Association this year the following resolution of the standing committee on corporate, &c., accounts was adopted :—

“It is in the sense of this committee that the accounts ‘equipment borrowed—*dr.*’ and ‘equipment loaned—*cr.*’ should be eliminated from the classification of operating expenses and included in income account under ‘hire of equipment—balance, on the ground that their inclusion in operating expenses involves a degree of refinement in accounting not warranting the expense.”

In the supplement to the third revised issue of the classification of operating expenses, effective 13th July, 1908, the accounts in question are eliminated and instructions given to carry directly to income account the entire amounts of payments and receipts for equipment interchanged or otherwise acquired or let out for use.

Mr. Adams in his letter to carriers concerned dated 16th June, 1908, states that all the classifications previously referred to were designed primarily to meet the requirements of large operating roads. Accordingly a classification, effective 1st July, 1908, known as “third revised issue, condensed,” was prepared for the use of small carriers defined as “terminal and switching companies and companies operating a mileage of 250 miles or less and having annual operating revenues not in excess of \$1,000,000” if independently operated. The primary accounts for such are reduced from 116 to 44, and will be found in the Appendix parallel with those for large carriers.

C. Mr. Adams in his letter to carriers, dated 3rd June, 1907, says, “In 1897 the Interstate Commerce Commission issued a ‘Classification of Construction *Expenses* for steam railways,’ and in 1905 this classification was extended by adding to it a Classification of Equipment *Expenditures*, the last word being then substituted for ‘Expenses’ in connection with construction accounts.

The present classification is known as the “First Revised Issue,” and the same orders were made as in the case of classifications A and B. Similarly it was revised with the co-operation of the Accounting Association, and with the exception of the text of primary account No. 47 and of the introduction of account No. 19 is in all essential particulars promulgated in the form recommended by the Association. It is divided into three general accounts :—

1. Road.
2. Equipment.
3. General Expenditures.

and the headings of the primary accounts as revised by supplement effective 1st July, 1908, will be found in the Appendix.

D. This classification, known as "first issue," was drawn up on similar lines to those lettered A, B and C, and subject to similar orders. It is divided as follows:—

1. *Classification of Locomotive Miles—*

Revenue service—

Sub-divided into (1) freight, (2) passenger, (3) mixed, (4) special, and (5) switching.

Non-revenue service.

2. *Classification of Car Miles—*

Revenue service—

Freight car miles—

(1) Loaded, (2) empty, (3) caboose.

Passenger car miles—

(1) Passenger, (2) sleeping, parlour and observation, (3) other passenger train cars.

Special car miles—

(1) Freight, loaded; (2) freight, empty; (3) caboose, (4) passenger, (5) sleeping, parlour and observation, (6) other passenger train cars.

Non-revenue service car miles.

3. *Classification of Train Miles—*

Revenue service—

(1) Freight, (2) passenger, (3) mixed, (4) special.

Non-revenue service train miles.

In addition to defining clearly what should appear under each sub-heading, rules are given for computing locomotive miles, car miles and train miles.

On 1st June, 1908, a general session of the Interstate Commerce Commission was held at Washington, when the following classifications were approved:—

E. Classification of revenues and expenses for outside operations for steam roads.

F. Classification of operating revenues of express companies.

G. Classification of operating expenses of express companies.

H. Classification of expenditures for real property and equipment of express companies.

All effective 1st July, 1908. Also—

I. Classification of operating revenues of electric railways.

J. Classification of operating expenses of electric railways.

K. Classification of expenditures for road and equipment of electric railways.

The last three will become operative 1st January, 1909.

E. "Outside "Operations," are enumerated as follows :—

1. Boat lines.
2. Ferry lines.
3. Harbor terminal transfers.
4. Electric railways.
5. Express lines.
6. Cab and omnibus service.
7. Sleeping car service.
8. Parlour and chair car service.
9. Dining and special car service.
10. Electric light and power plants.
11. Gas producing plants.
12. Canals.
13. Grain elevators.
14. Stock yards.
15. Commercial telegraph and telephone lines.
16. Hotels and restaurants.
17. Amusement parks and resorts.
18. Coal storage plants.
19. Cold storage plants.
20. Commercial ice supply plants.
21. Public toll bridge service.
22. Miscellaneous.

Rules are laid down in regard to each of the foregoing operations, and the purpose of the accounts is defined "to segregate from the accounts of transportation by rail the revenues and expenses of all services not necessarily incident to such transportation, and not necessarily rendered by all carriers operating under similar conditions."

Classifications F, G and H relating to express companies do not contain much of interest for this country "express" business, being mainly handled by the railway companies and post office.

Classification I, J and K are more or less on the lines of those for steam railways, but it may perhaps be noted that in regard to operating expenses electric railways are divided into three categories—

1. Annual operating revenues more than \$1,000,000.
2. Annual operating revenues more than \$250,000, but not exceeding \$1,000,000.
3. Annual operating revenues with more than \$250,000.

The first are required to keep 88 primary accounts, while the second and third are permitted to reduce to 58 and 36 respectively.

Circular No. 11 of 5th July, 1907, submits a tentative classification of additions and betterments expenditures, the suggested headings of which appear in the Appendix.

It will be observed that the majority of the headings correspond with those in the classification of expenditures for road and equipment. It is intended that the various charges be divided between "additions" and "betterments" (definitions of these terms being given), and, in addition, carriers will be required to report the total expenditures for "additions and betterments" classified in accordance with the list of accounts provided for under expenditures for road and equipment.

Except in a few cases the minimum charge to "additions and betterments" for a building, bridge, &c., &c., is to be \$200, and less sums are to be charged to the appropriate account under operating expenses or outside operations.

