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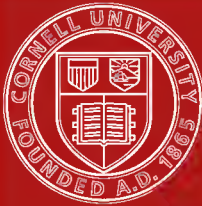
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APPLETON'S RAILWAY SERIES

EDITED BY

EMORY R. JOHNSON, PH.D.

**RAILROAD
ACCOUNTING**

APPLETON'S RAILROAD BOOKS

Edited by EMORY R. JOHNSON

RAILROAD ACCOUNTING

By WILLIAM E. HOOPER

RAILROAD ADMINISTRATION

By RAY MORRIS

RAILROAD TRAFFIC AND RATES

Vol. I.—The Freight Service.

Vol. II.—Passenger, Express and Mail Service

By EMORY R. JOHNSON, Ph.D.

and
GROVER G. HUEBNER, Ph.D

RAILROAD FINANCE

By FREDERICK A. CLEVELAND, Ph. D.

and
FRED WILBUR POWELL, A.M.

D. APPLETON & COMPANY, NEW YORK

RAILROAD ACCOUNTING

BY
WILLIAM E. HOOPER



NEW YORK AND LONDON
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1915

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PREFACE.

SINCE railroad companies engaged in interstate commerce are required by law to keep their accounts in accordance with the rules prescribed by the Interstate Commerce Commission, these rules must necessarily form the basis of any treatise on railroad accounting. I have not made any attempt to discuss the question of whether or not these rules are the best that might be devised. It is not of so much importance to the investor who desires to make an intelligent study of a railroad company's annual report that the system of accounts used be theoretically perfect as it is that there should be a uniform system. My object has been to outline in a general way the information that may be derived from a study of railroad accounts compiled in the manner prescribed by the Interstate Commerce Commission. Above all, I have attempted to show the "why" of the accounts.

The author is under special obligation to William J. Cunningham, Professor of Transportation of the Harvard Graduate School of Business Administration, and assistant to the President of the Boston & Maine Railroad, who read all of the proofs of the book and made many very valuable suggestions. I am very deeply indebted to Mr. William Mahl, until recently Vice-President and Comptroller of the Southern Pacific, for constructive criticism and assistance throughout the book. I am also very much indebted to Mr. Frank Trumbull, Chairman of the Board of Directors of the Chesapeake & Ohio and Missouri, Kansas & Texas Railways, in the preparation of the book as a whole and espe-

PREFACE

cially in the chapters dealing with the distinction between operating expenses and capital investment.

In the chapters dealing with the work of the auditor's office I have reproduced some of the forms in use on the Southern Railway, Pennsylvania Railroad and New York Central & Hudson River Railroad, and the accounting officers of these roads rendered every facility for studying the methods in use in their offices.

I also desire to thank T. H. B. McKnight, Treasurer of the Pennsylvania Lines West, for assistance in the preparation of the chapter dealing with the work of the treasurer's office.

W. E. H.

NEW YORK, February 6, 1915.

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RAILROAD ACCOUNTING

CHAPTER I

THE INFORMATION THAT ACCOUNTS SHOULD FURNISH

Accounting is a means to an end, and for this reason is viewed with suspicion. Railroad men of the old school confuse the value of using theories in practice with the dangers of being a theorist. The mass of people unacquainted with accounting suspect it because accounting is susceptible of being used for special pleading. The same set of figures may have been the outcome of two or more combinations of facts. In this way the figures arrived at by accounting are analogous to those problems in algebra which, when solved, have as an answer either a plus or a minus figure. This is a fact to recognize and to make allowance for, but it is not a valid argument against the value of accounting.

The two most common mistakes made by those who deal with figures is to view them as an end in themselves or to accept them without analysis. The first mistake can be overcome by thoroughly understanding the ends that are desired to be obtained through accounting, or, in other words, to understand what information is desired and why it is desired. The other mistake may be avoided by an attitude of skeptical good-fellowship with the figures that are used. If the figures obtained are not treated with too much respect, if they are at once trusted and suspected—

trusted in so far as they are figures, and suspected in so far as they are an unquestionably accurate measure of fact—they will have a value out of proportion to their absolute accuracy.

Accounting in any business is needed in direct proportion to the complexity of the business, and also in proportion to the relative distance that the man who uses the results of accounting is from the facts. The peanut vender who deals in only one commodity, and himself both buys and sells, has slight need for accounting. The man who lives in Europe and invests his money in securities of a great American railroad system, operating 6,000 or 7,000 miles of line, if he is to make an investment on his own knowledge based on figures, must demand from a railroad corporation a very perfect system of accounting.

The demands for information made on a system of American railroad accounts naturally falls into three classes. In the first of these classes are the demands for information made by railroad managers who are in direct charge of operating the properties. This is such information as is required by the president of the road. The demands for information by the investor form the second class, represented by the information desired by the railroad stockholder and bondholder. The demands of the general public form the third class represented by the information required by regulating commissions and by the courts. Each of these different demands on accounts are for as near an approximation of a record of facts as can be given, but the kind of facts and the form in which facts are presented, vary widely as between the three classes. A system of accounts, therefore, for an American railroad must be so comprehensive as to meet the requirements of all three of these classes.

The public and their regulative commissions and law courts are furthest removed from the railroad property.

Their requirement in the way of information to be furnished by railroad accounting, they think, is simple and definite, but it is actually so complex that it is quite impossible of complete satisfaction. This right of the public as represented by the federal courts, to demand certain information from railroad companies, is founded directly on the constitutional provision which subjects all who are engaged in interstate commerce to regulation by the United States Government. The distinction between investors in the securities of railroads and the outside general public should be clearly kept in mind. By speaking here of the requirements of the general public, reference is made simply to citizens to whom the railroads are under no other obligations than those imposed on them through the fact that they are engaged in interstate commerce.

The U. S. Supreme Court early decided that the Federal Government was given the right by the commerce clause of the constitution to regulate railroad service and rates, and the only definite and inclusive limitation that has so far been imposed on this power by the state courts is the provision of the constitution that a person cannot be deprived of property without due process of law. The power to regulate gives the public the right to inquire into the kind of service the railroads are giving,¹ to order addi-

¹In *Smyth v. Ames*, 169, U. S. 466, the Supreme Court said: We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And, in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in esti-

tional service and to fix rates. The restriction against taking property without due process of law affords the railroad company an opportunity to give evidence of the value of its property and the cost of its service.

The two requirements, therefore, of railroad accounting from the point of view of the public are that the accounts shall show (1) the actual money cost of the plant, and of the franchises, etc., and (2) the cost of performing any particular class of service. Whether a railroad is ordered to perform an additional service or to charge less for a service that it now performs, the railroad is compelled to obey unless it can show that such additional service,¹ or service at the reduced rate, would not be profitable and therefore would deprive it of property. The theory on which this statement rests is that the constitution apparently includes as property the use of property, from which follows the presumption that a fair income is inherent in the investment in property. A fair income is a certain percentage of the cost of the property.

To prove that a government order has made a certain service unprofitable, that is, has deprived the property involved in that service of a fair return on its investment, the railroad must show the investment in the property involved, so that it may show on what sum, expressed in dollars and cents, it may legally ask to earn a fair return, and must show what is the cost of the service involved. That the burden of proof of the necessity of advancing rates is now by statute thrown on the railroads, changes in mating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth.

¹Of course the Interstate Commerce Commission or a state commission could legally order a railroad to perform any service that was part of a common carrier's services.

INFORMATION ACCOUNTS SHOULD FURNISH 5

no way the kind of information that is required from railroad accounts.

In the hearings in 1910 before the Interstate Commerce Commission on the proposal of the railroads to advance their rates, the companies undertook to show their need of a greater margin of profit by submitting abstracts from their accounts over a period of years. The Interstate Commerce Commission listened to and examined about ten closely printed volumes of evidence containing innumerable figures and statistical exhibits. Notwithstanding the multitude of counsel, there was a substantially uniform attempt to show the investment in the property in service and the cost of rendering the service. After listening to all this testimony, the commission on its own initiative asked the roads for certain information. The figures asked for and later published by the commission were those showing mileage, cost of road and equipment, total capitalization, total operating revenues and expenses, income account, profit and loss account, analysis of operating expenses for rails, ties, bridges and culverts, analysis of operating expenses for repairs and renewals, analysis of specified operating expenses for conducting transportation, analysis of relations of maintenance account to expense of conducting transportation, analysis of freight-service-operating statistics, analysis of operating revenues and analysis of passenger-service-operating statistics.

It is perfectly apparent here that the commission had in mind two distinct inquiries: one to get the statement of certain accounts in the form in which the railroad companies had compiled them, the other to analyze these accounts to see if they had been correctly compiled.¹

¹ The reason for the commission's investigation into the correctness of the accounts was due to a special cause, namely, that one of the arguments advanced against rate advances was that, regardless of what the company's accounts show, the fact was that stockholders and

Leaving aside the analysis figures, we find that what the commission wanted was a statement in terms of miles of the property owned and operated, and a statement in dollars and cents of the cost of this property; of the securities issued against it, par value; of the cost of doing business and returns from that business; of the income from other sources than conducting a railroad business, and of the expenses of the corporation other than those of conducting the railroad business, which includes the cost of borrowing money, etc., and a statement of the profit. The commission sought from the accounts a statement of investment in property and cost of service. Stress is laid on the general agreement as to what the records of a railroad should show because of the more or less frequent difference of opinion as to how these records should be kept.

It has been the general custom of judges to treat the accounts of railroads, introduced as evidence whether for or against a proposal to reduce rates, as if they were legally exact exhibits of all of the facts involved. This they certainly are not. In accounting so complicated as that required by the complex business of a railroad, it is quite impossible to express with final accuracy the cost of performing any given service. What is required from accounts, therefore, for proper government regulation of railroads and adequate judicial determination of the legality of this regulation is as near an approach as possible to the ideal of absolutely correct *cost accounting* with an exact statement of the cost of assets.

The ideal accounting for valuation purposes would show the original investment and the additions or deductions

railroad managements had not got out of these accounts all that they should have got. They had not discovered that the railroads were inefficiently managed and that the accounts when analyzed showed this. This analysis of accounts properly belongs to the duties of stockholders and the management rather than to the courts and the public.

INFORMATION ACCOUNTS SHOULD FURNISH 7

therefrom. The increment in earning power, through growth of population, is never dealt with as an asset in any railroad's accounts. This increase in earning power may come from the wisdom of the management of the property, the absence of competition, etc. It therefore is evident that valuation is a matter of judgment or guesswork and it is not within the province of the accountant to do guesswork for the courts.

As to cost of any particular service, the fact that such cost can be fairly accurately determined by accounting in certain manufacturing businesses has been responsible for the belief that if railroad accounts were properly kept similar costs could be determined therefrom with legal accuracy. A railroad accountant will unhesitatingly affirm that accurate, definite cost accounting cannot be applied to the manufacture and sale of transportation. What he means is that in the present state of the art of accounting and of railroad operation it is impossible to say definitely what is the cost of any particular service. This is no reason, however, for not requiring from accounts as nearly accurate information as regards the cost of any particular service as the state of the art will now permit on the one hand, and on the other for not frankly recognizing the present limitations of accounts. It is generally stated that about one-third of all expenses can be allocated between cost of running passenger trains and freight trains; the remainder is common to both and is overhead expense.

The information required by the stockholder and bondholder of a railroad can be much more satisfactorily supplied by a system of accounts than can the legal facts wanted by courts and regulative commissions, because the one deals with returns on cost of investment and the other with returns on that by which investment is to be gaged. The first vitally important piece of information that the stockholder wants to have the accounts of his road show is

the financial condition at any given time. He wants to know what the assets of his company are; what its liabilities are; how soon these liabilities have to be met, and what means the company has of meeting them when they fall due. He wants to know in regard to assets; as to their salability; how quickly they could be converted into cash; the adequacy of working capital, and the basis on which assets are valued.

In practice, of course, a stockholder usually has the information as to financial condition only for one day in the year, that day being generally the close of the fiscal year.¹ It is necessary that as well as a complete exhibit of the condition, obligations and assets of the corporation, the security holder should have a record of what has taken place since the last statement of financial condition. He wants to know what money has been received and the sources from which it has been received. He wants to know what money has been spent and what it has been spent for. He also wants to know what value has been received for the money spent.

Money received is either money earned from operation or money received from the disposition of assets or money borrowed. It is comparatively simple to keep a record of volume of earnings, trend of earnings and division of earnings as between different parts of the business. In a private business, information such as this would be carefully guarded from competitors. The same is true of the details of expenses. A railroad corporation, however, is required by law to send such information in detail to the Interstate

¹ The Interstate Commerce Commission requires all roads to report to the commission for the fiscal year ended June 30. Many roads, including the New York Central & Hudson River and the Pennsylvania Railroad, report to their stockholders for the year ended December 31, and the federal corporation tax law requires accounts to be kept, closing December 31.

Commerce Commission at Washington, where it may readily be examined by anyone. There is now a marked tendency toward furnishing more complete and detailed information directly to railroad stockholders.¹

Not only is a record of volume of expenses important, but it is important to show the trend and the division of the expenses as between upkeep of the property and handling the business. An increase in the cost of handling the business should be scrutinized, because it is on its face a "bad sign." A decrease in cost of upkeep should be scrutinized because it is open to the suspicion that it is a good showing made by starving the property.

The information that the security holder wants does not stop with an adequate statement of financial condition, money received and money spent, and trend of earnings and expenses. He should also have the facts wherewith to make his own estimate of what the probable future requirements are, both as to the money needed for such improvements as will keep the road abreast of its competitors, and for extension and new acquisitions. A road now earning sufficient to pay its expenses, to keep it in good condition, to make necessary improvements, to meet competition and to pay a substantial profit to its stockholders, may, within a few years, be put into a state verging on bankruptcy through a policy of extension and acquisition of new lines by an overambitious management. The security holder must rely on the management he votes into

¹In describing the information that the security holder *should* require from accounts, we are dealing more often with theory than with practice. As a matter of fact, the great majority of railroad security holders who are investors on a comparatively small scale never make any careful study of the information sent to them by the railroad companies, but make their investments very largely on the advice of some banker or friend in whose judgment they have confidence and whom they trust to have acquired accurate information of the corporation in which they invest.

office, but he should have sufficient information to make an intelligent judgment of the policy of that management. A budget would be desirable, but has never been found practicable.

Lastly, the stockholder not only wants accounts that will give the information mentioned above, but he wants those accounts in such a form that he can check up for himself the efficiency of the management of the road. Of course, accounts cannot be made to show when a management is deliberately telling an untruth. Proper accounts, however, can be rendered in such detail that they will, eventually, disclose inefficiency.

The president of the road wants the accounts rendered to him to show not only all that the stockholder wants to know, but also a mass of detail for comparative purposes. Unlike the courts or regulative commissions, the president is in a position to know of his own experience the facts, as well as to have before him a record of those facts translated into the form of accounts. He is in a position, therefore, to use statistics far more freely and with greater safety than is the court, or the commission, or, in a less degree, the security holder. The president uses accounts and statistics as a key and as a club—as a key to situations where better and more economical methods of operation may be introduced; as a club to hold over his subordinates who fail to take full advantage of their opportunities. Accounts required by the president should be a check on the honesty as well as the efficiency of employees. Accounts for the president are kept not only in terms of dollars and cents but in terms of material, of miles run, of tons carried, of passengers carried, and in general of work done, and in terms of ratios between the several accounts. They should show the efficiency of the plant, the comparative efficiency of employees as between each other and as between this road and some other road. These accounts, re-

INFORMATION ACCOUNTS SHOULD FURNISH 11

duced generally to some form of statistics, should show the comparative efficiency of different kinds of equipment, of different types on this road and as between types on this road and types on the other roads.

This inquiry into the uses to which accounts are put and the different kinds of information that are required from them has been gone into at some length because, whether the object of the student is to formulate a system of accounts for a railroad company or to be able to understand the system used by railroad companies at present, he must keep clearly in mind the distinction between accounts compiled for the information of the different classes of people mentioned above. Without this knowledge the compilation or study of the figures becomes nothing but a hopeless jumble of details—each detail unweighted.

It is well worth while to inquire of each set of figures that are studied as to whether they are to form a record for use by the courts, the owners or the management. The use to which a record is to be put is the true measure of the way it should be kept and the value of keeping it. Accounts may be kept to show legal value and changes of value of property and allocation of cost of operation; financial success of the business and profits as a whole; and efficiency of separate departments of the business.

CHAPTER II

GENERAL PRINCIPLES OF DEBITS AND CREDITS

The bookkeeping of a large railroad company is on a rather vast scale, but it has in common with the bookkeeping of a merchant doing a \$10,000 a year business certain underlying principles which are unaffected by the amounts of money involved or the complication of details. Both the general books of a railroad company and the general books of the small merchant are kept in such a way as to show what is owed to the business, what the business owes, and, as a corollary, what the profits or losses of the business are. To make this bookkeeping serve not only as an invaluable exhibit of the condition of the business, but also as a record of the honesty and efficiency of the management and as an indication to the management of the relative profits of different parts of the business, it must show *sources* of intake and *destination* of outgo.

All bookkeeping is an elaboration of the so-called journal;¹ the journal is a record of each transaction, involving money or credit. The theory of double entry bookkeeping is that the journal shows both the source from which money or credit was received and the destination to which it goes, and this involves an analysis of every transaction to determine the source and destination. Let us accept for the time being the rather vague rule that we credit

¹The "day book," the functions of which are performed by the modern journal, is not described because it is never used in a modern set of books.

source and debit destination. The journal is a daily record, which may be in the form of a book, a collection of vouchers, a combination of these and of other forms; but in whatever forms, in the aggregate it is a complete chronological record, showing source and destination. The ledger is an *alphabetically*¹ or otherwise classified list of

JOURNAL											

FIG. 1.—SAMPLE OF JOURNAL PAGE.

“Accounts.” Posting from the journal to the ledger consists in copying in the ledger abstracts from the journal entries under their proper “Account” heading.

The three principal books that are kept by any business

¹In a loose leaf ledger the accounts themselves are generally arranged alphabetically but they may be only indexed alphabetically. The point is that transactions taking place at different times are brought together under one name and in one place.

house are the journal, the ledger and the cash book—the journal, a book in which is entered a statement of the transactions of the company, ready to be posted to the ledger; the ledger, the principal book of accounts, in which all the transactions are entered so as to show the debits and credits of each account; the cash book, a daily record

LEDGER													

FIG. 2.—SAMPLE OF LEDGER PAGE.

of cash transactions, sometimes combined with the journal by commercial houses by adding an additional column for cash transactions. As a matter of fact, the cash book is the ledger account "Cash" taken out and kept in a separate book, so that the two essential books are the journal and the ledger, and the ledger is nothing but an index and classified abstract of the journal.

It will be noticed from the accompanying illustrations

JOURNAL

	Dr.	Cr.
January 1		
Cash.....	\$100,000.00	
To Capital Stock.....		\$100,000.00
January 2		
Merchandise.....	75,000.00	
To Cash.....		75,000.00
January 3		
Cash.....	10,000.00	
Charles Mann.....	5,000.00	
To Merchandise.....		15,000.00
January 4		
Merchandise.....	10,000.00	
To Notes Payable.....		10,000.00
William Peters.....	8,000.00	
Novelty Co.....	6,000.00	
To Merchandise.....		14,000.00
January 5		
Cash.....	5,000.00	
To Charles Mann.....		5,000.00
January 31		
Expenses.....	3,000.00	
To Cash.....		3,000.00

of journal and ledger pages that both journal and ledger each have two columns for figures—a right-hand column and a left-hand column. Figures placed in the left-hand column of the journal are debited to the account named in the record. Figures placed in the right-hand column are credited to the account in the record. In the ledger the name of the account heads the page, and figures placed in the left-hand column are debited to that account, and figures placed in the right-hand column are credited to

that account. This will become clear as the discussion goes on.

Since the object of this chapter is not to form a text-book for the teaching of bookkeeping, but merely to describe the principles underlying double entry bookkeeping, the examples given in the texts are as simple as possible and are not intended to cover the innumerable special problems that a bookkeeper may meet.

The journal and ledger entries shown herewith exemplify the opening of a simple set of books for a corporation doing a business in merchandise.

LEDGER

CAPITAL STOCK

			Jan. 1	Cash	\$100,000.00
--	--	--	--------	------	--------------

CASH

Jan. 1	Capital Stock	\$100,000.00	Jan. 2	Merchandise	\$75,000.00
Jan. 3	Merchandise	10,000.00	Jan. 31	Expenses	3,000.00
Jan. 5	Chas. Mann	5,000.00			

CHARLES MANN

Jan. 3	Merchandise	\$5,000.00	Jan. 5	Cash	\$5,000.00
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DEBITS AND CREDITS

17

LEDGER (Continued)

MERCHANDISE

Jan. 2	Cash	\$75,000.00		Jan. 3	Cash	\$10,000.00
					Chas. Mann	5,000.00
Jan. 4	Notes Payable	10,000.00		Jan. 4	Wm. Peters	8,000.00
				Jan. 4	Novelty Co.	6,000.00

NOTES PAYABLE

				Jan. 4	Merchandise	\$10,000.00
--	--	--	--	--------	-------------	-------------

NOVELTY Co.