Circular No. 24, 29th February, 1908, relates to a tentative classification of income, operating revenues and operating expenses for carriers by water.

A somewhat less elaborate division than for railways is suggested :—

Operating revenues are divided into—

1. Freight revenue.
2. Passenger revenue.
3. Mail revenue.
4. Wireless telegraph revenue.
5. Wines and liquors.
6. Miscellaneous

and operating expenses into—

1. Maintenance.
2. Traffic expenses.
3. Voyage expenses.
4. Terminal expenses.
5. General expenses.

the primary accounts under these five headings numbering 17, 6, 47, 9 and 11 respectively.

Under the Act as amended 29th June, 1906, standard systems of accounts have also to be prescribed for Sleeping Car Companies and Pipe Lines.

The form of the Income Account and of the Profit and Loss Account are also under consideration as well as that very important matter—the balance sheet, and a special Circular, No. 25, was issued on 15th August, 1908, requiring each accounting officer to send a list of the accounts embraced in an annual balance sheet of his company, including the name of each account on which a balance

appears on the general ledger, and to send general criticisms and suggestions pertinent to the preparation of a standard form of railway balance sheet.

It would appear from the foregoing that within a comparatively short time a uniform system of accounts will be in use by all transportation Companies in the United States, and the Act further provides that the Interstate Commerce Commission "may employ "special agents or examiners who shall have authority under the "order of the Commission to inspect and examine any and all "accounts, records and memoranda kept by such carriers."

The classifications as outlined obviously would not lead to uniform action had not the Interstate Commerce Commission also defined what items were to be embraced by each primary account. It is neither practicable nor desirable to attempt to deal with details here, but a single instance may perhaps be given as an illustration, and the instructions relating to primary account, "injuries to "persons" under general account, "maintenance of equipment" in the classification of operating expenses as amended will be found in Appendix V.

With all the experience of the Interstate Commerce Commission, added to the combined practical knowledge of the Association of American Railway Accounting Officers, Mr. M. P. Blauvelt (Comptroller of the Erie Railroad, and a member of the Committee on Corporate, Fiscal, and General Accounts), in his address at the last annual meeting of the Association, says: "If there is a thought "in the mind of any member of this Association, that it is an easy "matter to adopt a 'uniform system of accounts' for railroad "companies, and have such uniform system exactly meet the views "of everyone, I am certain such member is not on the Committee "named, nor has he ever attended one of their meetings. Members "of this Association know how frequently a comparatively unimportant question in relation to the proper account to which an "expenditure should be charged has caused a long discussion in the "Association; and so it has constantly been at the meetings of "your Committee, particularly so when principles which have stood "for many years have been changed."

Mr. M. M. Kirkman, Vice-President of the Chicago and North Western line, says:—

"Uniformity in keeping railway accounts is not to be expected "or desired any more than uniformity in business. Railway affairs "are too diversified, too complicated, too changeable. Uniformity "in business methods means the subjection of ideas to the dead "level of unchangeable mediocrity." He goes on, however, to say "The returns of railways to the Government should be uniform."

The Board of Trade has been criticised (principally by those who have not had practical experience of railway working) for not requiring more elaborate accounts and statistics from our railways; but when the Interstate Commerce Commission frankly admits that without the co-operation of the Association of American Railway Accounting Officers it would not have been possible for the Commission to have availed itself of the necessary special knowledge and expert experience necessary, it would almost seem that the Board of Trade is being asked to perform the impossible.

Perhaps Kirkman may again be quoted. "Government interference, whether local or general, like all extraneous influences, must be such as to invite the confidence of those it concerns; in the case of railways, of those who own them. It must be wisely exercised.

"If it is not, capital will abandon interests thus afflicted. Undue interference in the affairs of railroads, however necessary, is harmful, because it lessens private interest by dividing the responsibility. It chills the ardour of those to whom we must look in matters of this kind. Its effect is to retard improvements, to prevent new enterprises, to lessen the interest of owner and manager in the comforts and conveniences of the people. Government interference, unless exercised with great moderation, blasts every interest it espouses, every industry it attempts to supervise."

It would seem that in the matter of accounting the Interstate Commerce Commission have given every consideration to the views of the railways, and in prescribing forms of accounts they have not placed any restrictions upon companies sub-dividing the primary accounts to suit their own convenience.

In this country much would probably be gained by the formation of an association of railway accountants.

At present each line considers it has the best methods, with the result that there is neither uniformity in regard to general accounts of railways nor in dealing with the public in matters of everyday life. Not unnaturally one company is not too willing to consider suggestions from another, but with such an Association consolidating the wisdom of the best experts in the country, it should not be difficult to modify individual practice so as to bring it in line with the views of the majority, and it would often happen that combined experience would evolve something better than the best individual ideas.

Most of the knotty questions that have arisen here have been discussed by the American Association, and amongst others the

division of expenses between freight and passenger traffic. In regard to this it was decided :—

“ There is no equitable basis for apportioning to freight and “ passenger traffic those expenses which are not definitely determined by their nature.”

While accounting has received an immense amount of consideration in the United States, statistics seem to have been relatively neglected.

Amongst the other standing committees of the American Association is one on statistics, and the President (Mr. F. Nay, General Auditor, Chicago, Rock Island Pacific Railway) at the last meeting said :—

“ At the last meeting of the Standing Committee on Corporate “ fiscal and general accounts it was voted to be the sense of that “ Committee that all communications or queries on the subject of “ statistics should be referred to the American Railway Association “ as the operating departments of railroads are vitally interested in “ the compilation of statistics. If that recommendation prevails “ with the Association there seems to be no need for the Committee “ on Statistics. A glance over the reports of the Committee on “ Statistics for the last few years would seem to indicate that the “ Committee had outlived its usefulness.”

The Interstate Commerce Commission have drawn up no rules in regard to “ton-miles,” but the introductory letter to the Classification of Operating Revenues reads :—“ It will be observed that the “ primary accounts are so drawn as to show first the amount earned “ for the transportation of freight, upon which should be based the “ computation of revenue per ton per mile and of revenue per “ freight-train mile,” from which it may be inferred that the Commissioners had in mind the companies would probably continue to compile ton-mile statistics, on the same lines as before, and only a casual mention of “ton-miles” is made in the “classification of “ locomotive-miles, car-miles and train-miles.”

This classification contains exhaustive rules for the compilation of the corresponding statistics, but omits definitions of the respective units.

Taking three lines whose reports have recently appeared—

- (a.) Baltimore and Ohio.
- (b.) Maine Central.
- (c.) Colorado and Southern.

(a.) Each “mile of line” includes a further 87 per cent. of second, third, and fourth tracks and sidings.

(b.) Each “mile of line” includes 40 per cent. for second track and sidings.

(c.) The report does not show, but the percentage of second track and sidings would be very low.

In the general statistics of American railways each "mile," whether of single line, or double, or more, with corresponding sidings appears as a "mile of line."

As regards locomotives—

	Number.	Average Tractive Power in lbs.
(a.) } Shows on 30th June, 1908..... {	1,396	30,334
(b.) }	204	No information
(c.) }	297	27,819

The last company shows tractive power ranging from 12,909 lbs. (narrow gauge) to 42,704 lbs. standard gauge, but each counts as a "locomotive." On 30th June, 1902, the average tractive power on the B. and O. was only 24,909 lbs.

Of revenue passenger vehicles as defined in primary account—

	Number.	Average Capacity. Passengers.
(a.) } Shows {	565	57
(b.) }	196	No information
(c.) }	205	52

The average seating capacity on the last-named line ranges from 14 (narrow gauge) to 74 (standard gauge).

Passenger vehicles running empty are included in passenger car-miles.

Of freight cars—

	Number.	Average Capacity. Tons.
(a.) Shows (Also 32 tanks, capacity 3,501 barrels)	57,754	35
(b.) } Shows {	7,223	No information
(c.) }	10,302	31

the capacity of the last named ranging from 12 tons (narrow gauge) to 50 tons (standard gauge).

The average tractive power of locomotives and capacity of passenger vehicles and goods wagons is constantly increasing, and if statistics based on mileage are to be of real value it should not be beyond the powers of railway experts to define a "standard" locomotive, passenger car, goods wagon and train.

An average mile of line would probably be a more difficult matter to define.

As such definitions have not been laid down by the Interstate Commerce Commission, may it not be assumed that shareholders and the public would reap but little advantage from such statistics if prepared?

As much discussion has taken place in this country regarding ton mileage it may be pardonable to refer to a letter from the Interstate Commerce Commission, April 22nd, 1902, addressed to the railways as follows:—

“After extended consideration the Commission deems it advisable to insert in the form for annual report a schedule calling for the classification of ton mileage and the classification of freight earnings according to some acceptable classification of commodities.”

About a dozen of the principal railroads were represented at the hearing on 9th May, and it was anticipated the information placed before the Commission would tend to convince the members of that body:—

First.—That the enormous cost (estimated at 800,000*l.* per annum) of furnishing the additional information desired is a burden which should not be placed upon the railroads, especially if such information is not sufficiently accurate to form a reliable basis for comparisons and for summarising the statistics of the different railroads and groups of railroads of the country.

Second.—That any conclusions which might be drawn from statistics furnished on the basis indicated would necessarily be of no practical value either in determining the reasonableness of freight rates on specified commodities, as classified by the different freight associations, or for the comparison of such data reported by other companies.

Third.—That any summary of such statistics reported for the various railroads located within the territorial groups adopted by the Interstate Commerce Commission must on account of the diverse conditions under which the freight business of the different roads is conducted, prove to be misleading.

The Special Committee briefly summed up that—

“Such separate earnings and ton-mileage by commodities if compiled and furnished would not form a reliable basis for any practical deductions or comparisons.”

In view of this it may be asked what practical deductions can be drawn or useful comparisons made from ton-mileage figures not even separated into commodities?

Averages made up from a variety of results arrived at under

conditions in many cases diametrically opposed cannot be other than misleading, and railway officials for traffic purposes require their information divided into sections corresponding with the different divisions of their lines rather than for the system as a whole.

In this Paper no attempt has been made to touch upon American methods of account at stations. This feature has been dealt with in lectures before the New York University School of Commerce Accounts and Finance by Mr. H. C. Whitehead, General Auditor of the Atchison, Topeka and Santa Fe Railway, who has presented a copy of the book containing the lectures to the library of this Society.

APPENDIX I.

Accounting Series, Circular No. 11.

Interstate Commerce Commission,
Division of Statistics and Accounts,
Washington,
5th July, 1907.

DEAR SIR,—On 13th and 14th June, 1907, the Standing Committee on Corporate, Fiscal and General Accounts of the Association of American Railway Accounting Officers met for the purpose of passing upon a tentative classification of additions and betterments expenditures. At this meeting the following resolution was adopted:—

“Resolved: It is the sense of this Standing Committee that before this bulletin is submitted to the Interstate Commerce Commission that such members of the Association as desire to submit the same to their executive officers for any suggestions be permitted to do so, and have their answers to the Chairman of this Committee, Mr. A. H. Plant, Comptroller, Southern Railway, Washington, D.C., before the 1st July, 1907, and that the letters submitted to the Chairman of this Committee be transmitted to the Interstate Commerce Commission with the classification and text.”