Jan. 4	Merchandise	\$6,000.00				
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WILLIAM PETERS

Jan. 4	Merchandise	\$8,000.00				
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EXPENSES

Jan. 31	Cash	\$3,000.00				
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Our journal shows that on January 1 we issued par value stock to the amount of \$100,000.00, for which we received \$100,000.00 cash. On January 2 we bought \$75,000.00 worth of merchandise, for which we paid cash. And on January 3 we sold merchandise, for which we received \$10,000.00 cash and for which Charles Mann owes us \$5,000.00 on account. It will be noticed that our debit to cash and the debit to Charles Mann are for the amounts *paid* for the merchandise, and that the credit on the journal to merchandise is for the total *selling* price, regardless of the cost of the particular merchandise sold.

January 4 we bought \$10,000.00 additional merchandise, for which we gave our note for \$10,000.00. On the same day we sold merchandise for \$8,000.00 to William Peters and merchandise for \$6,000.00 to the Novelty Co., both sales being on credit. On January 5 Charles Mann paid his bill for \$5,000.00 in cash. On January 31 we paid in cash our light, rent, salaries, etc., expenses, a total of \$3,000.00.

The accompanying charts show the journal entries and the posting to the ledger. Applying now the test as to whether or not the books show what is owed to the business, what the business owes, and the sources of income and destination of outgo, the balance of each account is as follows:

Cash.....	\$37,000.00	Capital Stock.....	\$100,000.00
Merchandise.....	56,000.00	Notes Payable....	10,000.00
Novelty Co.....	6,000.00		
William Peters.....	8,000.00		
Expenses.....	3,000.00		

All the accounts shown on the left-hand side are responsible to the business for their balances. The accounts on the right-hand side show balances for which the business

is responsible. One further fact, an actual inspection of our storeroom on January 31, shows merchandise for which we paid \$65,000.00. The figure \$56,000.00 for merchandise shown by the books was arrived at by subtracting the selling price received for part of the merchandise from the cost price of all of the merchandise. The inventory, as it is called, that is the physical inspection of goods on hand, is necessary before we can determine profit or loss.

If we now analyze the accounts we find that they are of three classes. They are accounts with persons, with properties and with what William Morse Cole¹ calls forces or explanations.

W. Peters and Novelty Co. are persons. Capital Stock, Cash, Merchandise, and Notes Payable are property. Expenses is a force. There is little, if any, difficulty in deciding whether to debit or credit a person in any particular transaction. If the person receives something from the business and does not give anything in exchange at the same time, we debit that person. If he turns over to the business something for which he does not at that time receive anything in exchange, he is credited. Dealing with a property account is generally simple. When physical property is turned over to a property account, as in the case illustrated where merchandise is bought for cash, the property account, namely, merchandise, is debited. The two property accounts, Capital Stock and Notes Payable, are the same as Merchandise, but their origin is somewhat different. When Capital Stock is sold for Cash, we credit Capital Stock account. When Notes Payable are exchanged for Merchandise, we credit Notes Payable, just as we credited Merchandise account when it gave up something. Merchandise, however, is a commodity which we got from somewhere outside the business and had to exchange some-

¹ Accounts, Their Construction and Interpretation, by Wm. Morse Cole. Houghton, Mifflin & Co., 1908.

thing for. Capital Stock and Notes Payable are commodities created by the business.

If, however, for the time being one is willing to accept the fact of their creation, apparently from nothing, dealing in them will be found to be treated exactly the same as dealing in other commodities.

Expense is an account neither with a person nor with a commodity, but with a force. When we credit a person the business owes that person something or relieves him of some responsibility. When we credit a commodity the business takes from the commodity account property for which this account was heretofore responsible. When we credit a force we mean that that force is the source of something which has come into the business.

When we debit a person we hold that person responsible for something the business has given to him. In other words, the person owes something to the business. When we debit a commodity account the business gives something to that commodity account for which it holds the account responsible. When we debit a force account it is because that force has used up something belonging to the business.

In the illustration taken our books in connection with the inventory show that the business owes or is liable for \$100,000.00 capital stock and \$10,000.00 notes payable; that the business's own "internal accounts" are responsible to it, and, therefore, that it has \$37,000.00 cash and \$65,000.00 merchandise; William Peters owes the business \$8,000.00 and the Novelty Company owes the business \$6,000.00, and that the business has cost through the force "expenses" \$3,000.00. Leaving aside for a moment the force account, the business has or is owed \$116,000.00 and is liable for or owes \$110,000.00. The books now show a balance as between what the business owes and what is owed to the business. The balanced statement of assets and liabilities is shown on the following page:

Cash.....	\$37,000.00	Capital Stock.....	\$100,000.00
Merchandise.....	65,000.00	Notes Payable....	10,000.00
Accounts Receivable		Profit.....	6,000.00
Novelty Co.....	6,000.00		
William Peters...	8,000.00		
Total.....	\$116,000.00	Total.....	\$116,000.00

A statement of the profit and loss of the business is as follows:

Expenses.....	\$3,000.00	Profit on Mdse....	\$9,000.00
Balance.....	6,000.00		
	\$9,000.00		\$9,000.00
		Balance.....	\$6,000.00

It will be seen that the \$3,000.00 expenses are debited to profit and loss and not closed directly into the statement of assets and liabilities.

Every transaction of a railroad from the first issue of bonds and stocks in exchange for cash, which in turn is exchanged for the product of the contractor who builds the road, to the payment of dividends from the earnings from the manufacture of transportation, or to the settlement to a clearing house of the per diem charges on freight cars, has its journal entry, analyzed as to source and destination, which is indexed under various "accounts" in the ledger.

When it is desirable to get a cross-section view of the business to see what its condition is at a given time, a balance sheet is drawn up. The balance sheet is a statement of the assets and liabilities of a company. When a balance sheet is drawn up, each account in the ledger that is

to be closed into the balance sheet and not into some other ledger account is totaled and a balance struck, and all the accounts¹ with net credit balances are shown as liabilities, and all accounts with debit balances as assets, *remembering that a profit is a liability and a loss is an asset in the sense that profit or loss is the explanation of source or destination.*

In the illustration just given we found that there was a profit of \$6,000. This was added to the credit side to make the accounts balance. It is therefore a liability according to our definition, and as a matter of fact, when we analyzed the accounts of the business we found that this profit and loss credit balance was properly a source, that is, an explanation of from where something came to the business. Now if something came to the business, the business is liable for that something. The \$6,000, therefore, is a liability and is offset by assets, but by what particular assets we do not know and the books do not show.

Take now a simple example from railroad accounting and follow it through, applying the principle illustrated in the case of the merchant corporation of debiting destination and crediting source. A company issues \$1,000,000 par value stock at 90 per cent. of par for \$900,000, for which it receives cash. This cash is paid to a contractor for 50 miles of railroad. The journal entries narrate these facts; the ledger entries index the narrative.

An account for Capital Stock is opened, which is credited as source, with the par value \$1,000,000 of the stock issued. An account "Stock Issued or Assumed, Held in Treasury," is opened and debited as destination, with the par value \$1,000,000 of the stock. An account "Cash" is opened, which is debited with the \$900,000 received for the stock, this account being the destination of the \$900,000.

¹This assumes that accounts have been opened for Interest Accrued, Dividends Due, etc.

An account "Unextinguished Discount on Securities" is opened, which is debited (as destination) with the \$100,000 dissipated into this account (in other words, the difference between the par value and the price received for the stock). "Stock Issued or Assumed, Held in Treasury," is credited as source with the par value (\$1,000,000) of the stock sold. An account "Road and Equipment" is opened, which is debited (as destination) with the \$900,000 cash paid for the 50 miles of line; the "Cash" account already opened is credited (as source) with the \$900,000 taken away from it. Carrying the proceedings one step further, we will assume that the contractors build 10 miles more of road for \$225,000, for which the railroad company owes them simply as a debt. We open an account in the name of the contractor which we credit with \$225,000, and we debit the account already opened, "Road and Equipment," with the additional 10 miles of line expressed in dollars and cents—namely \$225,000. We now also buy a short road, 15 miles long, through the issue of \$340,000 bonds.

DISCOUNT ON SECURITIES

Jan. 2	Securities Issued	\$100,000.00			
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ROAD AND EQUIPMENT

Jan. 2	Cash	\$900,000.00			
Dec. 1	Contractors	225,000.00			
Dec. 2	Unmatured Funded Debt	340,000.00			

RAILROAD ACCOUNTING

SECURITIES ISSUED OR ASSUMED

Jan. 1	Capital Stock	\$1,000,000.00	Jan. 2	Sundries Cash Discount on Securities	\$900,000.00 100,000.00
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UNMATURED FUNDED DEBT

			Dec. 2	Road and Equipment	\$340,000.00
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CAPITAL STOCK

			Jan. 1	Securities Issued	\$1,000,000.00
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CASH

Jan. 2	Securities Issued	\$900,000.00	Jan. 2	Road and Equipment	\$900,000.00
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CARTRIGHT COMPANY

(Contractors)

			Dec. 1	Road and Equipment	\$225,000.00
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The accompanying illustrations show the ledger accounts as they now stand. Each account has a page of the ledger to itself. The narrow column left blank in the illustration would in practice be filled in with the page number of the journal on which the complete transaction is recorded. The words in the second and sixth columns show what other ledger "account" is affected by the transaction.

BALANCE SHEET

Road and Equip- ment.....	\$1,465,000.00	Capital Stock...	\$1,000,000.00
Discount on Se- curities.....	100,000.00	Unmatured Fund- ed Debt.....	340,000.00
		Bills Payable (Contractors).	225,000.00
Total.....	\$1,565,000.00	Total.....	\$1,565,000.00

It is now desired to draw up a statement of the assets and liabilities of the company. The debits and credits of each account are totaled and the surplus of debit or credit is shown. Capital Stock has a credit balance of \$1,000,000; Cash has no balance, the credit exactly offsetting the debit; Discount on Securities has a debit balance of \$100,000; Contractors (Bills Payable) has a credit balance of \$225,000; Road and Equipment has a debit balance of \$1,465,000, and unmatured funded debt a credit balance of \$340,000. Of these accounts, the credit balance of \$1,000,000 of Capital Stock is a liability; the credit balance of \$225,000 of Contractors is a liability; and the credit balance of \$340,000 to Funded Debt is a

liability; the debit balance of \$1,465,000 of Road and Equipment is an asset, and the debit balance of \$100,000 of Discount and Securities is an item which is carried on the asset side until written off to Profit and Loss and would be called a "Deferred Debit item." It is an explanation of the destination. Our assets and our liabilities now balance, each totaling \$1,565,000. There is, of course, no necessity for an inventory. The commodity which the road is going to sell is transportation which it manufactures only as it is sold. The merchant corporation's books and railroad's accounts shown here are simple examples of double entry bookkeeping; but no matter how complicated the transactions may be, the general principles underlying the keeping of accounts in a ledger and the drawing off of a balance sheet or statement of assets and liabilities are the same as those involved in these simple transactions. One thing should be carefully borne in mind—the names of accounts should have very definite meanings. It is not necessary to go into elaborate examples of this here because the discussion on the account headings prescribed by the Interstate Commerce Commission contains examples, each one of which illustrates this fact; but attention is called to it because misunderstanding often arises simply from the failure to understand the definition of the name of an "account."

The three statements that are essential to the financial report of a railroad company to its stockholders are an income account, a profit and loss account, and a balance sheet. The income account and balance sheet are statements of the net balance of various ledger accounts. The profit and loss account is itself a ledger account with the amount of excess of its debits or credits added to the credit or debit side to make both sides balance. It is clearer and less confusing to speak of the three statements of accounts as *statements* rather than accounts, the income statement,

the profit and loss statement and the general statement of assets and liabilities.

It will be remembered that our books were to show what is owed to the business, what the business owes, and the sources of income and destination of outgo. It is therefore necessary to meet the first of these requirements to have a statement of assets and liabilities which, however, in the narrowest sense, include only property accounts and accounts with persons. By means of a rather technical bit of reasoning we get the net balance of one explanation account on the statement of assets and liabilities. This is the balance to the credit or debit of profit and loss. It is through this single explanation account that all other explanation accounts may be cleared, so that a balance sheet may be constructed so as to show only property accounts and accounts with persons with but a single explanation balance. The accounts of the merchant corporation show clearly enough what is meant by a statement of assets and liabilities and by a profit and loss account. The income statement of a railroad, however, contains many technical terms, each of which has a definite and narrowly defined meaning, which will be discussed fully in a later chapter.

Without going into details, however, the income account shows Railroad Operating Income, which is the revenue left after the payment of expenses and taxes; other (than Railroad) Income; Gross Income; Deductions from Gross Income (rentals, interests, etc.); Net Income, and Disposition of Net Income.

CHAPTER III

THE DISTINCTION BETWEEN EXPENSES AND CAPITAL EXPENDITURES

The "act to regulate commerce," as passed in 1887, provided that the Interstate Commerce Commission created by that act "may, within its discretion, for the purpose of enabling it the better to carry out the purposes of this act, prescribe (if in opinion of the commission it is practicable to prescribe such uniformity and methods of keeping accounts) a period of time within which all common carriers, subject to the provisions of this act, shall have as near as may be a uniform system of accounts, and the manner in which such accounts shall be kept." Professor Henry C. Adams was appointed statistician to the commission and made his report just a year after the first report of the commission. The first annual reports required from the railroads by the commission were for 1888.

In June, 1879, a convention of state railroad commissioners had been held at Saratoga, New York, which discussed the question of uniform terminology in railroad accounting and adopted a scheme for a certain uniformity of accounts, and when the Interstate Commerce Commission issued its orders requiring annual reports, the commission adopted in a general way the Saratoga scheme of accounts; but nothing further was done until 1897, when the commission distributed a suggested classification of construction expenses. In the so-called Hepburn amend-

ment to the act to regulate commerce, passed in 1906, it was provided that "The commission may in its discretion prescribe the form of any and all accounts, records and memoranda to be kept by carriers, subject to the provisions of this act, including the accounts, records and memoranda of the movement of traffic, as well as receipts and expenditures of money. The commission shall at all times have access to all accounts kept by carriers subject to this act. . . ."

The commission at once began through its statistician, Professor Adams, to formulate a complete system of railroad accounts and its first step was to prescribe a form for the classification of expenses.

The American Association of Railway Accounting Officers has been in existence ever since the early history of railroads, but although its members met and discussed theories and practices of keeping railroad accounts, there was no recognized uniform system. Many of the larger and more conservatively managed railroads followed a well-defined system of accounts that was used in Pennsylvania Railroad reports half a century ago. This system divided expenses as between five accounts and made a distinction between expenses for passenger service and expenses for freight service. While a good many roads followed the form used by the Pennsylvania Railroad, the theory on which the accounts were kept was different as between different roads, based in each particular case on what was considered the particular requirements of the property. Properties like the Pennsylvania itself and other strong roads dealt liberally with the question of what should be considered expenses. Betterments in distinction from additions were considered by these roads as expenses. Properties that were not so strong financially and which were living a hand-to-mouth existence made a narrower definition of expenses. The management of these roads, since

they considered that the requirements of the property demanded it, charged to expenses only such costs of doing business as were obviously neither an addition nor a betterment.

It is well to understand the importance of the difference in showing that will be made by a system of accounts which considers improvement of property as part of expenses as contrasted with a system that considers only bare maintenance and cost of operation as expenses, and everything else as a proper charge to capital (property) account. Assume that there are two roads which have cost the same to build and which have the same earning power, and that one management is desirous for some reason of concealing the extent of net earnings, or that this management believes that the proper system of accounts should include with expenses the cost of betterment of the property. Over a period of five years each road has had total revenues amounting to an average of \$2,000,000 a year. During this time the road which is making betterments and charging them to expenses has, in replacing its locomotives, bought heavier and more costly power; in replacing its cars has bought larger capacity and higher standard rolling stock, and in replacing worn-out rail has laid 80-lb. sections in place of 60-lb.; in replacing bridges has substituted steel or concrete structures for wooden structures, and has greatly added to the ballast on its line. It has charged the additional cost of all these replacements to expenses, and we will say that the cost of these improvements over and above what it would have cost to replace the property in kind has been \$200,000 a year. The other road, earning the same amount of gross and making the same improvements over the same period of time, had charged this \$200,000, which is the additional cost of improvements over and above the cost of replacements, to capital account and has issued bonds to

EXPENSES AND CAPITAL EXPENDITURES 31

cover such expenditures. The income statement and balance sheet for each road follow.

Balance Sheet for Both Roads at Beginning of Period

Assets	
Property investment.....	\$6,000,000
Working assets.....	800,000
	<hr/>
	\$6,800,000
Liabilities	
Stock.....	\$3,000,000
Mortgage bonded and secured debt.....	3,000,000
Working liabilities.....	800,000
	<hr/>
	\$6,800,000

FIRST YEAR

ROAD ONE

Income Account

Revenue from transportation.....	\$2,000,000
Operating expenses and taxes.....	1,600,000
Interest for funded debt.....	150,000
Net income.....	250,000

Balance Sheet

Assets	
Property investment.....	\$6,000,000
Working assets.....	1,050,000
	<hr/>
	\$7,050,000
Liabilities	
Stock.....	\$3,000,000
Mortgage bonded and secured debt.....	3,000,000
Working liabilities.....	800,000
Profit and loss.....	250,000
	<hr/>
	\$7,050,000

ROAD TWO

Income Account

Revenue from transportation.....	\$2,000,000
Operating expenses and taxes.....	1,400,000
Interest for funded debt.....	160,000
Net income.....	440,000

Balance Sheet

Assets	
Property investment.....	\$6,200,000
Working assets.....	1,240,000
	<hr/>
	\$7,440,000
Liabilities	
Stock.....	\$3,000,000
Mortgage bonded and secured debt.....	3,200,000
Working liabilities.....	800,000
Profit and loss.....	440,000
	<hr/>
	\$7,440,000

SECOND YEAR

ROAD ONE

Income Account

Revenue from transportation.....	\$2,000,000
Operating expenses and taxes.....	1,600,000
Interest for funded debt.....	150,000
Net income.....	250,000

Balance Sheet

Assets	
Property investment.....	\$6,000,000
Working assets.....	1,300,000
	<hr/>
	\$7,300,000
Liabilities	
Stock.....	\$3,000,000
Mortgage bonded and secured debt.....	3,000,000
Working liabilities.....	800,000
Profit and loss.....	500,000
	<hr/>
	\$7,300,000

ROAD TWO

Income Account

Revenue from transportation.....	\$2,000,000
Operating expenses and taxes.....	1,400,000
Interest for funded debt.....	170,000
Net income.....	430,000

EXPENSES AND CAPITAL EXPENDITURES 33

Balance Sheet

Assets	
Property investment.....	\$6,400,000
Working assets.....	1,670,000
	<hr/>
	\$8,070,000
Liabilities	
Stock.....	\$3,000,000
Mortgage bonded and secured debt.....	3,400,000
Working liabilities.....	800,000
Profit and loss.....	870,000
	<hr/>
	\$8,070,000

THIRD YEAR

ROAD ONE

Income Account

Revenue from transportation.....	\$2,000,000
Operating expenses and taxes.....	1,600,000
Interest for funded debt.....	150,000
Net income.....	250,000

Balance Sheet

Assets	
Property investment.....	\$6,000,000
Working assets.....	1,550,000
	<hr/>
	\$7,550,000
Liabilities	
Stock.....	\$3,000,000
Mortgage bonded and secured debt.....	3,000,000
Working liabilities.....	800,000
Profit and loss.....	750,000
	<hr/>
	\$7,550,000

ROAD TWO

Income Account

Revenue from transportation.....	\$2,000,000
Operating expenses and taxes.....	1,400,000
Interest for funded debt.....	180,000
Net income.....	420,000

Balance Sheet

Assets		
Property investment.....		\$6,600,000
Working assets.....		2,090,000
		<hr/>
		\$8,690,000
Liabilities		
Stock.....		\$3,000,000
Mortgage bonded and secured debt.....		3,600,000
Working liabilities.....		800,000
Profit and loss.....		1,290,000
		<hr/>
		\$8,690,000

FOURTH YEAR

ROAD ONE

Income Account

Revenue from transportation.....		\$2,000,000
Operating expenses and taxes.....		1,600,000
Interest for funded debt.....		150,000
Net income.....		250,000

Balance Sheet

Assets		
Property investment.....		\$6,000,000
Working assets.....		1,800,000
		<hr/>
		\$7,800,000
Liabilities		
Stock.....		\$3,000,000
Mortgage bonded and secured debt.....		3,000,000
Working liabilities.....		800,000
Profit and loss.....		1,000,000
		<hr/>
		\$7,800,000

ROAD TWO

Income Account

Revenue from transportation.....		\$2,000,000
Operating expenses and taxes.....		1,400,000
Interest for funded debt.....		190,000
Net income.....		410,000

EXPENSES AND CAPITAL EXPENDITURES 35

Balance Sheet

Assets	
Property investment.....	\$6,800,000
Working assets.....	2,500,000
	<hr/>
	\$9,300,000
Liabilities	
Stock.....	\$3,000,000
Mortgage bonded and secured debt.....	3,800,000
Working liabilities.....	800,000
Profit and loss.....	1,700,000
	<hr/>
	\$9,300,000

The figures given here merit the most careful study. According to our assumption, the facts as to what the two companies have done over the four-year period are exactly the same so far as earnings, cost of obtaining these earnings and total expenditures on physical plant are concerned. In the one case the books show that the cost of this physical plant is the same at the end of four years as at the beginning, namely, \$6,000,000. In the other case, the books show that the cost of the plant at the end of the four years is \$6,800,000. With this company the actual money spent for additions and betterments to the plant has been borrowed through the issue of \$800,000 five per cent. bonds. Bonds outstanding, therefore, in the second case have increased from \$3,000,000 to \$3,800,000. This has necessitated an increase in interest charges from \$200,000 to \$240,000. Interest charges in the first case remained the same throughout the four years.