In accordance with the above resolution, it was not until 1st July that the Chairman of the Committee on Corporate, Fiscal and General Accounts was authorised to submit to the Interstate Commerce Commission the tentative classification adopted.

A cursory examination of this classification, as also of the letters by which it was accompanied, leaves the impression that there are quite a number of principles involved that require further consideration before they can with propriety be promulgated under a formal order of the Commission. The importance of this classification as an integral part of a system of operating accounts leads to the same conclusion. This being the case, it is thought wise to issue the classification in the form of a circular, with the suggestion that for the present the general principles here laid down may be followed by accounting officers, but that no accounting officer should be required to make radical changes in past methods of accounting so far as the expenditures under consideration are concerned.

It should, however, be distinctly understood that the liberty thus granted must not be construed as authorising that expenditures which are manifestly of the nature of additions and betterments may be charged to operating expenses; and in general it may be said that in case of conflict between the text of the classification here submitted and the instructions contained in the several classifications issued under order of the Commission, the instructions should govern.

In the reprint of this classification of additions and betterments expenditures, sufficient space has been provided under each primary account to allow for the insertion of criticisms or suggestions for further change. Accounting officers are earnestly requested to consider with care the principles underlying this classification, as also the text in which these principles are expressed, and make replies accordingly. Such replies should be made in duplicate, one copy to be forwarded to Mr. C. G. Phillips, Secretary, Association of American Railway Accounting Officers, 143, Dearborn Street, Chicago, Ill., and the other to the Division of Statistics and Accounts, Interstate Commerce Commission, Washington, D.C.

It is desired that replies to this circular be made not later than 15th September, 1907.

Respectfully,

HENRY C. ADAMS,

In charge of Statistics and Accounts.

APPENDIX II.

*Classification of Operating Expenses,
Primary Accounts.*

Accounts for Large Carriers.	Accounts for Small Carriers.
<i>Maintenance of Way and Structures.</i>	
1. Superintendence (1) ¹	1. Superintendence.
2. Ballast	2. Maintenance of roadway and track
3. Ties	
4. Rails	
5. Other track material	
6. Roadway and Track	
7. Removal of snow, sand and ice	
8. Tunnels	3. Maintenance of track structures
9. Bridges, trestles and culverts	
10. Over and under grade crossings	
11. Grade crossings, fences, cattle guards and signs	
12. Snow and sand fences and snowsheds	
13. Signals and interlocking plants	4. Maintenance of buildings, docks and wharves
14. Telegraph and telephone lines	
15. Electric power transmission.	
16. Buildings, fixtures and grounds	
17. Docks and wharves	
18. Roadway tools and supplies (6)	5. Injuries to persons
19. Injuries to persons (5)	
20. Stationery and printing } (6)	
21. Other expenses	
22. Maintaining joint tracks, yards and other facilities—Dr. (7)	
23. Maintaining joint tracks, yards and other facilities—Cr. (8)	
<i>Maintenance of Equipment.</i>	
24. Superintendence (9)	9. Superintendence
25. Steam locomotives—repairs (10)	10. Locomotives—repairs
26. Steam locomotives—renewals (14)	11. Cars—repairs
27. Steam locomotives—depreciation (15)	
28. Electric locomotives—repairs (10)	
29. Electric locomotives—renewals (14)	
30. Electric locomotives—depreciation (15)	
31. Passenger train cars—repairs (11)	
32. Passenger train cars—renewals (14)	
33. Passenger train cars—depreciation (15)	
34. Freight train cars—repairs (11)	
35. Freight train cars—renewals (14)	
36. Freight train cars—depreciation (15)	
37. Electric equipment of cars—repairs (11)	

¹ The numbers in brackets after the headings of primary accounts for large carriers refer to the primary accounts under which grouped in the case of small carriers.

Accounts for Large Carriers.	Accounts for Small Carriers.
38. Electric equipment of cars—renewals (14)	
39. Electric equipment of cars—depreciation (15)	
40. Floating equipment—repairs (12)	12. Floating equipment—repairs
41. Floating equipment—renewals (14)	
42. Floating equipment—depreciation (15)	
43. Work equipment—repairs (13)	13. Work equipment—repairs
44. Work equipment—renewals (14)	14. Equipment—renewals
45. Work equipment—depreciation (15)	15. Equipment—depreciation
46. Shop machinery and tools (17)	
47. Power plant equipment (17)	
48. Injuries to persons (16)	16. Injuries to persons
49. Stationery and printing (17)	
50. Other expenses (17)	17. Other maintenance of equipment expenses
51. Maintaining joint equipment at terminals—Dr. (18)	18. Maintaining joint equipment at terminals—Dr.
52. Maintaining joint equipment at terminals—Cr. (19)	19. Maintaining joint equipment at terminals—Cr.
<i>Traffic Expenses.</i>	
53. Superintendence	20. Traffic expenses
54. Outside agencies	
55. Advertising	
56. Traffic associations	
57. Fast freight lines	
58. Industrial and immigration bureaus	
59. Stationery and printing	
60. Other expenses	
<i>Transportation Expenses.</i>	
61. Superintendence	21. Superintendence and dispatching trains
62. Despatching trains	
63. Station employees	22. Station service
64. Weighing and car-service associations	
65. Coal and ore docks	
66. Station supplies and expenses	
67. Yardmasters and their clerks (24)	
68. Yard conductors and brakemen (24)	
69. Yard switch and signal tenders (24)	
70. Yard supplies and expenses (26)	
71. Yard enginemen (23)	23. Yard enginemen
72. Enginehouse expenses—yard (26)	24. Other yard employees
73. Fuel for yard locomotives (25)	25. Fuel for yard locomotives
74. Water for yard locomotives (26)	
75. Lubricants for yard locomotives (26)	26. All other yard expenses
76. Other supplies for yard locomotives (26)	
77. Operating joint yards and terminals—Dr. (27)	27. Operating joint yards and terminals—Dr.
78. Operating joint yards and terminals—Cr. (28)	28. Operating joint yards and terminals—Cr.
79. Motormen	29. Road enginemen and motormen
80. Road enginemen	

APPENDIX III.

*Classification of Expenditures for Road and Equipment.**Primary Accounts.**Road—*

1. Engineering.
2. Right of way and station grounds.
3. Real estate.
4. Grading.
5. Tunnels.
6. Bridges, trestles and culverts.
7. Ties.
8. Rails.
9. Frogs and switches.
10. Track fastenings and other material.
11. Ballast.
12. Track laying and surfacing.
13. Roadway tools.
14. Fencing right of way.
15. Crossings and signs.
16. Interlocking and other signal apparatus.
17. Telegraph and telephone lines.
18. Station buildings and fixtures.
19. General office buildings and fixtures.
20. Shops, engine-houses and turntables.
21. Shop machinery and tools.
22. Water stations.
23. Fuel stations.
24. Grain elevators.
25. Storage warehouses.
26. Dock and wharf property.
27. Electric light plants.
28. Electric power plants.
29. Electric power transmission.
30. Gas producing plants.
31. Miscellaneous structures.
32. Transportation of men and material.
33. Rent of equipment.
34. Repairs of equipment.
35. Earnings and operating expenses during construction.
- 35½. Injuries to persons.
36. Cost of road purchased.

Equipment—

37. Steam locomotives.
38. Electric locomotives.
39. Passenger train-cars.
40. Freight train-cars.
41. Work equipment.
42. Floating equipment.

General Expenditures—

43. Law expenses.
44. Stationery and printing.
45. Insurance.
46. Taxes.
47. Interest and commissions.
48. Other expenditures.

APPENDIX IV.

*Tentative Classification of Additions and Betterments
Expenditures.*

1. Right of way and station grounds.
2. Real estate.
3. Widening cuts and fills.
4. Protection of banks.
5. Grade revisions and changes of line.
6. Tunnel improvements.
7. Bridges, trestles and culverts.
8. Increased weight of rail.
9. Ballast.
10. Additional main tracks.
11. Sidings and spur tracks.
12. Terminal yards.
13. Fencing right of way.
14. Improvement of over and under grade crossings.
15. Track elevation, elimination of grade crossings, &c.
16. Interlocking apparatus.
17. Block and other signal apparatus.
18. Telegraph and telephone lines.
19. Station buildings and fixtures.
20. Shops, engine-houses and turntables.
21. Shop machinery and tools.
22. Water and fuel stations.
23. Grain elevators and storage warehouses.
24. Dock and wharf property.

25. Electric light and power plants.
26. Electric power transmission.
27. Gas producing plants.
28. Snow and sand fences and snow sheds.
29. Miscellaneous structures.
30. Reconstruction of road purchased.
31. Steam locomotives.
32. Electric locomotives.
33. Passenger train-cars.
34. Freight train-cars.
35. Work equipment.
36. Floating equipment.
37. Interest, discount and commission.

APPENDIX V.

Injuries to Persons.

This account includes all expenses incident to injuries to persons when caused directly in connection with maintenance of equipment; proportion of salaries and expenses of physicians and surgeons, expenses of undertakers, nursing and hospital attendance, medical and surgical supplies, artificial limbs, funeral expenses, railway and carriage fares for conveying injured persons and attendants; also proportion of pay and expenses of claim adjusters and their clerks, pay and expenses of employees and others called in consultation in relation to the adjustment of claims coming under this head, and pay and expenses of employees and others while attending coroner's inquests or engaged as witnesses in law suits in connection with personal injury cases.

NOTE A.—Expenses not otherwise provided for in connection with the conduct of suits should be charged to account "Law Expenses," but the amount of final judgments, including plaintiffs' court costs, should be charged to this account.

NOTE B.—When contributions are made to hospitals, the total thereof should be distributed to the several "Injuries to Persons" accounts as follows: 25 per cent. to "Maintenance of Way and Structures," 25 per cent. to "Maintenance of Equipment," and 50 per cent. to "Transportation Expenses."

NOTE C.—The pay and expenses of claim adjusters, clerks, chief surgeons, and others whose pay can not be actually allocated to any case, should be divided equally between personal injury and other claims over which they have jurisdiction.

DISCUSSION *on* MR. S. CHAPMAN'S PAPER.