If we analyze the statements of assets and liabilities of the two roads at the end of the four years for the purpose of forming an estimate of the investment in these concerns, it would appear that the first property was worth about the \$7,600,000 which is shown as the cost of its assets on its books, because its income statement shows but \$250,000 earned after the payment of interest charges, which

is $7\frac{1}{3}$ per cent. on its \$3,000,000 stock. The other property would appear to be worth somewhat more than the \$9,100,000 shown on its books as the cost of its assets—more, because its income statement shows \$360,000 surplus, earned after paying interest charges, which is 12 per cent. on its \$3,000,000 stock.

Let us assume that the question of dividends was raised before the respective stockholders of the two roads. The stockholders of the first road, with no more information than that given by the accounts shown here, would be justified in beginning regular dividend payments on the stock at about 5 per cent. The total surplus—real surplus—for the four years is \$1,000,000. The stockholders of the second road, on the other hand, might well feel that their property had fully justified placing the stock on a 10 per cent. basis. This would call for only most of the surplus shown in the fourth year, but the accumulated surplus of previous years has given the company a real surplus of \$1,700,000, which is invested in the form of current assets.

The stockholders of the first road have been led to believe by the accounts that their road operates at a higher ratio than the second road; in other words, that they have a plant which is less effective as a money earner than the other company's plant. What now are the facts? The two plants cost exactly the same and they operate, under our assumption, on the same ratio of *expenses* to earnings. The accounts have failed to do what is required from them for the stockholder and likewise for the courts, because the two companies used different theories of what expenditures constitute expenses and what constitute further investment in property.

The illustration chosen seems extreme. Of course, it is simplified so as to bring out the point that it is desired to emphasize here, namely, the importance of distinguish-

ing between expenditures which are part of the expenses of earning net income with a given plant and expenditures for additions or betterments to this plant. Except for this simplification, however, the illustration is not at all beyond the bounds of what has been possible in railroad accounting, both here and abroad.

The fiscal year beginning July 1, 1907, was the first year in which steam railroads were required to keep their expense accounts in accordance with a form prescribed by the Interstate Commerce Commission. All of the companies doing an interstate business were subject to the jurisdiction of the commission, but all did not at first comply with the commission's requirements. Gradually, however, the companies fell into line, making their annual reports to stockholders as well as to the commission conform to the commission's rules. In the meantime the commission had been studying the shortcomings of its system and on July 1, 1914, a new and considerably revised classification of accounts was put into effect.

The Interstate Commerce Commission, in its formulation of a system of accounts, took in general the stand that any expenditure on road or equipment which reflects a net increase in the investment of the company in the property should be charged to capital (property) account.

Under this system of accounts the railroads are under the temptation to adopt dividend policies on what may be considered a fair-weather basis. They may make no provision out of expenses for future periods of depression. The commission, while obtaining the advantages that unquestionably follow on the adoption of a uniform system of accounts, is exposing the roads to the danger of losing the advantages to be gained by individual business judgment of the different companies' managements. The policy of management of a large railroad and the question of what is and is not expense does not permit of establish-

ment on an unvarying scientifically correct basis. The expenses of a railroad like the expenses of an individual are a matter of judgment. A man does not decide whether or not he shall get a new suit on any hard and fast rule. If he is prosperous his old suit does not look quite good enough for him; if he is not making much money he decides that he can make the old suit do for another season, and no one would accuse him of using bad business judgment. Exactly the same is true of a railroad. The commission, by defining expenses so as to exclude betterment, is putting the roads in danger of adopting such a short-sighted policy that they will not in fair times accumulate a surplus, not necessarily a fund, but a condition of property comparable to the new suit on which they can live in times of depression.

It is plain that enginemen's wages and the cost of fuel for a locomotive are part of the expense of earning a freight rate. Thus, all the expenses of actually moving the traffic are easily distinguishable as operating expenses which should be paid for out of current earnings. The question of maintenance, however, is not so simple. When a part of a locomotive is replaced, because it is worn out, by an exactly similar part, there can be no doubt that this is part of the current cost of maintenance of a locomotive, and that it is an expense which should be paid for out of current earnings. The theory of the Interstate Commerce Commission is that the additional cost of replacing any part of the permanent way or structures with a better and more costly grade of material, over and above what it would have cost to replace the material in kind, should be charged to additions and betterments (property account), and that only the cost of replacement in kind should be charged to current operating expenses. As a matter of fact, even now this theory is only carried out by the railroads in part. Where 70-lb. rail is replaced

with 90-lb. rail, railroads charge the cost of the additional 20 lbs. per yard to additions and betterments, and the cost of the 70 lbs. to operating expenses. When, however, an untreated tie is replaced with a treated tie, the entire cost of the new tie is charged to operating expenses. This does not apply to steel ties substituted for wood ties. Besides small improvements which are charged to operating expenses, there are certain natural causes that tend to make the permanent way of a railroad more valuable as time goes on. The railroad becomes seasoned, fills are added to until they no longer settle, ballast works down until it finds a firm foundation, and all this gradual betterment takes place without any additional charge to investment in property. This fact may properly be borne in mind when discussing the question of depreciation.

The investment which a company has in its plant is represented in the company's accounts by the original cost of the plant plus the additions or betterments to this plant. The foundation, therefore, for an adequate understanding of the distinction between expenses of up-keep of the plant and further investment in the plant must be founded on a knowledge of what the plant consists of. The detailed instructions for the keeping of the primary ledger accounts for property investment as prescribed by the Interstate Commerce Commission are printed in full at the end of this chapter. These accounts are designed to show the investment of the company in the property used in transportation service. A company may, of course, have investments other than in property used in transportation service. Such investment accounts are kept separately and will be described at more length in the chapter dealing with the balance sheet.

The original cost of road, of equipment, of road extensions and of additions and betterments, and the estimated value of road and equipment given to the company free

of cost are included under the general head Investment in Road and Equipment.

In general there is included the cost of construction, additions, betterments and equipment. The charges made to these accounts are either the actual cash cost to the company or, where some other consideration than cash is paid, the estimated cash value of that consideration.

The cost of construction includes the cost of labor, which, of course, is only the labor paid for directly by the company; cost of materials and supplies—the labor cost of producing such materials and supplies not being paid for by the company is not from the accounting company's point of view a labor cost; the cost of work-train service which includes the rent and maintenance of equipment, wages of men engaged in this service, and fuel and other supplies consumed in this service—where a road is already in operation and part of its regular work-train equipment is used in construction service, a fair rental is allowable, this rental being credited to the operating company's income account under hire of equipment; cost of special machine service as for instance labor and materials for steam shovels, pile drivers, etc.; cost of transportation of men and materials used in construction work, including freight charges, and under this head an operating company is permitted to credit to its operating income account a fair freight or passenger charge for men and supplies to be used in construction work;¹ cost of contract work;

¹In the Chicago, Milwaukee & St. Paul accounting case on which the Interstate Commerce Commission made a rather sensational report, the St. Paul had neglected to charge for freight and men carried over its road in operation to be used in the construction of its Pacific Coast extension. This was for a period of three years. In the following year, however, in an attempt to show as large a revenue as possible the company put into its operating income account and debited to its construction company's construction account the freight

cost of protection from casualties, including expenditures for protection against fire and the cost of fighting fires, etc.; cost of injuries and damages which are incident to construction work—and in this connection the commission goes into such refinements as prescribing that the cost of injuries and damages incident to the removal of old structures of a road in operation shall be included in the operating expenses or profit and loss account of the company; cost of privileges such as the use of public property or streets.

The commission provides for credits to investment in road and equipment because of property retired or salvage from retired property and property retired and replaced and property retired and not replaced. At the same time a debit of the original cost of property retired is made to operating expenses or to profit and loss account. The commission prescribes that a property account may be debited only with the money cost of an addition or betterment and nothing must be debited to it for commissions or discounts.

The commission's general term for the investment in the railroad property is cost of Road and Equipment. A more comprehensive term would be cost of Road and Franchises. If investors can be induced to put money into a new railroad project only on condition that they receive in addition to bonds—with a face value equal to the amount of money advanced—an equal amount of stock, the *par* value of this stock is really a part of the cost of building the road. The stock bonus is in the nature of additional interest on the investment, contingent, however, on earnings. The cause that underlies the public's objection to this reasoning and that has led the commission to refuse to recognize this fact is that often in the past the and passenger charges on materials and men for the three preceding years.

money to build a road has not been raised in the open market (in most cases it could not have been so raised), but was arranged for by the same group of men who, as promoters, determined the amount of the stock bonus.

The classification prescribed by the commission shows clearly what the plant comprises. An additional investment in this plant is a capital charge (not an expense) and is debited eventually to Property Investment, increasing its cost, as shown by the books, by the amount of the additional expenditure. An expenditure, therefore, which is incidental to doing business or securing business or to the upkeep (without betterment) of the plant, is an expense.

It has been the American custom to consider as operating expenses not only the cost of maintenance and operation, but also the cost of keeping the property up to the standard of its competitors and up to the continually advancing standard of "accepted practice." The English practice has been to charge to capital everything spent on the property that is not strictly a replacement or a repair, or what they term Working Expenses. Cost of advancing standards is not, therefore, considered an expense but additional investment.

In discussions of this subject of the distinction between expenses and capital (property) expenditures there has been confusion between good bookkeeping and good railroading. The Interstate Commerce Commission has adopted the theory that a railroad's *books* should show all the money spent for improvement of the property separately from money spent for current maintenance and operation; but the commission apparently could not entirely get away from the influence of the older American practice, so that its system of accounts contains rules which appear illogical because there is an attempt to combine two opposite theories. The province of railroad

accounts is to show clearly any betterments whether paid for out of earnings or out of capital issues.

There can be little doubt that it is good railroading for a new management, taking hold of a property which has a poor credit and is run down physically, with some considerable earnings over and above its actual operating expenses and the fixed charges on its bonds, to sacrifice the immediate rights of the stockholders and to put these surplus earnings, which might be paid in dividends, into the property in the form of betterments.

After the payment of fixed charges there should be a profit belonging to the stockholders. It is on the size of this profit, relative to the amount invested in the property, that the credit of the company is based. The greater the margin of profit, other things being equal, the better will be the company's credit, and also the value of the stock, and the more cheaply will the company be enabled to borrow money. It will be seen, therefore, that if the expenditures are made out of current earnings for the betterment of the property, and are charged to expenses, the profit *shown* at the end of the year will be improperly small. The credit of the company will be lessened, and since a company's credit is one of its assets, stockholders will be deprived of something that belongs to them, and not only will present stockholders have made a sacrifice, but the books of the company will improperly show the investment in the property, so that future stockholders, if the question ever arises as to value on which they have a legal right to expect a fair return, may be injured just to the extent that the books fail to show expenditures on the property for betterment as distinguished from upkeep. Why should a railroad company disparage the value of its property on its own books?

After the books have properly shown what the profit is, then it is a matter of judgment of the management

as to whether these profits should be distributed as dividends or should be put into the property to increase its value.

The theory on which betterments have been made and paid for out of current earnings is that the "cost of progress" should be paid for out of current earnings. This course is sound business practice. There are expenditures which are necessary to keep a railroad company abreast of the times, but which are not part of the cost of maintaining original property. These costs, however, are not expenses under the proper definition of the word.

If a railroad were built in 1912, its books would show the total cost of building this road as investment. The American practice is to build and open a road to the public as quickly as possible, adding thereafter as additions and betterments, stations, shops, engine houses, round houses, etc., as required.¹ Every railroad in the West has been built in this way, and nearly all roads in the East have been built in the same way. Hence, all additions and betterments subsequent to the opening of the road are a part of its cost.

There is a distinction between charging expenditures to capital (property) account and issuing securities against such expenditures. Assume that the Northern & Southern Railroad earns gross, \$5,000,000 a year, the actual expenses of operating and maintaining the original property amount to \$3,000,000 a year. The road has outstanding \$10,000,000 5 per cent. bonds, calling for \$500,000 interest charges, and also has outstanding \$10,000,000 stock. Assume for the sake of simplicity that there are no rentals or other fixed charges, except the \$500,000 interest charges

¹ The I. C. C. rulings would, however, apparently permit construction accounts to be kept open indefinitely even after the road is open for traffic.

on the bonds. At the end of the year the company has a surplus available for dividends of \$750,000, or $7\frac{1}{2}$ per cent. on the outstanding stock. During the year the company has spent for additions and betterments, that is, replacing worn rails with new heavier rails, ballasting where there was no ballast before, buying heavier equipment and replacing wooden bridges with steel and concrete structures, \$300,000, and has therefore already *capitalized* this \$300,000. The management can now pay a full $7\frac{1}{2}$ per cent. dividend on its stock and issue \$300,000 additional bonds to pay for the cost of making the additions and betterments, thus issuing capital securities against its property expenditures, or it can appropriate \$300,000 from this year's income for additions and betterments, or, more properly, cost of progress, and pay $4\frac{1}{2}$ per cent. dividends on its stock. It is generally conceded that it is a far sounder policy of management to pay some of the "cost of progress" out of income than to issue new securities against all of this account. Agreeing that this is so, the stockholder legally has a right to earn a return on this surplus which he has invested in the property, and his books, kept to show cost and in so far as possible value of his property, should show \$300,000 increased investment.

If railroad books were kept strictly in accordance with this theory, they would show at any given time the cost of the property and they would show this accurately. They would also show accurately the changes in policy, if there were any, as to amount of money spent for cost of progress over a series of years. This indication of policy toward expenditures for "cost of progress" should be shown for the information of the stockholder. The actual cost of the property should be shown for the information of the court as *one* factor in determining the value of the property. A balance sheet drawn off from books kept in strict accordance with this theory, however, does

not show at any given time the *value* of the property; it shows the cost.

There are two theories as to what additions and betterments to charge to capital account and to issue capital securities against, and what, if any, to charge to profit and loss or to pay for out of current earnings. Like a great many other theories, they are probably not a right theory and a wrong theory but two partially correct and partially incorrect theories. When the economies of operation of street cars by cable were first demonstrated, street railway lines were changed over from horse car to cable within a very short time. The horse cars were abandoned or sold for nominal sums and new ones were bought, for which capital obligations were issued, it being found that by the more economical mode of operation, the interest on both the old abandoned cars and the new and larger cars could easily be earned. It was, however, but a very short time until electricity displaced operation by cable. The New York City Broadway cable line had been in operation but a few years when the entire line had to be rebuilt and the cable equipment and machinery abandoned and electricity installed and electrical equipment bought. These expenditures were considered capital charges and new securities were issued to pay for them. How large a part of the disastrous results of so many street railway enterprises has been due to overcapitalization through greed of promoters, and how large a proportion was due to the practice of charging all new equipment to capital account and issuing capital securities against it and making no charge, during the time that the cable cars were in operation, which should cover obsolescence, it is hard to say; but few who have studied electric railway history would deny that this failure to make allowance for obsolescence had a great deal to do with many of the bankruptcies that took place.

The same failure to allow not only for actual physical depreciation but changes in inventions, new discoveries in mechanical science and like progress has led to failures in manufacturing industries.

In a private enterprise a man is forced to keep abreast of the times by the pressure of competition. If he fails to keep his plant supplied with the most economical machinery, someone else will move into his locality and install new machinery of the more economical type and be able to manufacture goods at a lower cost and therefore sell them at a lower price. The man with an obsolete plant is in a way worse off than if he had no plant at all, providing, of course, that he is carrying his plant on his books at a valuation which necessitates earning interest charges on this valuation, and that he has borrowed money or has his own capital invested in the plant. If, however, the man with the obsolete plant had, during the years that his plant was operated before it became obsolete, retained liquid capital to offset obsolescence at the time his plant became no longer economical, he would therefore be in as good a position to buy a new modern economical plant as someone who was just prepared to enter the business.

Applying this same reasoning to the accounting of the railroads, those who claim that the cost of progress is an expense and not an additional investment, and that the company has not the right to earn an interest return on such expenditures, overlook the fact that the private individual's rates for his product are regulated by competition. If on the one hand he goes into a business where he cannot charge rates sufficient to pay a profit as well as pay for the cost of progress, it is his own fault or his own bad business judgment, and it is not a question of whether he should or should not earn higher rates but purely a question of whether he can or cannot earn higher rates. If on the other hand he is shrewd enough or fortunate enough

to be in a business in which he cannot only earn the cost of progress but 100 per cent. interest as well on the capital invested, it is not a question of whether he should get this 100 per cent. return, but simply a fact that he can. In other words, no body of men is called on to decide the question of what should and what should not be earned.

With a railroad corporation, however, at present the situation is entirely different. It is not left to the business judgment of the management as to what traffic to carry and what traffic not to carry; it is not left to competition as to what rates can be charged and what rates cannot be charged. A regulative body, not responsible in any way to the owners of the property, decides what rates are reasonable and what are not reasonable. The courts have never held that there is any legal limit to the per cent. of profit which a railroad may earn except that regulative commission may not through their orders reduce this per cent. of profit *below* a fair return on the investment. Since, however, the courts have held that the commissions are the judges of what constitutes a reasonable rate and the opinion of most commissions is such as it is, the commissions do not permit charging a rate that will yield 100 per cent. profit even if competitive conditions and value of service would otherwise justify such a raise. When, therefore, this body assumes the responsibility of not letting a railroad earn too much on its investment, it would seem equitable that they should assume also the responsibility of doing nothing to prevent the railroad's management from keeping the investment of the stockholders unimpaired. This is not arguing that the regulative body should assume the responsibility of a railroad's earning a sufficient return on its investment to give its stockholders a fair and reasonable dividend. This argument has often been advanced, but this is not at all the question involved here. Assuming that under the American theory of government

and of economics nothing will be done to protect investors who make an unwise investment or to protect stockholders against their own unwise selection of a management for their property, nevertheless it would appear only equitable that the government should do nothing to *prevent* the earning of a fair return on the investment, nor to *prevent* a policy of management which will protect the investment so that it will be capable not only now but in the future of earning a fair return.

The Interstate Commerce Commission's position that additions and betterments are *not expenses* is sound business and sound accounting, but it would seem that the commission is not always ready to recognize that surplus invested in railroad property is *further investment* on which a return should be earned.

Books show cost but not value. While the record of cost should be preserved, the security holder desires further information; he desires to know changes in value. The management can give only its best judgment of what these changes in value are. Each year the management cannot make a new valuation of the property and charge or credit to profit and loss the change from the year before. What can be done, however, is to make the necessary adjustments through profit and loss account, so that when the value of a certain piece of property or of certain investments become plainly and unmistakably widely different from its cost, the books of the company will show this change in value.

Cost of progress we have found to be an additional investment in property and not an expense incident to maintenance. There are two other important things which must be allowed for in considering the cost of upkeep of the plant. These are depreciation and the treatment of abandonment of property. If a factory building is subjected to wear and tear of machinery that will, in the course of a certain number of years, entirely destroy it,

regardless of the fact that repairs are made during these years, there is an item of expense going on in each one of these years that is not being covered by the charges for repairs. If at the end of the series of years the building is replaced with a new building, the charge for this replacement is not an additional investment in property but is an expense of doing business. If, however, the entire cost of replacing the building is charged to the expenses of the single year in which the replacement takes place, in theory at least an undue charge is made against the revenues of that particular year. The deterioration of the building has taken place in each year during the series. It is in recognition of this fact that industrial companies make a certain charge each year in addition to expenses for what is called depreciation. Depreciation on a factory building is comparatively easy to figure, but when one tries to figure depreciation on such a highly complicated plant as that used by a railroad company in the manufacture of transportation, the task becomes well-nigh impossible. Even if it were possible to have a list of every class of material that forms part of the permanent way and structures of a railroad, and from long observation to be able to tell with a fair degree of accuracy what the life of each class of material was, the rates of depreciation would be so varied, not only as between different classes of material but as between the same materials used under different service and weather conditions, that any rate for the whole plant would be hopelessly wide of the facts. The same would be true for any unit selected, as, for instance, road mile or track mile. The Interstate Commerce Commission permits railroad companies to charge as part of expenses depreciation on roadway and structures if they so desire, but makes no suggestions as to how this depreciation shall be figured.