MR. W. M. ACWORTH said everyone would agree that at this moment when the question of the acquisition of railways by the State was coming to the front, and when from another point of view railways were interesting their shareholders more than they had done in the past, this paper showing what had been done by scientific men in America in getting accounts into a better shape was very timely. However hopeful they might be, they must all feel that it would be a long while before railway accounts in England would be presented with such fulness. If one looked at the "primary accounts" under one head only, they outnumbered all the accounts furnished by any English company at the present moment. Railway men in America, almost without exception, ascribe the chief part of the extraordinarily successful results which they had achieved in the last decade—the traffic having doubled, speaking roughly, whilst the expenses remained constant—to the possession of accounts and statistics, which were not only full, but uniform; for without uniformity you could not get comparison, and comparison was a very useful method of stimulating progress. Everyone would agree with the author in stating that co-operation was most desirable between the railway officials and the Board of Trade. They must all be aware that at the Board of Trade there was no such expert knowledge as existed in the railway offices, and could not be; but when Mr. Chapman said that unless there was a hearty co-operation—which there had not been—nothing could be done, and (as he understood him) nothing ought to be done, he did not quite agree with him. When he was a child he used to hear it said, "Little boys who ask must not have, and little boys who do not ask do not want." If they could not have it without the co-operation of railway accountants, and if railway accountants would not co-operate, what was the little boy to do? He did not think it could be put quite so high as that. After all, there were a great many things in the practice and law of America which he would hardly think were introduced entirely on the initiative of the accountants. For instance, there was one provision that, if an accountant kept any book of accounts not authorised by the Commission, he might be put in prison, and he could hardly believe that that was suggested by the accountants. In America the State considered that in the last resort it must decide, and it had taken the thing into its own hands, and whatever form of accounts the Commission prescribed had the force of law, and the railway companies were required to follow it, and to give any accounts and statistics the Commission chose to ask for. He could not agree, therefore, that if the accountants held back, the Board of Trade must *ex necessitate* hold its hand. On p. 626 the author called attention to the fact that what they called "outside

operations" were classified, and dealt with separately, and it was no betrayal of confidence to say that he hoped before long there would be an agreement on the part of everybody who had to do with this matter, and that the Board of Trade would require in railway accounts separate accounts of outside operations. On p. 630 the author said: "While accounting has received an immense amount of consideration in the United States, statistics seem to have been relatively neglected." He would point out that, owing to circumstances which fortunately had no parallel here, there had been a necessity for a strictness in accounts, because there had been in the past absolute dishonesty in that matter, and therefore not unnaturally great stress had been laid on presenting accounts in such a shape that dishonesty should be prevented in future; but if "relatively neglected" meant relatively in comparison with England, he thought it was a long way from being the fact. Mr. Chapman had himself quoted from a distinguished railway man, who said that the American railroads were "vitally interested in the compilation of statistics," and people generally did not comparatively neglect things which were of vital interest. He had been told by scores of railway men in America that they did not neglect them, and amongst the statistics required to be filled up—to take the very first lines of the schedules before them—were the number of passengers carried and earning revenue (which we had got in England), the number of passengers carried per mile, the number carried per mile of road, and the average distance carried; none of which we get in England. It was the same with the freight statistics. He could produce several batches of the statistics required to be furnished, the bulk of which contained information we had not in England. The author had said, "It might be inferred that the Commissioners had in mind that the companies would probably continue to compile ton-mile statistics, although no further mention of ton-mile was made in the classification of locomotive expenses." He thought there was a slight slip, as could be seen by reference to the document itself in which ton-miles were mentioned on p. 630. It no more occurred to an American railway that it was not going to give this information than that it was not going to balance its books. In nearly every country in the world, including Canada, United States, Argentina, Japan, and the whole of Europe, with the exception of Belgium, Portugal, and the United Kingdom, the figures showing the ton-miles were furnished. For the sake of the argument, he would accept what he gathered was the suggestion, that ton-mile figures were no use to a railway company, but he did not think that settled the question, especially having regard to the present position of affairs in England. He had an extract from the annual report of the Canadian Department of Railways and Canals, dated 30th June, 1907, the first issued under the new railway law. It pointed out that the new report "differed in many respects from previous ones, the changes being made for various reasons; the old schedules had become unsuited to modern railway conditions, and failed to elicit many points of useful information, and did not, except in a limited way, permit of comparison

with the railway statistics of other countries. It would not be alleged that those changes were in advance of existing needs." Then it further said that "the problem of transport was of great importance as bearing directly on the commercial life of the nation, that there was a need for full and accurate statistical information, and to meet that need full, new and comprehensive schedules had been prepared, and that perhaps the most valuable element of novelty was the information added of the average earning per passenger per mile, and the average earnings per ton per mile." It was obvious that you could not have the average earning per ton per mile until you knew the ton-mileage. "These things were regarded as the basic factors in the railway problem, for without them, useful and accurate comparison could not be made either between the different railways or between different countries." This was emphatically true. So that, assuming the ton-miles were of no value to the railways themselves, he should say the obligation to furnish them for public reasons was ample. He did not admit, however, that they would be useless to railway companies. After quoting a passage from the United States' Report in 1902, in reference to ton-mileage statistics of commodities, he said things went pretty fast in America. The railway companies said in 1902 it was going to cost an appalling amount of money and would not be of any use, and that it would be intolerable to ask for these figures. In fact, they used just the same language as the English railways did in arguing against gross ton-mileage at the present time. The Commission let them down gently, did not press them unduly for a bit, and now a very large number of the great railways, the modern well-managed railways, were producing these very "commodity ton-miles." If our English railways would try first to produce the ton-miles he felt sure they would be so enamoured of the result that before long they would copy their American brothers, and produce the commodity ton-miles as well. The United States now required the commodity ton-miles under six or eight heads, which were now specified in the book to which he had alluded. They were much indebted to Mr. Chapman, and if he could not agree with him in everything, he wished him all success in his endeavours to obtain in this country accounts which were more like the American railway accounts—uniform, full and public. If they could get that, he should not very much grumble if they did not get everything that he had asked for. He believed the fact that our railways had remained, so to speak, on an island of their own, and had ceased to be comparable on the basis of statistics with those of other countries, did not make for the interests of English manufacturers of rolling stock, as we had ceased to be looked upon by other countries as the pioneers and leaders in railway enterprise as we were a generation ago, and so foreigners, who a generation back came to England, now went to Germany or the United States both to learn railway working and to buy railway rolling stock. If full accounts were produced, so that our railways were properly comparable with those of other countries, he should hope that something would be done for the benefit of our

international position, and at any rate a great deal would be done for the benefit of both the customers and shareholders of railway companies.