When we come to make a detailed study of expenses of maintenance of way and structures we will see that there

is no necessity for such a charge to expenses in addition to those charges prescribed in the commission's form of accounts. A road is renewed piecemeal each year. Take a given five miles of road which includes a station building and grounds and a bridge. Each year certain ties become rotted and are replaced. Certain bridge timbers are renewed. A station building gets a new coat of paint this year, is reshingled next year, has a new platform next year, and so on. On as small a unit as five miles the rails will in practice probably all be renewed in the same year, but over the entire road only certain sections are relaid with new rails each year, so that this expense is spread over a series of years. As was pointed out before, on a well maintained road the roadbed instead of depreciating in value will actually be appreciating.

With rolling stock the case is somewhat different. It is true that after a locomotive has gone through the shops for general repairs it is in as good condition, possibly even better, than when it was new.¹ This is not true with a steel gondola car, for instance. Certain parts can be renewed, but in time the car itself, by which is meant the parts that are not subject to renewal, will wear out. Steel cars, however, have not been in service long enough to give any fair indication of their probable length of life.

The commission has ordered railroad companies to make a charge to expenses for depreciation of equipment, and most roads have complied with this order. The rate of depreciation, however, has been left to each individual road to determine and from a study of such charges as have been made since the order went into effect in 1907, one is led to the belief that this charge has more often been determined by the financial situation of each individual road than by any sound theory based on observation on the rate at

¹ Obsolescence, rather than depreciation, is the factor to be considered in the case of a locomotive.

which equipment in service wears out. An arbitrary charge of this kind is worse than no charge at all, because one of the greatest benefits resulting from the exercise of the power of the commission to prescribe accounts has been the uniformity that has necessarily been adopted in keeping the accounts. A charge for depreciation is in the nature of a "guess" at the life of equipment and "guessing" is not the province of an accountant.

The commission's rules in regard to depreciation of equipment appear to be an attempt to make an allowance in charges to expenses for obsolescence.

There is the further question of abandonment of property. According to the rules laid down by the commission, no matter how extensive the improvements to a piece of property may be, the original cost of that property is carried as a debit to road and equipment, plus the cost of betterment. If, however, a piece of property is abandoned and replaced, the original cost of the property, less salvage, in the case of equipment of any depreciation charges that may have been made, is charged (debited) to operating expenses.

If property is abandoned and not replaced, the cost of such property, less salvage, is debited to profit and loss and is credited to cost of road and equipment, reducing the value of assets by that much.

On the face of it, these rules are in accordance with good accounting in other lines of business, especially since the commission permits the charging to expenses over a series of years of the cost of any particularly large piece of property abandoned and replaced in any one year. In the working out, however, of this rule, the commission has encountered a rather serious problem. Let us assume that a ten-mile line has been in operation between two points for a number of years. This line, we will say, is very crooked and with a number of 1 per cent. grades. A rail-

road company can spend \$200,000 reducing these grades, and since this is a betterment to existing property, the railroad company can, under the commission's rules, charge this \$200,000 to Capital Account. If, however, the company were to decide to spend \$200,000 to eliminate some of the worst curves by building a new line between certain points, it would have to charge the entire cost of the abandoned line to operating expenses. In other words, the commission permits the vertical abandonment of property but not the lateral. This is inconsistent and in many cases may work a hardship, but the Supreme Court has upheld the commission in this rule.

If all roads had kept their accounts during their entire history in accordance with the theories now adopted by the commission, the charging of abandoned property replaced to expenses and of abandoned property not replaced to profit and loss, if consistently carried out, would be in accordance with good accounting practice. The great majority of American railroad companies, however, have in the past charged the cost of betterments to expenses. It is well within the bounds of possibility that fully as much as the original cost of the ten miles of line mentioned above has already been charged to expenses as to betterments. The commission has in part provided for such cases by permitting railroads to make a full statement of the case to the commission and with the commission's approval to charge the original cost of such property to profit and loss.

This raises the question of where the line should be drawn between charges or credits to profit and loss and charges or credits to property account. Surplus definitely appropriated for investment in physical property may be debited to profit and loss and credited to additions to property through income and surplus. This really amounts to nothing but setting up a sign board which says that

“this much surplus is not contained in liquid assets.” The original cost of property abandoned and not replaced less salvage, etc., should be debited to profit and loss and credited to property account.

Accurate distinction between expenses and capital expenditures consists both in keeping the property account intact or plainly recording any impairment of it and in showing clearly any further investment in this account.

INTERSTATE COMMERCE COMMISSION'S TEXT PERTAINING TO ACCOUNTS FOR INVESTMENT IN ROAD AND EQUIPMENT

I. ROAD.

The several primary accounts included in this general account are designed to show the cost of land, fixed improvements, and roadway machines and tools owned by the carrier and devoted to transportation service.

1. ENGINEERING.

This account shall include the pay and expenses of engineers, assistants, and clerks engaged in the survey and construction of new lines and extensions, or in making additions to and betterments of the carrier's road, including wharves and docks.

NOTE A.—When employees designated above are engaged in the maintenance of the road, their pay and expenses while thus employed shall be charged to Operating Expenses.

NOTE B.—Expenditures for tentative or preliminary surveys shall be carried in a suspense account until it is determined whether or not to continue the work. If the project is continued, expenditures for all surveys in connection therewith shall then be transferred to this account, and, if abandoned, to Operating Expenses, Income, or Profit and Loss, as may be appropriate.

NOTE C.—The cost of designing, making plans and specifications, and supervising the construction of equipment shall be included in the cost of the equipment.

NOTE D.—The cost of stationery and printing supplies used for accounting purposes in connection with engineering work shall be included in account No. 74, "Stationery and printing," when not directly assignable to specific road or equipment accounts.

NOTE E.—Fees and expenses of architects specially employed for designing or supervising the construction of buildings shall be included in the accounts appropriate for the cost of the buildings constructed.

2. LAND FOR TRANSPORTATION PURPOSES.

This account shall include the cost of land of necessary width acquired for roadway; the cost of land for station, office, shop, and other grounds; for ingress to or egress from such grounds; for borrow pits, waste banks, snow fences, sand fences, and other railway appurtenances; and for storage of material adjoining the right of way; the cost of land for wharves and docks and the cost of riparian or water rights necessary therefor; the cost of removing from the right of way and locating elsewhere the property of others, and the cost of the necessary land for relocation of the property, when such costs are assumed by the accounting carrier.

The carrier's records shall be kept in such manner as to show separately the cost of land purchased by it and the estimated values at time of acquisition of lands donated.

Proceeds from the sale of timber or of improvements purchased with right of way, less any cost of removal, shall be credited to this account.

NOTE.—The cost of land acquired in excess of that necessary for transportation operations shall be included in balance-sheet account No. 705, "Miscellaneous Physical Property." When the purchase of land acquired for transportation operations involves the purchase of land not used for such purposes the charges to this account shall be based upon the estimated cost of only that portion which is used for such purposes, and the cost of the remaining land shall be included in account No. 705, "Miscellaneous Physical Property."

3. GRADING.

This account shall include the cost of clearing and grading the roadway, and of constructing protection of a permanent character for the roadway, tracks, embankments, and cuts.

When a part of a bridge or trestle, or the entire structure, is converted by filling into an earth embankment, and the bridge is used in lieu of a temporary trestle for the purpose of filling, the estimated cost of such temporary trestle shall be included in the cost of the filling, and charged to this account. (See Note A, under account No. 6, "Bridges, Trestles, and Culverts.")

When a tunnel is converted into an open cut, the cost of clearing, grubbing, and excavating shall be included in this account.

4. UNDERGROUND POWER TUBES.

This account shall include the cost of power tubes or conduits for underground contacts of electric railways or for underground cables of cable traction railways.

NOTE.—The cost of track rails, other track material, and electric contact rails and insulators shall be charged to the accounts appropriate for such property.

5. TUNNELS AND SUBWAYS.

This account shall include the cost of tunnels and subways for the passage of trains, including apparatus for ventilating and lighting, and safety devices therein, other than signals.

NOTE A.—The cost of tracks, including guard rails, in tunnels shall not be charged to this account.

NOTE B.—Station subways not highway crossings are includable in account No. 16, "Station and Office Buildings."

NOTE C.—If a tunnel be converted into an open cut, the accounting shall be in accordance with general instructions, section 11.

6. BRIDGES, TRESTLES, AND CULVERTS.

This account shall include the cost of the substructure and superstructure of bridges, trestles, and culverts which carry

the tracks of the carrier over watercourses, ravines, public and private highways, and other railways.

NOTE A.—When a part or the entire structure of a bridge or trestle is converted, by filling, into an earth embankment, the ledger value of the structure, or of the portion thereof filled, shall be credited to this account. In case the bridge or trestle is used in lieu of a temporary trestle for the purpose of filling, the estimated cost of such temporary trestle shall be charged to account No. 3, "Grading." The ledger value of the structure, or portion thereof, filled, less the value of the salvage and the estimated cost of trestle charged to account No. 3, shall be charged to Operating Expenses.

NOTE B.—The cost of bridges to carry the carrier's tracks over undergrade crossings, including the necessary piers and abutments for sustaining them, shall be included in this account, but the cost of undergrade roadways, paving on right of way, drainage systems, and retaining walls outside of the bridge abutments, shall be included in account No. 15, "Crossings and Signs."

7. ELEVATED STRUCTURES.

This account shall include the cost of elevated structures and foundations of elevated railway systems.

This account is applicable to structures other than earthwork, which are for the purpose of elevating tracks above the grade of streets, and which are not properly classable as bridges or trestles.

NOTE.—The cost of stations and other structures built on elevated structures shall be accounted for according to the class of the structure thus superimposed, and not in this account.

8. TIES.

This account shall include the cost of cross, switch, bridge, and other track ties used in the construction of tracks for the movement or storage of locomotives and cars (including tracks in shops, fuel stations, supply yards, etc.), and the cost of additional ties subsequently laid in such tracks; also the excess cost of metal ties used in repairs of track over the cost to replace in kind wooden ties removed.

The cost of handling ties in general supply and storage

yards shall be included as store expenses apportioned to this account when the ties are used for construction purposes.

NOTE A.—The cost of labor for unloading, distributing, and placing the ties in tracks, and the cost of train service in connection with the distribution of ties laid shall be charged to account No. 12, "Track Laying and Surfacing."

NOTE B.—The cost of ties used in the construction of car floats shall be included in the cost of such floating equipment, and the cost of ties used in the construction of temporary tracks, such as gravel-pit and quarry tracks, shall be included in the appropriate clearing accounts.

9. RAILS.

This account shall include the cost of rails used in the construction of tracks for the movement or storage of locomotives and cars (including tracks in shops, fuel stations, supply yards, etc.), and the excess cost of heavier rails or rails of improved types or quality used for repairs of tracks over the cost to replace in kind the rails removed.

The cost of handling rails in general supply and storage yards shall be included as store expenses apportioned to this account when the rails are used for construction purposes.

To this account shall be credited the difference between the cost (at current prices at time of removal) of heavy rails removed and the cost of lighter rails applied in the repairs of tracks.

NOTE A.—The cost of labor for unloading, distributing, and placing the rails in tracks, and of train service in connection with the distribution of the rails, shall be charged to account No. 12, "Track Laying and Surfacing."

NOTE B.—When second-hand rails are first applied to any tracks and no more than the actual cost of such rails is carried in the road accounts, the excess cost of new or heavier rails used for relaying the tracks over the cost (at prices current at the time of replacement) of rails of a weight and condition equal to the weight and condition of the released rails when applied, shall be charged to this account.

NOTE C.—The cost of rails used in the construction of car floats shall be included in the cost of such floating equipment,

and the cost of rails used in the construction of temporary tracks, such as gravel-pit and quarry tracks, shall be included in the appropriate clearing accounts.

10. OTHER TRACK MATERIAL.

This account shall include the cost of material used in the construction of tracks for the movement or storage of locomotives and cars (including tracks in shops, fuel stations, supply yards, etc.), except ballast and material chargeable to foregoing accounts; also the excess cost of heavier or improved "other track material" used in repairs of tracks over the cost of replacing in kind such material removed.

The cost of handling "other track material" in general supply and storage yards shall be included as store expenses apportioned to this account when such material is used in the construction of new tracks.

NOTE A.—The cost of labor and train service for distributing, unloading, and applying "other track material" shall be charged to account No. 12, "Track Laying and Surfacing."

NOTE B.—No entry is required in this account with respect to improved "other track material" unless installed under a definite plan of changing standards, such as increasing the weight of rail.

NOTE C.—The cost of "other track material" used in the construction of car floats shall be included in the cost of such floating equipment, and the cost of such track material used in the construction of temporary tracks, such as gravel-pit and quarry tracks, shall be included in the appropriate clearing accounts.

11. BALLAST.

This account shall include the cost of gravel, stone, slag, cinders, sand, and like material used in ballasting tracks (including tracks in shops, fuel stations, supply yards, etc.) not previously ballasted, including cost of work-train service and of unloading; cost of ballast applied in excess of ballast required to restore to its maximum height and width the ballast previously put on the roadbed; and the excess cost of improved ballast used in renewals over the cost to replace in kind to the original height and width the ballast

removed. (Special instructions, section 11, for operating expense accounts, apply to the accounting for pits from which ballast material is obtained either for construction work or for maintenance, or for both.)

NOTE A.—The cost of ballast used in the construction of temporary tracks, such as gravel-pit and quarry tracks, shall be included in the appropriate clearing accounts.

NOTE B.—Earth placed to form a crown in the middle of the track is not to be considered as ballast.

NOTE C.—The cost of ballast material placed on the decking of bridges solely for fire protection purposes shall be included in account No. 6, "Bridges, Trestles, and Culverts."

NOTE D.—No charge shall be made to the accounts of this classification representing the value of cinders accumulated by the carrier.

12. TRACK LAYING AND SURFACING.

This account shall include the cost of distributing (including train service), laying, and adjusting ties, rails, and other track material used in the construction of tracks for the movement or storage of locomotives or cars, including repair tracks, but not tracks on car floats or temporary tracks the cost of which is chargeable to clearing accounts. It shall also include the cost of the labor expended in placing ballast in tracks not previously ballasted.

NOTE A.—The cost of distributing and adjusting ties, rails, ballast, and other track material for repairs shall be charged to Operating Expenses, both when such materials are replaced in kind and when replaced with improved and heavier material.

NOTE B.—The cost of work-train service in delivering ballast and of unloading such material is provided for in account No. 11, "Ballast."

13. RIGHT-OF-WAY FENCES.

This account shall include the cost of right-of-way fences (including permanent snow and sand fences erected in lieu of right-of-way fences), farm gates, cattle guards, wing fences, aprons, and hedges, on property not previously fenced, excluding those around stockyards, fuel stations, station and shop grounds, and building sites.

14. SNOW AND SAND FENCES AND SNOWSHEDS.

This account shall include the cost of snowsheds, including rock filling when necessary, and cost of permanent or portable fences for the protection of tracks from snow and sand, other than such permanent fences erected in lieu of right-of-way fences and chargeable to account No. 13, "Right-of-way fences."

15. CROSSINGS AND SIGNS.

This account shall include the cost of constructing farm passes, highways, and other railways across the carrier's right of way, except railways crossing at grade; cost of track signs, crossing gates, highway-crossing alarms, planking, paving, and watch houses at crossings; and the portion borne by the carrier of cost of overgrade and undergrade crossings constructed to eliminate grade crossings.

NOTE A.—The cost of shop and station overgrade footbridges and subways not public highways shall be included in the cost of the buildings.

NOTE B.—The cost of bridges or trestles carrying the carrier's tracks over roads, highways, or other railways shall be charged to account No. 6, "Bridges, Trestles, and Culverts," but the cost of a bridge or other structure which carries farm passes, highways, or the tracks of another carrier over the carrier's tracks shall be included in this account.

16. STATION AND OFFICE BUILDINGS.

This account shall include the cost of station and office structures, their fixtures, appurtenances, and furniture necessary first to equip the buildings for use.

NOTE A.—Office buildings used exclusively in connection with maintenance of way shall be included in account No. 17, "Roadway Buildings." Those used exclusively in connection with maintenance of equipment shall be included in account No. 20, "Shops and Engine Houses."

NOTE B.—The cost of grading and preparing grounds, both before and after the construction of station and office buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for

designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

17. ROADWAY BUILDINGS.

This account shall include the cost of roadway shops and other roadway buildings, including drainage, water, gas, and sewer pipes and connections; and all machinery, fixtures, and furniture to equip the buildings ready for use.

NOTE.—The cost of grading and preparing grounds both before and after the construction of roadway buildings, and the cost of constructing sidewalks, driveways, and fences thereon shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

18. WATER STATIONS.

This account shall include the cost of structures, facilities, and appliances necessary to equip for service stations for supplying water. The cost of analyses of water preliminary to the establishment of water stations shall be included in this account.

NOTE A.—The cost of water stations used solely for supplying water to shops, power plants, stations, hotels, tenement houses, or section houses shall be charged to the appropriate accounts relating to the property so supplied.

NOTE B.—The cost of a temporary water station established only for use during the construction period shall be included in the primary accounts to which is charged the cost of the work in connection with which the water station is used.

NOTE C.—The cost of grading and preparing grounds both before and after the construction of water station buildings, and the cost of constructing sidewalks, driveways, and fences thereon shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for

designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts.* The cost of permanent water rights shall also be included in the cost of the buildings.

19. FUEL STATIONS.

This account shall include the cost of structures, facilities other than tracks, and appliances necessary to equip for service stations for supplying fuel to locomotives and floating equipment.

NOTE A.—The cost of fuel stations, coal houses, etc., used solely for supplying fuel to shops, power plants, stations, hotels, tenement houses, or section houses shall be charged to the appropriate accounts relating to the property so supplied.

NOTE B.—The cost of a temporary fuel station established only for use during the construction period shall be included in the primary accounts to which is charged the cost of the work in connection with which the fuel station is used.

NOTE C.—The cost of grading and preparing grounds both before and after the construction of fuel station buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

20. SHOPS AND ENGINE HOUSES.

This account shall include the cost of buildings to be used as shops, engine houses, and storehouses for material for maintenance of equipment; foundations, except those special to particular machines and other apparatus; furniture and fixtures other than equipment chargeable to account No. 44, "Shop machinery"; drainage, sewerage, and water supply systems; and plants for heat and light.

NOTE A.—The cost of distinct power plant buildings for shop purposes shall be included in account No. 29, "Power Plant Buildings." Cost of distribution systems leading from such

power plants to shops and engine houses shall be included in account No. 32, "Power Distribution Systems."

NOTE B.—The cost of grading and preparing grounds both before and after the construction of shop and engine house buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

NOTE C.—The cost of shop buildings devoted solely to the maintenance of way and structures shall be included in account No. 17, "Roadway Buildings."

21. GRAIN ELEVATORS.

This account shall include the cost of structures for the transfer, treatment, and storage of grain, including cost of conveyors, machinery, and fixtures.

The buildings referred to in this account are not small storage elevators at stations where grain is received for shipment, etc., but large elevators in which grain is stored for various owners.

NOTE A.—Small storage elevators at way stations are classed as station buildings.

NOTE B.—The cost of grading and preparing grounds both before and after the construction of grain elevator buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

22. STORAGE WAREHOUSES.

This account shall include the cost of storage warehouses, including machinery and fixtures therein.

The buildings herein referred to are not the ordinary

freight warehouses or stations where freight is received for shipment, etc., but warehouses in which merchandise is stored and which the railway companies or others operate commercially as storage warehouses.

NOTE.—The cost of grading and preparing grounds both before and after the construction of storage warehouse buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

23. WHARVES AND DOCKS.

This account shall include the cost of wharves, docks, dry docks, slips, float bridges, and other landings for vessels, including the cost of necessary dredging, and the cost of float-bridge machinery; also the cost of piling, pile protection, cribs, cofferdams, walls, and other necessary devices and apparatus for the operation or protection of wharves and docks.

NOTE A.—The cost of coal and ore wharves and docks shall be included in account No. 24, "Coal and Ore Wharves."

NOTE B.—The cost of the land on which wharves are built and cost of riparian or water rights for wharves and docks shall be charged to account No. 2, "Land for Transportation Purposes."

NOTE C.—The cost of buildings located on wharves shall be included in the accounts appropriate for the class of building.

NOTE D.—The cost of grading and preparing grounds both before and after the construction of wharves (other than coal and ore wharves) and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the wharves, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the wharves.

24. COAL AND ORE WHARVES.

This account shall include the cost of wharves and docks for the transfer, treatment, blending, or storage of coal or ore, including the cost of necessary dredging and of conveyors, machinery, and fixtures.

NOTE A.—The structures referred to in this account do not include small transfer or storage trestles or wharves at stations where coal is stored or delivered, such trestles being classed as station buildings.

NOTE B.—The cost of grading and preparing grounds both before and after the construction of coal and ore wharves, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the wharves, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the wharves, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the wharves.

25. GAS PRODUCING PLANTS.

This account shall include the cost of gas producing and gas compressing plants, and the cost of machinery and other apparatus in such plants.

NOTE.—The cost of grading and preparing grounds both before and after the construction of gas-plant buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

26. TELEGRAPH AND TELEPHONE LINES.

This account shall include the cost of telegraph and telephone lines, including terminal equipment.

27. SIGNALS AND INTERLOCKERS.

This account shall include the cost of interlocking and other signal apparatus for governing the movement of trains, including towers and other buildings in connection therewith.

NOTE A.—When signal or interlocking apparatus is located in a station building, the entire cost of the building shall be included in account No. 16, "Station and Office Buildings."

NOTE B.—The cost of grading and preparing grounds both before and after the construction of signal and interlocker buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

28. POWER DAMS, CANALS, AND PIPE LINES.

This account shall include the cost of all dams, canals, pipe lines, and accessories devoted to the utilization of water power for the operation of trains and cars, and to furnish power, heat, and light for general purposes.

29. POWER PLANT BUILDINGS.

This account shall include the cost of the buildings of power plants erected to furnish power for the operation of trains and cars, and to furnish power, heat, and light for stations, shops, or general purposes; foundations, except those special to particular machines and other apparatus; drainage, water, and sewer pipes and their connections; fixtures, including wiring for lighting and heating; and miscellaneous furniture and fixtures.

NOTE A.—The cost of power plant machinery and other apparatus shall be included in account No. 45, "Power Plant Machinery."

NOTE B.—The cost of grading and preparing grounds, both before and after the construction of power plant buildings, and

the cost of constructing sidewalks, driveways, and fences thereon shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

30. POWER SUBSTATION BUILDINGS.

This account shall include the cost of the buildings of power substations (including storage battery stations) erected to transform power for the operation of trains and cars, and for heat, light, and general purposes; foundations, except those special to particular machines and other apparatus; drainage, water, and sewer pipes and their connections; fixtures, including wiring, for lighting and heating; and miscellaneous furniture and fixtures.

NOTE A.—The cost of substation machinery and other apparatus for transforming or storing power in power substations shall be included in account No. 46, "Power Substation Apparatus."

NOTE B.—The cost of grading and preparing grounds, both before and after the construction of power substation buildings, and the cost of constructing sidewalks, driveways, and fences thereon, shall be included in the cost of the buildings, as shall also the fees and expenses of architects specially employed for designing or supervising the construction of the buildings, but the cost of restoring the grounds after addition and betterment work shall be included in the appropriate operating expense accounts. The cost of permanent water rights shall also be included in the cost of the buildings.

31. POWER TRANSMISSION SYSTEMS.

This account shall include the cost of high-tension transmission systems, whether overhead, surface or underground, used for transferring power from producing plants to a place where it is transformed for propelling trains and cars, or for power, heat, light, and general purposes.

NOTE.—When the electric current generated or received is changed by means of (a) rotary converters, (b) motor generator

sets, or (c) static transformers (substation apparatus), that portion of the line or outside conductor system carrying current of other than the operating kind or voltage shall be classed as transmission system. When the electric current is generated or received and used substantially unchanged in voltage and kind, the line or outside conductor system, including any feeders, trolley wires, booster circuits, and supplementary return, shall be classed wholly as distribution system. Tie lines between generating stations and substations shall follow the same rule as other lines.

32. POWER DISTRIBUTION SYSTEMS.

This account shall include the cost of distribution systems, whether overhead, surface, or underground, for conveying low-tension electric power from producing plants or transformer stations and for conveying steam and compressed air from producing plants to the place where used for propelling trains and cars, or for power, heat, light, and general purposes.

NOTE A.—The cost of track material such as insulated rail splices used in connection with distribution systems shall be charged to account No. 10, "Other Track Material."

NOTE B.—The cost of the portions of distribution systems located within shop buildings and station and office buildings shall be included in the cost of the buildings. The cost of distribution systems in plants used exclusively for operating signals and interlockers shall be included in account No. 27, "Signals and Interlockers."

NOTE C.—When the electric current generated or received is changed by means of (a) rotary converters, (b) motor generator sets, or (c) static transformers (substation apparatus), that portion of the line or outside conductor system carrying current of other than the operating kind or voltage shall be classed as transmission system. When the electric current is generated or received and used substantially unchanged in voltage and kind, the line or outside conductor system, including any feeders, trolley wires, booster circuits, and supplementary return, shall be classed wholly as distribution system. Tie lines between generating stations and substations shall follow the same rule as other lines.

33. POWER LINE POLES AND FIXTURES.

This account shall include the cost of poles, cross arms, insulating pins, brackets, and other pole fixtures; braces and other supports for holding the poles in position; and structures for supporting the overhead electric construction.

34. UNDERGROUND CONDUITS.

This account shall include the cost of conduits required for underground wires and cables of electric railway construction, including manholes, sewer connections, sewer traps, and all details necessary for the completion of the conduit system.

35. MISCELLANEOUS STRUCTURES.

This account shall include the cost of all permanent structures not provided for elsewhere, including all fixtures and furniture to equip them for use.

36. PAVING.

This account shall include the cost of paving about tracks in public highways through which the carrier's tracks are laid.

NOTE.—The cost of paving upon the carrier's lands, within the grounds of buildings or other structures, shall be included in the accounts provided for the cost of the structures. The cost of paving upon the carrier's right of way at crossings shall be included in account No. 15, "Crossings and Signs."

37. ROADWAY MACHINES.

This account shall include the cost of the initial outfit of roadway machines provided for the maintenance of roadway and structures at the time the road is opened for commercial traffic, and the cost of additional roadway machines acquired subsequently.

NOTE A.—When an important addition and betterment project or the construction of a new line necessitates the purchase of roadway machines to be used exclusively thereon, the cost shall be included in the accounts to which the cost of the work is charged. The amount realized from any subsequent sale, or the appraised value of the machines retained after the comple-

tion of the special work for which they were purchased, shall be credited to the accounts charged with the cost thereof. The appraised value of such machines retained shall be debited to this account and thereafter considered as the cost of such property.

NOTE B.—The cost of machines for the equipment of roadway shops shall be included in account No. 17, "Roadway Buildings," as provided for therein.

NOTE C.—The cost of roadway machines, such as pile drivers, log loaders, hoist engines, and concrete mixers, when permanently mounted for movement on the carrier's tracks, shall be included in account No. 57, "Work Equipment."

38. ROADWAY SMALL TOOLS.

This account shall include the cost of the initial outfit of roadway and track small tools provided for the maintenance of way and structures at the time the road is opened for commercial traffic; also the initial outfit of such tools provided for the maintenance of extensions of such road.

NOTE.—The cost of roadway and track small tools of which no specific record is kept shall be charged when acquired to an appropriate materials and supplies account, from which they shall be charged as issued to the appropriate road and equipment, operating expense, or other accounts. When such tools are used both for construction and maintenance work the cost shall be equitably apportioned among the accounts provided for the two classes of work.

39. ASSESSMENTS FOR PUBLIC IMPROVEMENTS.

This account shall include the carrier's proportion of the cost of constructing public improvements—such as grading, sewerage, curbing, guttering, paving, and sidewalks—and other public improvements, including the cost of such improvements if made by the carrier's own employees under Government requirements.

NOTE A.—The cost of paving required by Government authority between rails and adjacent to tracks laid through public highways shall be included in account No. 36, "Paving."

NOTE B.—The carrier's proportion of the cost of maintaining such public improvements shall be included in operating expenses.

40. REVENUES AND OPERATING EXPENSES DURING CONSTRUCTION.

This account shall include the cost of operating a piece of road during the period before the regular operation of revenue trains, including rent and repairs of equipment used in commercial service during such period. It includes the cost of running construction trains over such section of road when the cost of operating such trains cannot properly be charged to any specific account.

To this account shall be credited amounts collected for rents of buildings and other properties and for the transportation of commercial freight or of passengers on construction trains; also the net profits from boarding and commissarial outfits, and other sources of operating revenue.

Carriers which wish to subdivide this account shall use appropriate subaccounts corresponding to accounts prescribed in the operating revenue, operating expense, or income account classifications.

41. COST OF ROAD PURCHASED.

This account shall include the cash cost of any road or portion thereof purchased. Where the contract of purchase includes not only road, but also equipment, securities, and other assets, the appraised value of such equipment, securities, and other assets shall be deducted from the total cash cost, and the remainder of the cash cost shall be charged to this account. Where the consideration given for the property purchased is other than cash, such consideration shall be valued on a current cash basis. If the consideration includes the assumption of liabilities, such liabilities shall be included in the determination of the cost at their cash value at the time the contract is made.

This account shall be used only as a clearing account in which temporarily to carry the cost of road purchased until such time as a plan for distributing such cost to the primary accounts appropriate for the property is approved by the Commission.

NOTE A.—The appraised value of any equipment thus acquired shall be charged to the appropriate equipment accounts. The value, at time of purchase, of any securities, or other assets acquired, shall be included in the accounts appropriate for such assets. The par value of any liabilities assumed shall be included in the appropriate liability accounts, and the necessary adjustments between the cash value charged to the property accounts and the par value shall be made in the appropriate premium or discount account.

NOTE B.—The carrier shall be prepared to furnish the Commission, upon demand, a full report of the contract of acquisition of each road, or portion thereof, purchased, and a statement showing in detail the consideration given therefor. It should procure, in connection with the acquisition of any such road and equipment, all existing records, memoranda, and accounts in possession or control of the grantor, relating to the construction and improvements of such road and equipment, and shall preserve such records, memoranda, and accounts until authorized by law to destroy or otherwise dispose of them. Where the records, memoranda, and accounts are so intimately involved with other records, memoranda, and accounts of the grantor as to make their transfer impracticable or inadvisable, certified copies of them shall be procured and retained by the grantee. The verity of the copies should be certified by the custodian of the originals.

42. RECONSTRUCTION OF ROAD PURCHASED.

When a road is purchased and the fixed improvements acquired are in such a physical condition that it is necessary substantially to rebuild the road in order to bring it up to the standard required by the carrier, the cost of such rebuilding shall be charged to this account.

NOTE A.—A comprehensive statement of the estimated amount necessary to reconstruct a road in accordance with the above provision shall be made to the Commission as soon as the estimate is made.

NOTE B.—When the work of reconstruction of road purchased is completed, the cost thereof shall be credited to this account and charged to other primary accounts of this classification appropriate for the expenditures made.

43. OTHER EXPENDITURES—ROAD.

This account shall include items which cannot properly be included in any of the foregoing accounts as a part of the cost of any specific work, such as the cost of transportation of men, materials, supplies, and equipment over the carrier's own line; amounts paid for rent and repairs of equipment and for injuries to persons incident to and in connection with original road, road extensions, or additions and betterments; and analogous items. When assignable, such expenditures shall be included in the cost of the property in connection with which the expenditure occurs.

NOTE.—Rents paid for and repairs made to equipment used in commercial operations during the period before the regular operation of revenue trains shall be charged to account No. 40, "Revenues and Operating Expenses During Construction."

44. SHOP MACHINERY.

This account shall include the cost of machinery and other apparatus in shops and engine houses, including the cost of special foundations and installation, and cost of small hand tools necessary first to equip a shop.

NOTE A.—The cost of power plant machinery and other apparatus for shop purposes, when located in distinct buildings, shall be included in account No. 45, "Power Plant Machinery."

NOTE B.—The cost of foundations other than those special to particular machines and other apparatus shall be included in the cost of the building, and not in this account.

45. POWER PLANT MACHINERY.

This account shall include the cost of machinery and other apparatus for generating power in power plants used for the operation of trains and cars, or to furnish power, heat, and light for stations, shops, or general purposes, including the cost of special foundations and installation.

NOTE A.—The cost of power machinery and other apparatus installed in a shop as part of the shop equipment shall be included in account No. 44, "Shop Machinery."

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NOTE B.—The cost of power machinery and other apparatus installed in stations and offices and used solely for station and office purposes shall be included in account No. 16, "Station and Office Buildings."

NOTE C.—The cost of power machinery and other apparatus in plants used solely for operating signals and interlockers shall be included in account No. 27, "Signals and Interlockers."

NOTE D.—The cost of foundations other than those special to particular machines and other apparatus shall be included in the cost of the building, and not in this account.

46. POWER SUBSTATION APPARATUS.

This account shall include the cost of machinery and other apparatus, including the cost of special foundations and installation, for transforming or storing power in power substations used for the operation of trains and cars, and for power, heat, and light for stations, shops, or general purposes.

NOTE A.—The cost of constructing machinery and other apparatus for transforming or storing power shall be included in account No. 45, "Power Plant Machinery," when such equipment is contained in a power plant.

NOTE B.—The cost of foundations other than those special to particular machines and other apparatus shall be included in the cost of the building, and not in this account.

47. UNAPPLIED CONSTRUCTION MATERIAL AND SUPPLIES.

This account shall include the cost of material and supplies located at the point of use which have been purchased for projected new roads and road extensions.

The purpose of this account is to exclude from the current assets the cost of supplies and unapplied material which are located for use on projected new roads and road extensions, under the condition that the material will not be used for other purposes.

NOTE A.—Material and supplies designed for projected new roads and road extensions which are carried in storehouses and store yards and included in the general stock of an operating

company shall be included in balance-sheet account No. 716, "Materials and Supplies."

NOTE B.—The cost of unapplied materials and supplies on hand at the completion of construction work shall be transferred to balance sheet account No. 716, "Materials and Supplies."

II. EQUIPMENT.

The several primary accounts included in this general account are designed to show the cost of the several classes of equipment owned by the carrier, or held under equipment trust agreements for purchase.

To the appropriate primary accounts in this general account shall be charged the cost of all equipment, such as steam locomotives, electric locomotives, passenger-train cars, freight-train cars, work equipment, floating equipment, and the necessary appurtenances, furniture, and fixtures first to equip for service, including the cost of inspection, setting up, and trying out, and transportation over foreign lines; also the cost of additions, such as headlights, mechanical stokers, power brakes, vestibules, machinery for self-propulsion, heating and lighting apparatus, and the like; and the excess cost of betterments, such as improved appliances, parts, or appurtenances, over the cost at current prices (as new) of the appliances, parts, or appurtenances removed. The cost of removing the old appliances and applying the improved shall be charged to Operating Expenses.

The ledger value of each unit of equipment shall be credited to the appropriate equipment account when it is retired from service. The amount of this credit shall be concurrently charged as follows:

The amount of the balance in the balance-sheet accrued depreciation account with respect to the equipment thus retired shall be charged to that account; the salvage recovered shall be charged to the materials and supplies account or elsewhere, according to the purpose for which used; the amount of depreciation prior to July 1, 1907, not previously written off or provided for, shall be charged to Profit and Loss; and the remainder shall be charged to the

appropriate operating expense account for equipment retired. The cost of demolishing the equipment, if demolished by or for the carrier, shall be charged to the appropriate operating expense account for equipment retirements.

When the cost of the renewals to be made to any unit of equipment will constitute the major portion of its value as renewed, the equipment, when taken out of service, shall be considered as retired and accounted for as provided in the preceding paragraph, and for the purpose of this classification the renewed equipment shall be considered an addition and the appraised cost thereof shall be included in the account appropriate for the cost of the equipment. In no case shall the charge for the renewed equipment exceed the cost (at current market prices of labor and material) of new equipment of similar type, equal capacity, and equal expectation of life in service, less a suitable allowance on account of the second-hand parts remaining therein.

When equipment of one class is converted so as to be includible in another class, the accounting shall be as provided in general instructions, section 11.

When an important addition and betterment project or the construction of new lines necessitates the purchase of equipment to be used exclusively therein, the cost of such equipment shall be included in the accounts representing the cost of the work, and no charge shall be made to Operating Expenses for depreciation on such equipment while the cost remains so charged. The amount realized from any subsequent sale, or the appraised value of the equipment retained after the completion of the special work for which it was purchased, shall be credited to the accounts charged with its cost. The appraised value of such equipment retained shall be debited to the appropriate primary account herein, and thereafter, for the purposes of accounting, such appraised value shall be considered as the cost of the equipment.

When second-hand equipment acquired is in such physical condition that it is necessary to make extensive repairs to it to bring it up to the standard required by the carrier, the

cost of such repairs shall be included in the account appropriate for the cost of the equipment. A comprehensive statement of the amount estimated to be necessary to rebuild second-hand equipment in accordance with the above provision shall be furnished to the Commission as soon as the estimate is made.

51. STEAM LOCOMOTIVES.

This account shall include the cost of steam locomotives and tenders, purchased or built by the carrier, and of appurtenances, furniture, and fixtures necessary to equip them for service, including the cost of inspection, setting up, and trying out after receipt from builders, and transportation charges to the carrier's line.

52. OTHER LOCOMOTIVES.

This account shall include the cost of locomotives other than steam, purchased or built by the carrier, and of appurtenances, furniture, and fixtures necessary to equip them for service, including inspection, setting up, and trying out after receipt from builders, and transportation charges to the carrier's line.

NOTE.—Cars with motor equipment are not to be classed as locomotives.

53. FREIGHT-TRAIN CARS.

This account shall include the cost of freight-train cars of all classes, including motor-driven cars, purchased or built by the carrier, including all appurtenances, furniture, and fixtures necessary to equip them for service, and the cost of inspection and transportation charges to the carrier's line.

NOTE.—The cost of motor equipment of cars shall be included in account No. 55, "Motor Equipment of Cars."

54. PASSENGER-TRAIN CARS.

This account shall include the cost of passenger-train cars of all classes, including motor-driven cars, purchased or built by the carrier, including all appurtenances, furniture, and

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fixtures necessary to equip them for service, and cost of inspection and transportation charges to the carrier's line.

NOTE.—The cost of motor equipment of cars shall be included in account No. 55, "Motor Equipment of Cars."

55. MOTOR EQUIPMENT OF CARS.

This account shall include the cost of motor equipment of all cars, including the wiring for such electric equipment.

56. FLOATING EQUIPMENT.

This account shall include the cost of marine or floating equipment of all kinds except work equipment, purchased or built by the carrier, including all appurtenances, furniture, and fixtures necessary to equip it for service, and cost of inspection and transportation charges to the carrier's line.

57. WORK EQUIPMENT.

This account shall include the cost of work equipment, including motor-driven equipment, purchased or built by the carrier; cost of appurtenances, furniture, and fixtures necessary to equip it for service, and cost of inspection and transportation charges to the carrier's line.

NOTE.—The cost of motor equipment of cars shall be included in account No. 55, "Motor Equipment of Cars."

58. MISCELLANEOUS EQUIPMENT.

This account shall include the cost of horses and harness; and cost of wagons, automobiles, and other highway vehicles.

III. GENERAL EXPENDITURES.

The primary accounts of this general account are designed to include expenditures made in connection with the acquisition and construction of original road and equipment, and with extensions, additions, and betterments to road and equipment property, when such expenditures cannot properly be included in any of the foregoing accounts as a part of the cost of any specific work. When assignable, such expenditures shall be included in the cost of the property in connection with which the expenditures occur.

71. ORGANIZATION EXPENSES.

This account shall include all fees paid to governments for the privilege of incorporation, and office and other expenditures incident to organizing the corporation and putting it in readiness to do business; cost of preparing and distributing prospectuses; cost of soliciting subscriptions for stock; cash fees paid to promoters, and the actual cash value (at the time of the organization) of securities paid to promoters for their services in organizing the enterprise; special counsel fees; cost of preparing and issuing certificates of stock; cost of procuring the necessary certificates from State authorities; and other like costs.

NOTE.—Cost of soliciting for loans or for the sale of bonds or other evidences of indebtedness shall be charged to balance-sheet account No. 725, "Discount on Funded Debt."

72. GENERAL OFFICERS AND CLERKS.

This account shall include the pay and expenses of executive and general officers and of general office clerks engaged exclusively in connection with the construction of new road and extensions.

NOTE.—The salaries and expenses of executive and general officers and of general office clerks engaged in connection with the conduct of commercial operations during the period before the regular operation of revenue trains shall be included in account No. 40, "Revenues and Operating Expenses During Construction."

73. LAW.

This account shall include specific and distinct expenditures, not provided for elsewhere, for law service in connection with the acquisition of new road, road extensions, additions, and betterments, such as pay and expenses of counsel, solicitors, and attorneys, their clerks and attendants, and expenses of their offices.

NOTE.—Court costs and special counsel fees in connection with the acquisition of land for transportation operations shall be included in account No. 2, "Land for Transportation Purposes."

74. STATIONERY AND PRINTING.

This account shall include the cost of stationery, stationery supplies, postage, office devices, and printed matter used by any class of employees in connection with construction and not provided for elsewhere.

NOTE A.—The cost of printing bonds, etc., in connection with the carrier's funded debt shall be included in balance-sheet account No. 725, "Discount on Funded Debt."

NOTE B.—The cost of stationery and printing, when assignable, shall be included in the cost of the property in connection with the acquirement or construction of which the expenditure occurs.

75. TAXES.

This account shall include state, county, township, city, school, road, annual franchise, and all other taxes and assessments levied and paid on property belonging to the carrier during construction and before the facilities are used for commercial operations, except special assessments for street and other improvements chargeable to account No. 36, "Paving," or No. 39, "Assessments for public improvements."

NOTE.—Taxes during construction, when assignable, shall be included in the cost of the property acquired or constructed.

76. INTEREST DURING CONSTRUCTION.

When any bonds, notes, or other evidences of indebtedness are sold, or any interest-bearing debt is incurred for acquisition and construction of original road and equipment, extensions, additions, and betterments, the interest accruing on the part of the debt representing the cost of property chargeable to road and equipment accounts (less interest, if any, allowed by depositaries on unexpended balances) after such funds become available for use and before the receipt or the completion or coming into service of the property so acquired shall be charged to this account.