Mr. F. J. C. POLE said that, with regard to ton-mileage, he was in the position of a student who wanted to know something really definite as to the use to which such figures could be put. He would indicate his position from the studies he sometimes had to make in other directions; for instance, it was necessary to compare one division of a railway with another division. This was an exceedingly difficult thing to do owing to varying conditions. There might be preponderating carted traffic in one division, in another division an exceptional mineral traffic hauled in large quantities for short distances, and so on. If it could be shown that ton-mileage calculations would unify these differences and enable reliable, accurate, and useful comparisons to be made—division with division, railway with railway, country with country—he thought railway officials were sufficiently broad-minded to be open to conviction as to the utility of such statistics.

Mr. H. A. GILL said he spoke as one who had had to investigate the position of American railways on behalf of shareholders in this country, and he would very much like to ask Mr. Chapman whether he had ever met in the States the man who was able to forecast, with any degree of accuracy, the financial result of the operations of an American road based upon its published figures of earnings. He had attempted such calculations himself, and regretted to say that he could not claim to have added to his reputation thereby. Upon one occasion he noticed that the published figures of fixed charges (usually regarded as taxes, rentals and interest) showed a remarkable increase in comparison with the previous year, and yet there had been no further bond issues or anything likely to account for the great difference. The matter was pointed out to people on the other side, who explained that in this particular year "additions and betterments" were being shown through fixed charges, whereas in the previous year they had been deducted from surplus income. On another occasion he had estimated interest charges for the year, only to be told that he had allowed far too much; for the charges in connection with certain bonds were still being debited to construction account. Mr. Gill's contention was that in spite of the existence of the Interstate Commerce Commission, and its requirements, the methods of the railroads, from a financial point of view, still left much to be desired in the way of uniformity and consistency. In view of a recent announcement that the Erie Railroad had applied to the Public Service Commission for authority to issue \$30,000,000 of bonds, he asked whether Mr. Chapman could tell them something of the constitution of that body. Was it a Federal or State authority?

Mr. CHAPMAN said it might be either State or Federal—in Texas it would be the State.

Mr. M. F. WILSON said he had listened with great pleasure to this Paper. He hoped that some day they might rise in England to the same level as America, and that the Board of Trade would be advised by those capable of advising it.

Mr. GEORGE PAISH said Mr. Acworth had said so well what he wished to say that it was scarcely necessary to add anything. He had studied very closely American and English railway accounts for twenty years. About 1899 a great change took place in the United States, and one or two railways brought down their ratio in an astonishing manner, so that people on this side thought the reductions could not be genuine. He went to the States for the purpose of investigation, and found the economies were *bona fide*. It was explained to him that this had been done through a new system; in the old days in America, as elsewhere, it was considered that engines over a certain weight could not be run with advantage. Then Mr. Hill discovered they could, and he threw overboard the old ideas and adopted new ones; and in combination with his new ideas he introduced a new method of statistics. In fact, he vivified ton-mileage, and made it of practical value. He was shown a statement similar to the one which Mr. Pole desired, in which the Great Northern had split up the line into divisions, calculated the traffic on each division, the density of the traffic, the rate per ton per mile, the cost of handling it on each division, the cost per ton-mile, per car-mile and per unit, and it was all done very carefully. Every month Mr. Hill got this out, and having got it out, he found there was great disparity between the different sections. So he sent a copy of the statement to the officers responsible for each section, and asked how they accounted for the differences. The officers had to give an explanation, and had to go carefully into every item of expense. The result was that the Great Northern in a few years greatly reduced its ratio. Alongside the Great Northern was the Northern Pacific, and when its officers saw these results they adopted the same system, increased the train loads, the car loads and the size of the engines, and instead of being unable to pay their interest charges, were soon able to pay a substantial dividend on their common stock. From that time to this he had watched this system extend from railway to railway in the United States. He had known men who at first declined to introduce the new system, had discussed it with them, and had their reasons why they did not do it. They gave exactly the same reasons that English companies gave now. They said, You cannot do it on our line; competition is too great. Nevertheless, the new system had now extended over the whole of the continent, and statistics now were considered, as Mr. Chapman had said, a matter of vital importance to the operating departments. The officers studied them morning by morning and month by month. He had with him a detailed ton-mileage *monthly* statement of 30 commodities, which was given him by an American railway president. He asked him if he found it of any value, what value it was, and did it help him to make rates? The reply