When such securities are sold at a premium the proportion of such premium assignable to the time between the date of the actual issuance of the securities and the time

when the property acquired or the improvement made becomes available for service shall be credited to this account.

This account shall also include such proportion of the discount and expense on funded debt issued for the acquisition of original road, original equipment, road extensions, additions, and betterments, as is equitably assignable to the period between the date of the actual issuance of securities and the time when the property acquired or the improvement made becomes available for the service for which it is intended. The proportion of discount and expense thus chargeable shall be determined by the ratio between the period prior to the completion or coming into service of the facilities or improvements acquired and the period of the entire life of the securities issued.

This account shall also include reasonable charges for interest, during the construction period before the property becomes available for service, on the carrier's own funds expended for construction purposes.

NOTE A.—Interest on bonds, notes, or other evidences of indebtedness accruing before the proceeds from the sale of the securities become available for use shall not be included in this account, nor shall there be included any interest accruing after the property with respect to which the proceeds are expended is received or becomes available for use in connection with commercial service.

NOTE B.—If any securities which have been issued or assumed by the carrier are sold or exchanged by or for the carrier for a consideration the actual money value of which at the time of such sale or exchange is less than the value of the securities at par and the accrued interest thereon, if any, the difference between the money value of the consideration received and the par value of the securities plus the accrued interest shall be deemed a discount. In no case (except as provided in the third and fourth paragraphs of this account) shall discounts be included as part of the cost of anything charged to any account prescribed in this classification.

NOTE C.—For definition of securities *actually issued*, see Note B, under general balance-sheet account No. 755, "Funded Debt Unmatured."

NOTE D.—Whenever interest, premium, or discount assignable to the construction period is incurred in connection with an expenditure covered by some specific road and equipment account or accounts, such interest, premium, or discount shall be charged directly to the specific accounts to which it is related.

77. OTHER EXPENDITURES—GENERAL.

This account shall include all expenditures of a special and incidental nature in connection with the acquisition and construction of original road and equipment, road extensions, additions, and betterments which cannot properly be included in any other account in this classification.

CHAPTER IV

MAINTENANCE OF WAY AND STRUCTURES

Operating expense accounts should show the expenses of furnishing transportation service, including the expenses of maintaining the plant used in transportation service. These accounts are divided in the Interstate Commerce Commission's classification as between Maintenance of Way and Structures, Maintenance of Equipment, Traffic, Transportation—subdivided as between Rail Lines and Water Lines, Miscellaneous Operations, General and Transportation for Investment-Credit.

The charges to maintenance of way and structures should show the expenses of maintaining fixed improvements which are used in transportation service with the exception of such structures as are used directly in the maintenance of equipment. These accounts as prescribed by the Interstate Commerce Commission are intended to show the cost of repairs and also the loss through depreciation of property used in transportation, including expenses resulting from ordinary wear and tear, exposure to the elements, structural defects, obsolescence, depreciation, accident, fire or flood. Repair costs, of course, include inspection and repairing and replacing of parts and the labor involved in these repairs or replacements as well as the material, and also the incidental costs connected with repairs or renewals, as for instance false work and the cost of its removal.

In general the cost of repairs to roadway and structures

includes cost of labor, cost of materials, cost of work-train service, cost of floating equipment, cost of contract work, cost of privileges and cost of protection from casualties.

The detail instructions which the Interstate Commerce Commission has prescribed for the compilation of primary accounts under maintenance of way and structures are printed at the end of this chapter. It will be seen that the commission provides a depreciation account for each class of material used in maintenance. Previous to July 1, 1914, no such provision was made under maintenance of way and structures although the roads were permitted to make charges for depreciation and explain their methods to the commission. The depreciation charge is not now obligatory for roadway, although it is for equipment.

The amount of money which is spent each year on the maintenance of a railroad is within certain broad limits a question which is decided by the management of the road. The amount of work done and the standard which is maintained is the joint result of the policy of the management in making an allowance for maintenance and the effectiveness of the use of this allowance which is made by the officers directly in charge of the work. We can get, from a careful study of the detailed maintenance of way accounts, a fairly accurate idea of the policy in regard to appropriation for maintenance, but the only light thrown on the effectiveness of the use of such appropriation in the accounts and statistics rendered to the Interstate Commerce Commission and to the company's stockholders is contained in the figures showing the percentage of ties renewed, tonnage of rails used in renewals, material used in renewing ballast, etc. This is a side-light, at best, although a great deal better than the customary "your property has not only been fully maintained but bettered in the past year" which has become almost as much a part of a railroad company's annual report to the stockholders

as the cover in which the report is bound. Even these figures give little indication of the efficiency of the expenditures. One chief engineer may make a dollar go further than his predecessor.

The detailed expense account under maintenance of way and structures should serve as a help to the management in keeping informed as to the efficiency of officers in charge of the various branches of the work. The figures also serve as an index to waste or extravagance or fraud and as a basis on which to form a study for possible reductions in cost without reduction in standard or improvement in standards without added cost. To the stockholder it is of the utmost importance—since he cannot make, in most cases, a physical examination of the property itself—that the detail expense accounts be kept on a uniform basis and in sufficient detail to permit of comparison from year to year in such a way as to show the trend of costs and the policy of the management in regard to the upkeep of the property.

It is customary to reduce maintenance of way expenditures to some unit basis, the basis generally used being the track mile or road mile. It is obvious that road mileage is a very poor unit since it is meaningless to compare the cost of maintaining a four-track road with a single track road. For a comprehensive analysis of maintenance of way expenditure it is essential that labor cost and material cost should be shown separately and with the material cost should be included; not, of course, on any theory of accounting, *per se*, but because it is a necessary part of the information which accounts should convey; the amount of material stated in terms of number of ties, yards of ballast, tons of rails, etc., used in maintenance.

The theory underlying the entire system of accounts prescribed by the Interstate Commerce Commission is that this system should form the basis of cost accounting. Cost

accounting for a railroad was made fun of a comparatively few years ago, but it is to-day pretty generally being accepted as the goal towards which railroad accounting should look.

Reference has already been made to the fact that the system of accounts for American railroads previous to 1907 varied as between different companies in accordance with the personal views and capacities—even with the prejudices—of the management and with what was considered to be the needs of the property. In general the accounting officers were very much at the command of the executive officers who were managing the property. Accounting, therefore, was often, at least theoretically, unscientific, but was one of the methods or rather tools which the manager, President or Chairman of the Board, used in running the company to get what he wanted to get out of it. Under these circumstances theories were often neglected, but, on the other hand, there was a downright utility to accounting systems of an old school railroad owner which the Interstate Commerce Commission classification lacks. This is best illustrated by the care formerly taken on some of the roads to prevent the addition of a man to the payroll without this fact being called to the attention of the auditor. In other words, what the manager wanted to know was the size of the force engaged in a certain shop with, of course, the wages that were paid to this force and the record of the entire work done at that shop. Under the commission's system of accounts, unless amplified by other accounts, the expenses of a shop doing both car repair and locomotive repair work are not shown in total nor are various shops shown separately, but, on the other hand, it is possible to know what it costs to repair locomotives on the entire road as distinguished from the cost of repairing cars. In the same way the Interstate Commerce Commission's accounts do not show what one

roadmaster's labor costs are, separately from those of other roadmasters, but do show what the cost of cleaning and policing roadway, etc., is as distinguished from the cost of repairing fences or trestles.

A comparison of the form of accounts which was prescribed by the English Railway Companies (Accounts and Returns) Act of 1911, which went into effect on January 1, 1913, emphasizes the completeness of the American acceptance of cost accounting principles. The expense accounts which correspond roughly with maintenance of way and structures under the Interstate Commerce Commission's classification is shown in the following table:

Superintendence.

Salaries.

Office expenses.

Maintenance of roads, bridges, and works.

Earthworks.

Bridges, tunnels, culverts, retaining walls, and other works.

Roads and fences.

Maintenance of permanent way.

Renewal of running lines.

Wages.

Materials.

Engine power and wagon repairs.

Repair of running lines and sidings.

Wages.

Materials.

Engine power and wagon repairs.

Maintenance of signaling.

Maintenance of telegraphs.

Maintenance of stations and buildings.

Stations, depots, and offices.

Engine sheds.

Carriage sheds.
 Locomotive workshops.
 Carriage workshops.
 Wagon workshops.
 Other buildings.

Total.

It is perfectly true that the object of dividing expenses among a large number of primary accounts is to get a basis for cost accounting, and the proper basis for cost is a unit either of service performed or of net profit earned. Woodlock, in his classic "Anatomy of a Railroad Report," bases his costs on the unit of service performed in carrying a ton of freight one mile. In the last analysis, however, it is not the cost of performing a service that is desired but the cost of earning a dollar of profit. The fact that this cost contains so many variables that it cannot, without the minutest analysis, serve as a basis of comparison between different railroads, should not be allowed to obscure the fundamental truth that this cost is the ultimate object which we wish to approximate through the detailed recording of expenses. It may as well be acknowledged at once that no system of accounts yet devised can do more than serve as a help to a management in making an estimate of cost of obtaining a given amount of profit.

In the first place, there is no fixed causal relation between the compensation received for a service and cost of that service, and both are variables. This difficulty is partially met in factory cost accounting by a division between selling cost and manufacturing cost; but the difficulty lies deeper than that. It was found in the short study of bookkeeping methods in Chapter II that profit could only be determined after expenses had been determined. To base profits on expenses and allocate expenses on the basis of profits is an intellectual amusement that ends nowhere.

The superintendent out on the line does not go into these fine spun theories. His object is to get traffic over his division and to keep that division in as good physical shape as is possible with the allowance that the management makes him for upkeep. The standard that he sets for himself and the standard that the management holds him accountable for is based on units of work done. From the point of view of the superintendent, the more money he is allowed to spend for upkeep the better satisfied he is. It is a question for the management to decide as to what standard of upkeep is justified by the quantity of transportation that that particular division is called on to manufacture. If costs are to be based on units of work done, and the more one studies the question the more one becomes convinced that this must be the basis on which a record of expenses shall be kept, accounts must be kept in such detail that offsetting circumstances will not be concealed within a single account, and yet these accounts must be under headings which are comprehensive enough to group together individual items of expense which are partial costs of doing one thing.

If we did not subdivide at all the cost of maintenance of way and structures, a decrease in the cost of ballast might be offset and therefore concealed by an increase in the cost of ties. It is not at all unusual to see a statement that it costs the Pennsylvania Railroad in the neighborhood of \$5,000 per mile for maintenance of way and structures, and the Northern Pacific less than \$1,500 a mile. Such a statement is, of course, meaningless. It is hardly necessary to more than mention this fact except in so far as an understanding of the reasons why this is so will help toward the formulation of some basis of comparison which will have a definite meaning and which will not be misleading.

It is worth while making a rough catalogue of elements

with which costs of maintenance of way and structures will vary. This cost will vary with the length of road mileage; it will vary with the number of miles of single track, and with the number of miles of sidings and switch tracks; also with physical conditions such as grades and curvature it will vary with the number of structures per mile; it will vary with the number of trains run daily over each mile of track; it will vary also with the weight and speed of these trains, and with climatic conditions, costs of material and costs of labor—over and above all these, with the standard of track and structures that have to be maintained. This last point needs some further elaboration because it is one the importance of which has been so often overlooked in making comparisons as between different roads. It is, moreover, the most difficult to reduce to a common denominator of all the variables that effect the cost of maintenance of way and structures. Take the question of ballast. Stone ballast costs, we will say, four times as much per cubic yard as cinders. If one mile of track has twelve inches of cinder ballast under it and another mile twelve inches of stone ballast, and if it took the same number of cubic yards of material each year to maintain the twelve-inch standard on one mile as on the other, the cost on the stone-ballasted road would be four times as great as on the cinder-ballasted road. Under like conditions, however, experience has shown it does not take the same number of cubic yards of stone to maintain twelve inches under stone-ballasted track as it does cubic yards of cinders to maintain twelve inches of ballast under cinder-ballasted track. Careful cost accounting ought theoretically to show what the difference is as between the two pieces of track, and so it would if a careful enough test could be made over a series of years. As we have seen, however, this variation in standards is only one of a number of variations. The rough catalogue of

these variables is not intended to be comprehensive but rather suggestive.

It will be noted that in the Interstate Commerce Commission's classification no effort has been made to keep wage costs and material costs separate. All of the primary accounts with the following exceptions are a combined material and labor cost. Maintenance of Roadway, Track Laying and Surfacing, Removing Snow, Ice and Sand, are all purely labor costs. Ties, Rails, Other Track Material, Ballast, and Small Tools and Supplies are all purely material accounts.

The new classification of accounts has not been in effect long enough to permit of any thorough discussion of units on which to base comparisons of maintenance of way, but experience with the classification which the 1914 revision supersedes permits of certain general conclusions which should hold good even under the new classification.

Probably the best rough comparison for maintenance of way costs is the track mile exclusive of sidings and switch tracks. This comparison is not, of course, materially affected by the change in the detailed form of maintenance of way accounts. How widely this figure varies as between different roads in different territories is shown by the following figures for the year 1913. The Erie Railroad maintenance of way charges per mile of single track operated in 1913 amounted to \$1,313. The New York Central & Hudson River \$1,802, Pennsylvania Railroad \$2,419, Southern Railway \$1,006, Wabash \$1,416, Chicago & Alton \$1,587, the Chicago & North Western \$940, the Northern Pacific \$1,176, the Union Pacific, \$1,051, the Atchison, Topeka & Santa Fe \$1,220.

Rails, ties and ballast are the principal materials used in track maintenance and there is no change from 1907 rules for accounting for these items in the 1914 revision. The cost of these materials can quite accurately be com-

pared for the same road over a series of years on a per track mile basis. A mental allowance, of course, has to be made for climatic conditions, differences in standards, nature of traffic, etc., when making comparisons on a track mile basis as between different roads.

In 1913 the Erie spent \$73 per track mile for rails, \$134 for ties and \$7 for ballast; the Pennsylvania Railroad \$113 for rails, \$289 for ties and \$75 for ballast; Southern Railway \$62 for rails, \$211 for ties and \$18 for ballast; the Chicago & North Western \$50 for rails, \$114 for ties and \$30 for ballast; the Atchison, Topeka & Santa Fe \$34 for rails, \$186 for ties and \$53 for ballast.

A comprehensive, scientific study of maintenance of way costs would include observation of the rate of wear of track material under various conditions, including climatic conditions and conditions of traffic as well as physical conditions such as proportion of curvature to tangent and number of curves and degrees of curvature. The trouble has been in American practice that conditions and standards are changing so rapidly that there has not actually been time, especially on western roads, to collect sufficient data to form the basis of any general scientific theories as to what can be gained in economy through various standards of maintenance of way and structures. The changes in the standard of weight of rail is illustrative of this point. Seven years ago 56-lb. rail and 66-lb. rail were not uncommon even on main lines in the Southwest. At that time, however, these lighter sections were being replaced with 70-lb. rail. Two years later many roads had begun to use 85-lb. rail to replace their worn out 66-lb. rail and to-day many of these same roads have adopted 90-lb. rail as standard. On the trunk lines in the East the change has been from 85-lb. to 90-lb., from 90-lb. to 100-lb., and now the Pennsylvania is considering using 120-lb. rail.

Besides the material costs mentioned above, which can be compared from year to year on a per track mileage basis, roadway maintenance which is the labor cost of the care of roadbed, general cleaning, watching, bank protection and track changes may well be compared on a track mileage basis, although here again as in material costs, climatic conditions and character of train service are all important factors to be considered when comparing the unit cost on one road with another.

The cost of maintenance of tunnels, bridges, trestles and culverts, fences, docks and wharves, and paving can only properly be compared when number of feet of tunnels, bridges, etc., which a company is called on to maintain is known and also the character of these parts of the roadway. The cost of maintaining stations, fuel stations, power plants, etc., varies according to number of such structures and their character. The cost of maintenance of telegraph and telephone lines can fairly accurately be compared on the per mile of wire basis.

The distinction between maintenance of way expenses and additions, or betterments, has been discussed quite fully in a previous chapter. As will be seen the Interstate Commerce Commission's instructions for charges to primary accounts under maintenance of way and structure are so minute as to make this distinction uniform for all companies reporting to the commission that follow these instructions conscientiously and intelligently.

INTERSTATE COMMERCE COMMISSION'S TEXT PERTAINING TO MAINTENANCE OF WAY AND STRUCTURES

The primary accounts included in this general account are designed to show the expenses of maintaining fixed improvements which are devoted to railway operations, with the ex-

ception of shop machinery, power plant machinery, and power substation apparatus, the expenses of maintaining which are includible in general account II, Maintenance of Equipment.

The accounts for maintenance of way and structures shall be kept in such manner as to show separately, by primary accounts, the expenses directly assignable to sleeping car operations, water-line operations, dining and buffet service, hotels and restaurants, grain elevators, stockyards, producing power sold, and other miscellaneous operations.

201. SUPERINTENDENCE.

This account shall include:

PAY OF OFFICERS.—The pay of officers directly in charge of or engaged in the maintenance of roadway and structures.

PAY OF CLERKS AND ATTENDANTS.—The pay of clerks and other employees in the offices and on the business cars of officers whose pay is chargeable to this account.

OFFICE AND OTHER EXPENSES.—Office expenses and other expenses of officers and employees whose pay is chargeable to this account; also amounts paid detective agencies and others for investigations in connection with maintenance of way and structures.

NOTE A.—When employees designated above are engaged on construction or other work not chargeable to Maintenance of Way and Structures, their pay and expenses while thus employed shall be charged to the specific work on which engaged.

NOTE B.—When officers designated above have supervision over more than one department, their salaries, the pay of their clerks and attendants, and their office and other expenses shall be apportioned equally among the departments over which they have supervision.

NOTE C.—No part of the pay and expenses of the officers and employees designated above shall be charged to other primary accounts under Maintenance of Way and Structures.

NOTE D.—The cost of stationery for maintenance of way and structures offices is chargeable to account No. 276, "Stationery and Printing."

202. ROADWAY MAINTENANCE.

This account shall include:

CARE OF ROADBED.—The cost of repairing roadbed.

NOTE A.—The cost of drains or sewers laid under tracks shall be included in account No. 208, "Bridges, Trestles, and Culverts." The cost of landscape gardening within the limits of the grounds around buildings shall be included in the appropriate repair accounts for buildings.

GENERAL CLEANING.—The cost of cutting, removing, and disposing of brush, grass, and weeds from the right of way; plowing and digging fireguards; dressing ballast and cutting sod lines; removing miscellaneous scrap, drift, cinders, dirt, and other material from right of way and from road and terminal tracks (including tracks at stations, engine yards, and car yards); and cleaning streets used as roadways.

NOTE B.—Loading ashes at engine yard tracks shall be charged to the engine house expense accounts.

WATCHING ROADWAY.—The cost of extinguishing fires on right of way and adjacent thereto, and of walking, watching, and patrolling tracks and right of way.

NOTE C.—The cost of watching and patrolling bridges, buildings, and miscellaneous property is provided for in accounts specifically relating to such property.

BANK PROTECTION.—Cost of protecting banks by repairing retaining walls, riprap, piling, piers, dikes, breakwaters, and revetments, and by changing the channels of streams to prevent cutting, washing, and sliding of embankments.

TRAIN SERVICE.—The cost of work-train service in connection with work pertaining to roadway maintenance.

TRACK CHANGES.—The cost of roadway work in connection with taking up and relocating tracks.

OTHER EXPENSES.—The cost of roadway work not provided for elsewhere, such as official roadway inspection train service and premiums in connection with roadway maintenance.

NOTE D.—Tools and supplies used by repair men and watchmen in roadway maintenance service shall be charged to account No. 271, "Small Tools and Supplies."

203. ROADWAY—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of roadway.

204. UNDERGROUND POWER TUBES.

This account shall include the cost of repairing power tubes or conduits for underground contacts of electric railways or for underground cables of cable traction railways.

NOTE.—The cost of replacing track rails, other track material, electric contact rails, and insulators shall be charged to the accounts provided for such expenses and not to this account.

205. UNDERGROUND POWER TUBES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of underground power tubes.

206. TUNNELS AND SUBWAYS.

This account shall include the cost of repairing, ventilating, lighting, and watching tunnels and subways for the passage of trains, and the cost of special tools and supplies furnished in connection with the work.

NOTE.—The cost of repairs to signals and to roadway and tracks in tunnels shall be charged to the appropriate maintenance of way accounts and not to this account.

207. TUNNELS AND SUBWAYS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of tunnels and subways.

208. BRIDGES, TRESTLES, AND CULVERTS.

This account shall include the cost of repairing (including fuel and supplies used) and watching bridges, trestles, and culverts, including altering and bracing during process of filling, removing old structures in connection with the construction of new structures, dredging and cleaning water channels for protection, and cleaning culverts.

The bridges, trestles, and culverts referred to in this account include only structures which carry the carrier's own tracks.

NOTE.—When a part or the entire structure of a bridge or trestle is converted, by filling, into an earth embankment, the ledger value of the structure, or of the portion thereof filled, shall be credited to road and equipment account No. 6, “Bridges, Trestles, and Culverts.” In case the bridge is used in lieu of a temporary trestle for the purpose of filling, the estimated cost of such a temporary trestle shall be charged to road and equipment account No. 3, “Grading.” The ledger value of the structure, or portion thereof, filled, less the value of the salvage and the estimated cost of trestle charged to road and equipment account No. 3, “Grading,” shall be charged to this account.

209. BRIDGES, TRESTLES, AND CULVERTS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of bridges, trestles, and culverts.

210. ELEVATED STRUCTURES.

This account shall include the cost of repairing elevated structures and foundations of elevated railway systems.

211. ELEVATED STRUCTURES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of elevated structures and foundations of elevated railway systems.

212. TIES.

This account shall include the cost of cross, switch, bridge, and other track ties used in the repairs of tracks.

NOTE A.—The cost of labor for unloading, distributing, and putting ties in tracks, the cost of work-train service in connection with the distribution of the ties laid, and the cost of picking up and concentrating or disposing of the ties released shall be charged to account No. 220, “Track Laying and Surfacing.”

NOTE B.—The excess cost of metal ties applied in place of wooden ties over the cost at current prices of replacing in kind the wooden ties removed shall be charged to road and equipment account No. 8, “Ties.”

NOTE C.—The cost of ties used for repairs of tracks in quarries and ballast pits shall be included in the appropriate clearing accounts, and of ties used for repairs of tracks on car floats in account No. 323, "Floating Equipment—Repairs."

213. TIES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of ties.

214. RAILS.

This account shall include the cost (less salvage) of rails used in the repairs of tracks; also the difference between the cost (at current prices at time of removal) of heavy rails removed and the cost of lighter rails applied in repairs of tracks.

NOTE A.—The cost of labor for unloading, distributing, and putting rails in tracks, the cost of work-train service in connection with the distribution of the rails laid, and the cost of picking up and concentrating the rails released shall be charged to account No. 220, "Track Laying and Surfacing."

NOTE B.—The excess cost of heavier rails or rails of improved quality or type applied in repairs of tracks over the cost, at current prices, of rails of the weight, type, and quality released shall be charged to road and equipment account No. 9, "Rails."

NOTE C.—The cost of rails used for repairs of tracks in quarries and ballast pits shall be included in the appropriate clearing accounts, and of rails used for repairs of tracks on car floats to account No. 323, "Floating Equipment—Repairs."

215. RAILS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of rails.

216. OTHER TRACK MATERIAL.

This account shall include the cost (less salvage) of all track material used in the repairs of tracks, other than ballast, ties, and rails.

NOTE A.—The cost of labor and train service for distributing, unloading, and applying "other track material" used, and the cost of picking up and concentrating the material released shall be charged to account No. 220, "Track Laying and Surfacing."

NOTE B.—The excess cost of improved or heavier track material applied for repairs of tracks, under a definite plan of changing standards, over the cost, at current prices, of material of the same weight and quality as that released, shall be charged to road and equipment account No. 10, "Other Track Material."

NOTE C.—The cost of "other track material" used for repairs of tracks in quarries and ballast pits shall be included in the appropriate clearing accounts, and of such track material used for repairs of tracks on car floats in account No. 323, "Floating Equipment—Repairs."

217. OTHER TRACK MATERIAL—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of "other track material."

218. BALLAST.

This account shall include the cost of gravel, stone, slag, cinders, sand, and like ballast material used in the repairs of tracks, including the cost of work-train service and of unloading the material.

When the ballast taken from a pit is not sufficient to justify the opening of a clearing account, the cost of gravel and quarry rights and cost of sinking test holes shall be included in this account.

NOTE A.—The cost of loading cinders at ash pits shall be charged to account No. 388, "Engine House Expenses—Yard," or to account No. 400, "Engine House Expenses—Train." No charge to cover the value of cinders accumulated by the carrier shall be included in this account.

NOTE B.—The cost of labor putting ballast in tracks shall be included in account No. 220, "Track Laying and Surfacing."

NOTE C.—The excess cost of ballasting tracks over the cost of replacing in kind to its maximum height and width the ballast previously put in the roadbed shall be charged to road and equipment account No. 11, "Ballast."

NOTE D.—Earth placed to form a crown in the middle of the track is not to be considered as ballast.

NOTE E.—The cost of ballast used for repairs of temporary tracks, such as gravel pit or quarry tracks, shall be included in the appropriate clearing accounts.

219. BALLAST—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of ballast.

220. TRACK LAYING AND SURFACING.

This account shall include:

APPLYING BALLAST.—The cost of labor expended in preparing the roadbed, and applying ballast for repairs of tracks.

APPLYING TIES.—The cost of labor expended in unloading, distributing, and applying ties for repairs of tracks; in gathering up and disposing of the ties released; and in re-spacing ties.

APPLYING RAILS.—The cost of labor expended in unloading, distributing, cutting, slotting, drilling, adzing for, and laying rails for repairs of tracks; in gathering up and loading rails released; and in adjusting for expansion and contraction of rails.

APPLYING OTHER TRACK MATERIAL.—The cost of labor expended in unloading, distributing, and applying other track material for repairs of tracks; and the cost of gathering up and loading the material released.

TRACK MAINTENANCE.—The cost of labor expended in alining, surfacing, gauging, and shimming tracks; in tightening track bolts and track spikes; in restoring rails, ties, and ballast in case of washouts, derailments, and wrecks; and in taking up tracks.

TRAIN SERVICE.—The cost of work-train service (except work trains distributing ballast material) in connection with work pertaining to track laying and surfacing.

TRACK CHANGES.—The cost of track work (exclusive of the cost of track material) in taking up and relocating tracks.

OTHER EXPENSES.—The cost of track laying and surfacing work not provided for elsewhere, and expenses, such as repairing and replacing rail rests, official track inspection, train service, and premiums in connection with track repairs.

NOTE.—Tools and supplies used by track repair men and watchmen shall be charged to account No. 271, "Small Tools and Supplies."

221. RIGHT-OF-WAY FENCES.

This account shall include the cost of repairing right-of-way fences (including permanent snow and sand fences in lieu of ordinary right-of-way fences), farm gates, cattle guards, wing fences, aprons, and hedges, except those around stockyards, fuel stations, station and shop grounds, and building sites.

222. RIGHT-OF-WAY FENCES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of right-of-way fences.

223. SNOW AND SAND FENCES AND SNOWSHEDS.

This account shall include the cost of repairing permanent and portable snow and sand fences and snowsheds for the protection of tracks from snow and sand, including rent of land for placing snow and sand fences.

NOTE A.—The cost of repairing permanent snow and sand fences which take the place of right-of-way fences shall be included in account No. 221, "Right-of-way Fences."

NOTE B.—The cost of setting up, taking down, and storing portable snow and sand fences shall be included in account No. 272, "Removing Snow, Ice, and Sand."

224. SNOW AND SAND FENCES AND SNOWSHEDS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of snow and sand fences and snowsheds.

225. CROSSINGS AND SIGNS.

This account shall include the cost of repairing farm passes, highway crossings, and crossings of other railways crossing the carrier's right of way, except railways crossing at grade; also cost of repairing track signs.

NOTE A.—The cost of repairing shop and station overgrade footbridges and subways not public highways shall be included in repairs of such buildings.

NOTE B.—The cost of repairing a bridge or other structure which carries the track of another carrier over the accounting

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carrier's tracks shall be included in this account. The cost of repairing bridges or trestles, carrying the carrier's tracks over roads, highways, or other railways, shall be charged to account No. 208, "Bridges, Trestles, and Culverts."

NOTE C.—The cost of repairing bridge signs shall be included in account No. 208, "Bridges, Trestles, and Culverts."

226. CROSSINGS AND SIGNS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of crossings and signs.

227. STATION AND OFFICE BUILDINGS.

This account shall include the cost of repairing station and office buildings, fixtures, and appurtenances (including those for heating and lighting), used by the carrier in its operations; also the cost of maintaining grounds appurtenant to such buildings.

NOTE.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by station or office employees, shall not be included in this account.

228. STATION AND OFFICE BUILDINGS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of station and office buildings.

229. ROADWAY BUILDINGS.

This account shall include the cost of repairing roadway shops and other roadway buildings, including drainage, water, gas, and sewer pipes and their connections, machinery and other apparatus, fixtures, and furniture in the buildings; also the cost of maintaining the grounds appurtenant to such buildings.

NOTE A.—The cost of repairing signal and interlocker buildings and their appurtenances shall be included in account No. 249, "Signals and Interlockers."

NOTE B.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by employees regularly working in the buildings, shall not be included in this account.

230. ROADWAY BUILDINGS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of roadway buildings.

231. WATER STATIONS.

This account shall include the cost of repairing water stations, fixtures, and appurtenances used by the carrier in its operations, and the cost of maintaining the grounds appurtenant to such stations.

NOTE.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by water station employees, shall not be included in this account.

232. WATER STATIONS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of water stations.

233. FUEL STATIONS.

This account shall include the cost of repairing fuel stations, fixtures, and appurtenances used by the carrier in its operations, and the cost of maintaining the grounds appurtenant to such stations.

NOTE.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by fuel station employees, shall not be included in this account.

234. FUEL STATIONS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of fuel stations.

235. SHOPS AND ENGINE HOUSES.

This account shall include the cost of repairing shop and engine house buildings, fixtures, and appurtenances used by the carrier in repairing and preparing equipment, and the cost of maintaining the grounds appurtenant to such buildings.

NOTE A.—The cost of repairing machinery and other apparatus, including special foundations, in shops for maintenance of equipment shall be included in account No. 302, "Shop Machinery."

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NOTE B.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by shop employees, shall not be included in this account.

236 SHOPS AND ENGINE HOUSES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of shops and engine houses.

237. GRAIN ELEVATORS.

This account shall include the cost of repairing structures for the transfer, treatment, and storage of grain, including conveyors, machinery and fixtures; also the cost of maintaining the grounds appurtenant to such buildings.

The buildings referred to in this account are large elevators in which a regular grain business is handled or grain is stored for various owners.

NOTE A.—Small storage elevators at way stations, where the freight is received for shipment, etc., are classed as station buildings.

NOTE B.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by grain elevator employees shall not be included in this account.

238. GRAIN ELEVATORS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of grain elevators.

239. STORAGE WAREHOUSES.

This account shall include the cost of repairing storage warehouses, including machinery and fixtures therein; also the cost of maintaining the grounds appurtenant to such warehouses.

The buildings referred to herein are not the ordinary freight warehouses or stations where freight is received for shipment, etc., but are warehouses in which merchandise is stored and which the carrier operates as storage warehouses.

NOTE.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by storage warehouse employees, shall not be included in this account.

240. STORAGE WAREHOUSES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of storage warehouses.

241. WHARVES AND DOCKS.

This account shall include the cost of repairing wharves located at marine, lake, or river docks; dredging waterways to approaches and around such structures, including removal of dredged-out material; and cutting ice in and around docks and wharves to prevent damage; also cost of repairs of cribwork, racks, or caissons for preserving the depth of water in docks; and cost of repairs of guards, piling, and other protection against damage by drift or ice.

NOTE A.—The cost of repairing buildings, tracks, and machinery (not bridge machinery) on wharves and piers shall be charged to the appropriate expense accounts.

NOTE B.—The cost of repairing coal and ore wharves shall be charged to account No. 243, "Coal and Ore Wharves."

NOTE C.—Incidental cleaning, when done by regular wharf employees, shall not be included in this account.

242. WHARVES AND DOCKS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of wharves and docks.

243. COAL AND ORE WHARVES.

This account shall include the cost of repairing wharves and docks, including the cost of repairing conveyors, machinery, and fixtures for the transfer, treatment, blending, or storage of coal or ore.

NOTE A.—The structures referred to in this account do not include small transfer or storage trestles at stations where coal is stored or delivered, such trestles being classed as station buildings.

NOTE B.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by coal and ore wharf employees, shall not be included in this account.

244. COAL AND ORE WHARVES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of coal and ore wharves.

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245. GAS PRODUCING PLANTS.

This account shall include the cost of repairing gas producing and gas compressing plants, including the machinery and appliances in such plants; also the cost of maintaining the grounds appurtenant to such plants.

NOTE.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by employees of the gas producing plant, shall not be included in this account.

246. GAS PRODUCING PLANTS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of gas producing plants and gas compressing plants.

247. TELEGRAPH AND TELEPHONE LINES.

This account shall include:

TELEGRAPH.—The cost of repairs of telegraph outside plant and terminal equipment for which the carrier is responsible, including the cost of work-train service and of special tools provided for the work.

TELEPHONE.—The cost of repairs of telephone outside plant and terminal equipment for which the carrier is responsible, including the cost of work-train service and of special tools provided for the work.

NOTE.—The salaries, rent, other office expenses, and traveling expenses of superintendents of telegraph and telephone, their assistants, clerks, and attendants, when engaged both in maintaining and operating telegraph and telephone lines, shall be apportioned equally between this account and account No. 407, "Telegraph and Telephone Operation."

248. TELEGRAPH AND TELEPHONE LINES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of telegraph and telephone lines.

249. SIGNALS AND INTERLOCKERS.

This account shall include the cost of repairing signals and interlockers governing the movement of trains, includ-

ing salaries, rent, and other office expenses, and the traveling expenses of division signal engineers, signal supervisors, their assistants, clerks, and attendants; also the cost of special tools furnished for such work.

NOTE.—The cost of repairing track material, such as switches, special track fastenings, split rails, and frogs used in connection with interlockers, shall be charged to account No. 216, "Other Track Material."

250. SIGNALS AND INTERLOCKERS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of signals and interlockers.

251. POWER PLANT DAMS, CANALS, AND PIPE LINES.

This account shall include the cost of repairing dams, canals, and pipe lines and accessories devoted to the utilization of water power for the operation of trains and cars, and to furnish power, heat, and light for general purposes.

252. POWER PLANT DAMS, CANALS, AND PIPE LINES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power plant dams, canals, and pipe lines.

253. POWER PLANT BUILDINGS.

This account shall include the cost of repairing the buildings of power plants which furnish power for the operation of trains and cars, and furnish power, heat, and light for general purposes, including distinct power plant buildings at shops; drainage, water, and sewer pipes and their connections; miscellaneous furniture and fixtures; and the cost of maintaining the grounds appurtenant to such buildings.

NOTE A.—The cost of repairing machinery and other apparatus in general power plants shall be included in account No. 304, "Power Plant Machinery."

NOTE B.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by power plant employees, shall not be included in this account.

254. POWER PLANT BUILDINGS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power plant buildings.

255. POWER SUBSTATION BUILDINGS.

This account shall include the cost of repairing buildings of power substations, including storage battery stations, used to transform power for the operation of trains and cars, and to furnish power, heat, and light for general purposes; drainage, water, and sewer pipes and their connections; fixtures, including wiring for lighting and heating; and miscellaneous furniture and fixtures; also the cost of maintaining the grounds appurtenant to such buildings.

NOTE A.—The cost of repairing substation apparatus for transforming or storing power in power substations shall be included in account No. 306, "Power Substation Apparatus."

NOTE B.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by substation employees, shall not be included in this account.

256. POWER SUBSTATION BUILDINGS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power substation buildings.

257. POWER TRANSMISSION SYSTEMS.

This account shall include the cost of repairing systems for transmitting high-tension power from power houses to the point where transformed for use, including the cost of work-train service and special tools furnished for such work.

NOTE A.—The cost of repairing track material, such as insulated rail splices used in connection with transmission systems shall be charged to account No. 216, "Other Track Material."

NOTE B.—When the electric current generated or received is changed by means of (a) rotary converters, (b) motor generator sets, or (c) static transformers (substation apparatus), that portion of the line or outside conductor system carrying current other than the operating kind or voltage shall be classed as transmission system. When the electric current is generated or received and used substantially unchanged in voltage and kind,

the line or outside conductor system, including any feeders, trolley wires, booster circuits, and supplementary return, shall be classed wholly as distribution system. Tie lines between generating stations and substations should follow the same rule as other lines.

258. POWER TRANSMISSION SYSTEMS — DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power transmission lines.

259. POWER DISTRIBUTION SYSTEMS.

This account shall include the cost of repairing electric distribution systems, whether overhead, surface, or underground, for conveying low-tension power for propelling trains and cars, and for power, heat, light, and general purposes.

NOTE A.—The cost of repairing and replacing track material, such as insulated rail splices, used in connection with electric distribution systems, shall be charged to account No. 216, "Other Track Material."

NOTE B.—The cost of repairing that portion of distribution systems located in shop buildings and station and office buildings shall be included in the cost of repairing the buildings. The cost of repairing distribution systems in plants used exclusively for operating signals and interlockers shall be included in account No. 249, "Signals and Interlockers."

NOTE C.—When the electric current generated or received is changed by means of (a) rotary converters, (b) motor generator sets, or (c) static transformers (substation apparatus), that portion of the line or outside conductor system carrying current other than the operating kind or voltage shall be classed as transmission system. When the electric current is generated or received and used substantially unchanged in voltage and kind, the line or outside conductor system, including any feeders, trolley wires, booster circuits, and supplementary return, shall be classed wholly as distribution system. Tie lines between generating stations and substations should follow the same rule as other lines.

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260. POWER DISTRIBUTION SYSTEMS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power distribution systems.

261. POWER LINE POLES AND FIXTURES.

This account shall include the cost of repairing and replacing electric line poles, cross arms, and insulating pins; brackets and other pole fixtures; and braces and other supports for holding poles in position; also the cost of repairing structures primarily for supporting the overhead electric construction.

262. POWER LINE POLES AND FIXTURES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power line poles and fixtures.

263. UNDERGROUND CONDUITS.

This account shall include the cost of repairing conduits required for underground electric wires and cables of electric railway construction, including manholes, sewer connections, sewer traps, and all other material necessary for the maintenance of the conduit system.

264. UNDERGROUND CONDUITS—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of underground conduits.

265. MISCELLANEOUS STRUCTURES.

This account shall include the cost of repairing permanent structures, not provided for elsewhere, including the cost of repairing all furniture and fixtures to equip them for use. It shall also include the cost of maintenance of the grounds appurtenant to such structures.

NOTE A.—When separable the cost of maintaining structures which are rented to other companies or individuals shall be charged to the income account in which is included the rent received for use of the structures.

NOTE B.—Incidental cleaning, including the cost of cleaning snow from roofs, when done by employees regularly working in miscellaneous buildings, shall not be included in this account.

266. MISCELLANEOUS STRUCTURES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of miscellaneous structures.

267. PAVING.

This account shall include the cost of repairing paving about tracks in public highways and streets through which the carrier's tracks are laid.

NOTE.—The cost of repairing paving upon the carrier's lands, within the grounds of buildings or other structures, shall be included in the accounts provided for the repairs of the structures, and the cost of repairing paving upon the carrier's right of way at crossings in account No. 225, "Crossings and Signs."

268. PAVING—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of paving.

269. ROADWAY MACHINES.

This account shall include the cost of repairing roadway machines which are used for the repairs of roadway and structures.

NOTE A.—The cost of repairing machines in the maintenance of equipment shops shall be included in account No. 302, "Shop Machinery," as provided for therein.

NOTE B.—The cost of repairing roadway machines, such as pile drivers, log loaders, hoisting engines, and concrete mixers, when permanently mounted for movement on carrier's tracks, shall be included in account No. 326, "Work Equipment—Repairs."

270. ROADWAY MACHINES—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of roadway machines.

271. SMALL TOOLS AND SUPPLIES.

This account shall include:

ROADWAY AND TRACK TOOLS.—The cost of roadway tools (except special tools provided for elsewhere), including the cost of repairing such tools.

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ROADWAY AND TRACK SUPPLIES.—The cost of supplies consumed in connection with the operation of roadway machines while used in repairs of roadway and tracks; and cost of supplies used by trackwalkers, track watchmen, and roadway and track repair men.

272. REMOVING SNOW, ICE, AND SAND.

This account shall include the cost of keeping track and roadway clear of snow, ice, and sand.

It shall include cost of preventing accumulation, such as the cost of distributing, setting up; inspecting, taking down, and regathering portable snow and sand fences; and cost of tools furnished for the purpose; also cost of storing fences.

It shall include cost of removing accumulations of snow, ice, and sand, cost of snow-plow and flanger service, and of work-train service; cost of applying and removing flangers from locomotives and cars, and of slatting pilots; cost of salt to keep switches clear; and cost of meals and lodging for men employed in removal service.

273. ASSESSMENTS FOR PUBLIC IMPROVEMENTS.

This account shall include the carrier's proportion of the cost of repairing public improvements, such as sewers, curbs, gutters, pavement and sidewalks, including costs of such repairs made under Government regulations by the carrier's own employees.

NOTE.—The cost of repairs, required by Government authority, to paving between rails and adjacent to tracks laid through public highways shall be included in account No. 267, "Paving."

274. INJURIES TO PERSONS.

This account shall include expenses on account of injuries to persons which occur directly in connection with the maintenance of way and structures, including injuries occurring in connection with the operation of work trains in such service, and injuries caused by defective highways within the right of way.