was it was of great value. It showed for each of the 30 commodities: (1) tons carried, (2) the percentage of the total, (3) earnings, (4) percentage of the earnings to the total, (5) average distance hauled, (6) the rate per ton per mile. One could not get the distance hauled unless one got the ton-mileage; the average haul was obtained by dividing the tonnage into the ton-mileage. Again, one could not obtain the average rate per ton per mile except by dividing the ton-mileage into the receipts. This was got out every month, and the president used it. When they first began to compile the figures they found some of the commodities were yielding much lower rates than they thought they did, and proceeded to readjust them. Leaving out investments, American railways had spent only a very small amount of capital in the last decade, and they had handled 100 per cent. more traffic. What helped to run away with profit was the large increase in capital charges. Even if you got an increase in expenses only in proportion to the increase of gross receipts, increased capital charges ran away with the bulk of the balance. If you could keep down your capital you would have a big increase of profit. That was one of the things they had done in the United States; and they not only done that, they had kept down the revenue expenditure as well. Having seen the greatly increased economy resulting from the new statistical methods in America, they desired to see the same kind of thing in this country. Were there any reasons for supposing that this statistical analysis which had proved to be so valuable in the United States should not be equally valuable here? Mr. Chapman said that what applied in America did not apply in England, but surely the fundamental principles of railway operations were the same in every country. You had to move traffic with the least possible expenditure, having regard to all the conditions. The question was, were they moving the traffic of this country at as low an expense as they ought to under the required conditions? When he first looked into the matter he estimated that the London and North Western Company had an average load of 67 tons; he did not like to mention the estimated average load of the Great Western. In 1900 attention had been called to this, and since then they had saved in this country 40,000,000 freight train-miles. By this reduction they had saved a great deal of money, but where the additional profit had gone no one knew. The directors said it had gone in increased wages, but Mr. Bell said there had been practically no increase in the rate of wages. They had 1,100,000,000*l.* of capital invested in railways, and it went on increasing at the rate of about 200,000,000*l.* every ten years. If in the next ten years they could save half of that, it would give the country the use of 100,000,000*l.*, which otherwise would have to be expended on the railways. The American railways, after spending very little capital for ten years, now had to spend capital freely. They could do so, because the dividends on their stock were so good. Last year, when things were very bad and when strong corporations found great difficulty in raising capital, western lines which were bankrupt ten years ago were able to issue a great deal of new capital. The Northern

Pacific created \$90,000,000 additional capital, and the Union Pacific put out \$74,000,000; the Great Northern \$60,000,000, and the Atchison raised a large amount. If the English railways took the same measures that the American railways had taken, they would enjoy a similar experience. They had got into difficulties and their credit suffered from loss of profit, not from loss of traffic, which had grown 30 per cent. in ten years. Were they going to recover their credit? He hoped they would. They would earn much larger profits if they would improve their methods. If they would only take out their figures and get all the information they needed about their operations there would be great improvement in profits, and when they really needed to raise additional capital they would be able to do so without difficulty.

The CHAIRMAN then proposed a cordial vote of thanks to Mr. Chapman, which was carried unanimously.

Mr. CHAPMAN, in reply, said he did not think there was really very much difference of opinion between Mr. Acworth and himself, and he was much obliged to him for pointing out where there was a possibility of misinterpretation. When he spoke of ton-miles not being of any particular use, it was not from the railway standpoint, but rather from that of the public. He maintained that the mere showing of the freight ton-miles in one figure in a railway report could convey nothing to the man in the street, and could not convey anything to the expert either, unless he had more detailed information. If he remembered rightly, in 1903 and 1904 the New South Wales Government railways showed ton-mileages, respectively, of 399,500,000 and 393,000,000, a difference which called for very little comment. The man in the street would take those figures, and say they were all right; but when one came to look at the details it would be found that hay, straw, and chaff, which were classified separately, showed in the one year something like 71,000,000 miles, and in the other only 22,000,000 miles, and that the average distances hauled were, respectively, 275 and 190. He entirely agreed that, if train-miles were to be of service at all, they must be taken out by commodities. It sounded like a large order, but, speaking from practical experience, he could say that, where the chief accountant took out the ton-miles regularly by commodities, he found a great advantage from doing so, and the expense was not anything like so much as many railway officials estimated. But when it came to giving ton-miles because some shareholder asked for the information, or because somebody who had never studied accounts wanted a big figure, that was another matter altogether. It was not worth while asking railway companies to spend a lot of money to arrive at a figure of that kind simply for the purpose of giving it to some person who would very likely draw some wrong inference from it. With regard to "outside operations," they must all agree that such figures were very desirable with regard to many of them; for instance, it would be of interest to shareholders if they could see the results of hotel operations, the

running of steamers, and so on. With regard to forecasting the results of an American railway, it must be borne in mind that the classifications referred to were introduced recently, some of them only becoming operative (as in the case of electric railways) from January next, and some from July last, and it would be very much easier to forecast the results in future than it had been in the past. He might say that he had a two hours' lesson from Mr. Hill one day, when he showed him the very statistics of which Mr. Paish spoke; he admired them very much at the time, and thought every railway man must do so. With regard to the remark as to the Inter-State Commerce Commission not taking up statistics so strongly as accounts, what he referred to there had relation to the 1905 meeting of the Association of American Railway Accounting Officers, at which he was present, when great attention was paid to the question of units. He must say it surprised him that the Inter-State Commerce Commission—after carefully classifying accounts, showing how the primary accounts should be divided, and going into all the details they did—should classify a locomotive simply as a locomotive, quite irrespective of its tractive force; and a wagon simply as a wagon, regardless of its capacity, without attempting to arrive at something like a standard figure. Looking at it from the basis of statistics, that information was wanted before one could get any accurate result either for sections or for an entire line. If it was desirable to have ton-mileage at all, or train-mileage, or engine-mileage, a "standard" ton, train, engine, or whatever it might be, should first be defined; then one would have a certain basis on which to make comparisons.

The following were elected Fellows of the Society :—

John Brownlee, M.D., D.Sc.
George Woolley Gough, B.A.
Frederick L. Hoffman.
Thomas Neill.
Joseph Aloïs Schumpeter, D. Juris.
(Vienna).

T. H. C. Stevenson, M.D.
Percy Wallis.
Charles Wheeler Forrest Young,
M.D.