It shall also include expenses on account of injuries to employees incurred while demolishing structures, the maintenance of which would be chargeable to Maintenance of Way and Structures; services of employees and others called in consultation in connection with claim adjustments; pay and expenses of employees while engaged as witnesses at inquests and lawsuits; and a suitable proportion of donations made to hospitals.

NOTE A.—Expenses incident to personal injury suits, not otherwise provided for, shall be included in account No. 454, “Law Expenses.”

NOTE B.—Amounts donated by a carrier to hospitals shall be distributed, 25 per cent. to account No. 274, “Injuries to Persons”; 25 per cent. to account No. 332, “Injuries to Persons”; and 50 per cent. to account No. 420, “Injuries to Persons.”

NOTE C.—The pay, office rent, office expenses, and other expenses of claim adjusters, claim clerks and others in charge of or engaged in connection with claim cases, when not assignable to a distinct class of claims, shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged.

275. INSURANCE.

This account shall include premiums, except reinsurance premiums, for insuring the carrier against loss through injuries to persons or damage to or destruction or loss of property, whether caused by fire, accident, or other cause, when such loss to the carrier would be chargeable to Maintenance of Way and Structures; also premiums on fidelity bonds of employees whose pay is chargeable to Maintenance of Way and Structures.

NOTE.—The premiums paid by the carrier to its insurance fund shall be credited to an insurance reserve account, to which account shall be charged the amount of all claims for injuries to persons and damages to the property covered by its insurance. To such account shall also be charged all reinsurance premiums paid to insurance companies, and to it shall be credited all amounts recovered from insurance companies in reimbursement for losses under such reinsurance.

276. STATIONERY AND PRINTING.

This account shall include the cost of stationery and printing used in connection with maintenance of way and structures.

NOTE.—The cost of dictionaries, periodicals, technical books, etc., shall be included in the appropriate superintendence accounts.

277. OTHER EXPENSES.

This account shall include all expenses in connection with maintenance of way and structures not provided for elsewhere.

278. MAINTAINING JOINT TRACKS, YARDS, AND OTHER FACILITIES—DR.

This account shall include the carrier's proportion of the costs incurred by others in maintaining joint tracks, yards, terminals, and other facilities.

NOTE.—The purpose of this account is to show the amounts accruing against the carrier for its proportion of the cost of maintaining tracks, yards, and other roadway and structure facilities maintained by others and in the joint use of which the carrier participates.

279. MAINTAINING JOINT TRACKS, YARDS, AND OTHER FACILITIES—CR.

This account shall include amounts chargeable to others as their proportions of the cost incurred by the carrier in maintaining joint tracks, yards, terminals, and other facilities.

NOTE.—The purpose of this account is to show the amounts accruing in favor of the carrier and against others for their proportions of the cost of maintaining tracks, yards, and other roadway and structure facilities maintained by the carrier and in the joint use of which others participate.

CHAPTER V

MAINTENANCE OF EQUIPMENT

The primary accounts which are classified as maintenance of equipment accounts by the Interstate Commerce Commission are intended to show the expense of repairing and renewing parts and rolling stock which belongs to the company and other rolling stock used in its operation, together with such overhead charges as superintendence and the cost of upkeep of shop and power plant machinery. The detailed instructions for making charges to these primary accounts as prescribed by the Interstate Commerce Commission are printed at the end of this chapter. Since, as in the case of maintenance of way accounts, the classification is intended to form the basis of cost accounting the primary accounts combine the various items of expense which go into a certain job. This necessitates, of course, in some cases, the dividing up of payrolls and the allocation of one man's wages over various primary accounts. A blacksmith in a shop may work for two hours on parts of a locomotive which is being repaired, an hour on parts of a passenger car and the rest of the day on parts of a motor car.

Under the Interstate Commerce Commission's system of accounts his pay for the day's work must be split up on the basis of the time which he spent on locomotives, on passenger cars and on motor cars.

The Interstate Commerce Commission classifies equipment as: steam locomotives, other locomotives, freight train

cars, passenger train cars, floating equipment, work equipment and miscellaneous equipment. For each class of equipment the cost of repairs, the charge made for depreciation and the "retirement" are shown separately.

The charges for repairs are a comparatively simple matter to determine. They include, of course, the wages of the men making the repairs and the cost of the materials used in the work. Depreciation has already been discussed at some length in Chapter III. Retirements in the new classification corresponds to the primary accounts for each class of equipment called renewals in the earlier classification. Since the commission's instructions for depreciation and retirements are rather technical it is worth while to elaborate somewhat on this phase of the expense accounts, especially since it is the least generally understood of the commission's theories of accounting.

The management of a railroad company is very human. There is no scientific basis on which a roadmaster can certify to the management the exact day, month, or even year in which a tie or a rail needs renewal; the same is true as to ballast and other material. There is no scientific rule by which a man can tell when he needs a new suit. If he is making money he decides that his old suit can't possibly be used for another season and he orders a new one; if he is in hard luck, the old suit is plenty good enough for another season. Railroads are run on much the same basis. Cars and locomotives can be kept in service for a long time if the road cannot afford to replace them. In other words, the commission's system of accounts does not prevent a management from either starving or fattening up the property. The commission is also faced with this problem. A company buys a locomotive costing \$20,000. Its upkeep in good condition, that is, renewal of small parts, current repairs and general repairs, costs on an average \$2,500 a year. At the end of fifteen

years the locomotive is obsolete and a new locomotive must be bought to replace it. But here we are charging in one year \$20,000 to retirement of locomotives on account of this locomotive, where for the past fourteen years we have made charges to repairs only with nothing for retirements. This is seemingly an unfair burden on one year's expense accounts. To get around this the commission prescribed depreciation accounts for equipment and instructed the railroad companies to make an estimate of the life of their equipment and to charge each year to expenses—depreciation—a certain per cent. of the cost of equipment, so that by the time the locomotive or car under normal conditions was ready for the scrap heap, an accumulated charge would have been made large enough to pay for a new locomotive or car. But the commission did not attempt to prescribe at what rate depreciation should be figured, nor did it provide that any actual fund should be created in which the moneys charged over a series of years should be placed. By following the commission's rules the road that had the \$20,000 locomotive which it scrapped, at the end of fifteen years would have charged out $14/15$ of the \$20,000 before the last year and would have needed to charge to the last year's expense only $1/15$, but it would not have had \$18,667 in its treasury specifically set aside for the purchase of a new locomotive. Like surplus this \$18,667 is somewhere in assets—it has *not* been paid out in dividends but is not necessarily a cash fund. If the estimated rate of depreciation exactly corresponded to the facts, there would be no charge for retirements since a charge for retirements is only made for the difference between the ledger value of the equipment which is retired and the amount of accrued depreciation on this particular piece of equipment. It must be borne in mind, however, that under the Interstate Commerce Commission's classification of accounts when a new locomotive is

bought to replace a locomotive which is scrapped, the cost of the new locomotive is charged to capital account and it is the ledger value of the old locomotive, less of course the salvage received from the scrap, that is charged to expenses either through accrued depreciation or through a charge to steam locomotives—retirements.

By its method of treating depreciation the commission has attempted to substitute a fixed policy, presumably founded on observation, for a variable policy founded on expediency and to allocate to the expense of each year its share of an expense which is made at the end of a series of years, but is incurred in part during each one of the years. The Pennsylvania uses 3 per cent. as its rate of depreciation.

For sake of comparison the English classification of maintenance and renewal of rolling stock follows:

LOCOMOTIVES

Superintendence.

Salaries.

Office expenses.

Complete renewals.

Wages.

Materials.

Repairs and partial renewals.

Wages.

Materials.

Purchase of new locomotives.

Workshop expenses.

Repairs and renewals of machinery and plant.

Other expenses.

Total.

CARRIAGES

Superintendence.

Salaries.

Office expenses.

- Complete renewals.
 - Wages.
 - Materials.
- Repairs and partial renewals.
 - Wages.
 - Materials.
- Purchase of new carriages.
- Workshop expenses.
 - Repairs and renewals of machinery and plant.
 - Other expenses.
- Total.

WAGONS

- Superintendence.
 - Salaries.
 - Office expenses.
 - Complete renewals.
 - Wages.
 - Materials.
- Repairs and partial renewals.
 - Wages.
 - Materials.
- Purchase of new wagons.
- Workshop expenses.
 - Repairs and renewals of machinery and plant.
 - Other expenses.
- Total.

Before discussing the units used most commonly in the comparison of maintenance of equipment costs, it is worth while pointing out certain facts which must be borne in mind in making an analysis of maintenance of equipment expenditures. In the first place no rate of depreciation is at present prescribed by the commission and, although the companies are supposed to report to the Interstate Commerce Commission the rate which they use they are at liberty to make this rate as low as they want to and are permitted to vary the rate from year to year. Further-

more, no charge for retirements is necessary until a locomotive is actually scrapped or sold. Let us assume, for a moment, that a road wishes to make a good showing by holding down maintenance of equipment expenses even to the extent of being willing to take advantage of the letter of the law to evade its spirit. Cars and engines which have become worn out or obsolete may be put on side tracks and neither scrapped nor sold, but new equipment bought. There is no way in which this practice can be detected from the maintenance of way accounts. Furthermore, the company may have, in a single year, more equipment than it needs for its business, and part of this equipment may be in perfect repair but standing idle. A knowledge of the mileage of equipment as well as the number of units of equipment is therefore a necessity for any comprehensive attempt to make comparisons of the maintenance of equipment expenditures on the same road for two years or of two different roads.

The most common units of maintenance of equipment expenditures are the cost of repairs per year per locomotive, per freight train car and per passenger train car and the cost of repairs per locomotive mile, per freight train car mile and per passenger train car mile. Another very good unit for locomotives is the cost per pound of tractive power or the cost per locomotive mile per thousand pounds of tractive power.

The table on the following page makes a comparison as between different roads for the year 1913 of the cost of repairs of equipment based on these various units.

It is often argued that the basis on which cost of repairs of locomotives should be compared is the basis of work done by the equipment which is repaired. The trouble is that the work done by a locomotive cannot be measured either by the number of ton miles that the locomotive hauls or the number of miles run by the locomotive.

RAILROAD ACCOUNTING

	Erie	Penn.	Southern	Wabash	C. & N. W.	A. T. & S. F.	So. Pac.
Per Loco.....	\$2,913	\$4,154	\$2,852	\$3,806	\$2,807	\$4,607	\$5,115
Per lb. of t. p.... cents	9.876	12.560	9.153	14.474	11.163	14.528	.....
Per Loco. M.... cents	11.927	14.373	10.090	11.813	8.996	16.568	.....
Per Loco. M. per 1000 lb. of t. p.... cents	0.404	0.435	0.3239	0.4492	0.3577	0.523	.....
Per Pass. Car.....	\$675	\$1,646	\$845	\$1,078	\$617	\$1,246	\$928
Per Pass. Car Mile. cents	1.307	2.541	1.047	1.163	0.989	1.337	1.284
Per Frt. C.....	\$98	\$108	\$98	\$87	\$85	\$103	\$107
Per Frt. Car Mile. cents	0.979	1.222	1.152	0.626	0.979	0.902	0.902

If one locomotive hauls a gross train load, behind the drawbar, of 2,000 tons over a level, straight road, and another hauls 1,000 tons up a 0.25 per cent. grade with numerous curves, the work done may be nearly the same, but expressed in ton miles, one locomotive has done twice as much as the other. Using these figures as a basis for cost of repairs, if the same repairs were given to each locomotive the cost would be only half as much per ton mile for one as for the other, or if twice the distance were run on a level road with the same train load as on a grade it would similarly throw out the comparisons of work done if the locomotive miles were used as the basis. German practice is to use the cost per locomotive axle or per passenger train car axle or freight car axle. Using this as a basis, however, there are still very wide apparent differences in cost of repairs on different roads. For instance on the Atchison, Topeka & Santa Fe in 1912 the repair cost per locomotive axle was \$742, while on the Northern Pacific in the same year the cost was \$385. On a per locomotive owned basis the cost was \$3,641 on the Santa Fe and \$1,895 on the Northern Pacific. In making a rough estimate of the cost of a new locomotive it is customary to figure on a cost in cents per pound. This cost varies according to the price of materials and the state of the equipment market and with the class of locomotive, from $6\frac{1}{2}$ cents to $9\frac{1}{2}$ cents. It is usual to figure rate of depreciation—which corresponds, as will be shown, with repairs of locomotives—on a basis of per cent. of original cost. It is, therefore, instructive to use a unit cost of repairs based on weight of locomotive and another instructive basis would be per cent. of cost of equipment. Such a figure should not be taken by itself as having some definite meaning, but should be used with other unit figures as an additional guide in making an analysis of costs.

A figure that is based on work to be expected from a locomotive is the cost of repairs per tractive power mile. The tractive power of a locomotive is $\frac{0.85 P d^2 s}{D}$ where P = the boiler pressure in pounds per square inch, d = the diameter of the cylinders in inches, s = the length of stroke in inches, and D = the diameter of the driving wheels in inches. The loss between boiler and cylinder is covered by the factor 0.85. One objection to using tractive power mile as a unit on which to base cost of repairs is that speed enters into the determination of the tractive power of a locomotive. It will be noted that we divide by the diameter of the driving wheels. A locomotive designed for high speed will have larger driving wheels than one designed for slower service and will, therefore, have a lower tractive power. If exactly the same amounts were spent in repairs of the high speed locomotive as of the lower speed locomotive per locomotive mile the cost per tractive power mile would show higher for one than for the other. This is not fair to the high speed locomotive, for though it is true that the cost of turning a pair of driving wheels depends on the amount of steel that must be taken off, and the greater the diameter of the wheel the greater will be the cost of turning; this particular repair cost is about the only one that will be materially higher on the locomotive designed for speed. Thus by using the tractive power¹ mile the difference in cost between the repairs on the two locomotives will be exaggerated.

In general, a railroad has comparatively little work to do in repairing locomotives other than its own, consider-

¹This unit, tractive power mile, is in use on the Canadian Pacific. It is arrived at by adding together the tractive power of all locomotives in service and multiplying this figure by the total mileage of all locomotives.

ing locomotives held under an equipment trust as the company's own. This is not so, however, in the case of passenger cars or freight cars. The theory which the Interstate Commerce Commission has used in forming its accounts is as follows: A railroad company makes a charge called in the case of freight equipment per diem against a foreign line using its cars. This per diem includes deterioration of the cars under service conditions, but does not include the cost of repairs not due to defects in the car itself. A freight car is loaded at Philadelphia with merchandise for San Francisco. It is routed over the Pennsylvania Railroad, the Pittsburgh, Ft. Wayne & Chicago, the Chicago & North Western, Union Pacific and the Southern Pacific. The Pittsburgh, Ft. Wayne & Chicago can refuse to accept the car from the Pennsylvania Railroad at Pittsburgh if it is not in good repair, and in the same way the Chicago & North Western can refuse to accept the car at Chicago unless in good condition. The same applies to the Union Pacific at Omaha and the Southern Pacific at Ogden. While the car is on any one of these companies' lines, repairs due to unfair usage, wrecks, etc., are made by the company on whose lines the damage occurs. The cost of such repairs is part of the cost of Repairs of Freight-train Cars of that particular road. Repairs, however, which are necessitated by fair service conditions are made by the company on the lines on which the car is, but are billed against the owning company. While, therefore, the total cost of repairs of locomotives divided by the total number of locomotives in service, as shown by the company's books, will give the average cost of repairs per locomotive, the total cost of repairs of freight-train cars divided by the total number of freight-train cars carried on the company's books as being in service, will not necessarily show the average cost per freight car which has in practice been in service on

the line, but does show the total average cost per car owned, because the total cost includes the bills of other companies for repairs to equipment repaired away from home.

The same difficulty, however, as between the varying costs of repairs of different kinds of the same classes of equipment, applies in the case of car repairs as in the case of locomotive repairs. A thousand miles made by a light, old-style, wooden box car may necessitate, even under good service, considerable repairs. On the other hand, a 50-ton new steel gondola car may run ten or even twenty thousand miles without requiring any repairs whatsoever. The car mileage basis makes no distinction between a mile made by an old light wooden car and a new modern steel car.

The commission in its latest revision of its form for the classification of operating expenses recognizes and attempts to remedy in some part this shortcoming of its maintenance of equipment accounts by keeping separate accounts for sleeping cars, dining cars and other passenger-train cars, but does not make any distinction between different classes of freight-train cars or of locomotives.

It is a little hard to see how the commission could formulate any system which will make entirely adequate allowance for the different classes of freight cars, but this is not so with different classes of locomotives, since a locomotive comparatively seldom goes off its own lines and, therefore, a record of the total mileage of each class of equipment is easily kept.

The operating officer of a railroad should, without doubt, have records which will show him what it is costing to maintain different classes of equipment. It is of great importance to him in deciding on what new equipment he should order to have a clear knowledge of the comparative

cost of upkeep as between different kinds of equipment. This is true both of different kinds of locomotives and different types of freight and passenger cars. In practice, this information is supposed to be supplied by experimental records of individual performances. A record will be kept of the individual mileage repair costs, etc., of one of a particular type of locomotive or one of a particular class of cars. On the study of this record, compared, of course, often with numerous other like experiments, will be based the opinion as to the comparative economy in cost of maintenance of various classes of equipment. There is room, however, for a considerable improvement in keeping such records, and it should be neither very difficult nor very expensive to keep a record of repairs, certainly of each class of locomotive, and probably of each class of freight- and passenger-train cars. If the locomotive mile and car mile are to be used as the basis for repair costs, it would be necessary also to keep a record of the mileage made by each class of equipment.

Notwithstanding, however, the practical and theoretical objections to any unit on which costs of maintenance of equipment may be based it is essential that such an analysis include a careful study of a great number of other accounts and returns, beside the particular ones shown under the head of maintenance of equipment. This may be best illustrated by taking a particular case and making our own analysis.

Leaving aside overhead charges for the time being we will take only the sum spent for repairs as an index or test of total maintenance expenditures. Let us take the Norfolk & Western. In 1912 the Norfolk & Western spent a total of \$2,529,016 for repairs of locomotives, \$332,759 for repairs of passenger-train cars, and \$2,817,325 for repairs of freight-train cars. The average annually for the

previous four years for each one of these accounts is as follows: Locomotives, \$1,858,552; passenger-train cars, \$278,764, and freight-train cars, \$2,281,891. The average expenditures for repairs in 1912 per unit of equipment in service at the end of the period as compared with the average annually per unit of equipment for four years previous is shown in the following table:

	1912	Average for four previous years
Repairs per locomotive.....	\$2,504	\$1,899
Repairs per passenger car.....	830	707
Repairs per freight car.....	66	62

The average cost of repairs per locomotive mile on the Norfolk & Western in 1912 was 9.99 cents; of passenger-train cars per mile, 1.46 cents; and of freight-train cars, 0.63 cents. The average cost of repairs of locomotives per pound of total weight was 1.46 cents; and the average cost of repairs of all equipment, including work equipment, was 13.5 per cent. of the total valuation of equipment as carried on the balance sheet, without making any deduction for charges for depreciation.

The Chesapeake & Ohio is a road very similarly situated to the Norfolk & Western, doing a coal business comparable to that of the Norfolk & Western, and with grades somewhat better than the Norfolk & Western's. It is instructive, therefore, to compare the various unit costs of repairs on the two roads. The following table shows the average expenditures for repairs in 1912 per unit of equipment in service at the end of the period, and the average annually per unit of equipment for the four years previous:

	1912	Average for four previous years
Repairs per locomotive.....	\$2,700	\$2,422
Repairs per passenger car.....	839	815
Repairs per freight car.....	65	66

The cost of repairs per locomotive mile in 1912 was 10.03 cents; per passenger car mile, 1.20 cents; and per freight car mile, 0.82 cents. The cost of repairs of locomotives per pound was 1.56 cents, and the total cost of repairs of all classes of equipment in 1912 amounted to 16 per cent. of the total valuation of equipment as carried on the balance sheet without making any deduction for depreciation.

We see that on any one of the bases which we have used for comparison the expenditures on the Chesapeake & Ohio are somewhat higher for repairs than on the Norfolk & Western. We see, however, that this is not only true of the year 1912 but is equally true of the average for the four years. Furthermore, the difference between the C. & O. expenditures and the N. & W. expenditures is not so great but what it might be accounted for by better facilities for making repairs or greater efficiency. The next step is to see whether there are any collateral evidences of inadequate maintenance of equipment. At the end of 1912 on the Norfolk & Western there were 111 locomotives, or 11 per cent. of the total, in shops undergoing or awaiting repairs; 26 passenger cars, or 6.5 per cent. of the total; and 1,636 freight and work equipment cars, or 3.7 per cent. of the total. On the Chesapeake & Ohio at the end of the same year there were 133 locomotives, or 16.8 per cent. of the total, in shops undergoing or awaiting repairs; no passenger train cars, and 1,737, or 3.9 per cent. of the total equipment of freight train

cars. The locomotives and cars on the Chesapeake & Ohio that were in shops were awaiting heavy repairs. A considerable proportion, however, of the locomotives and cars on the Norfolk & Western were awaiting only light repairs. The total mileage made by locomotives on the Norfolk & Western was 25,318,057, or 25,067 miles per locomotive in service. On the Chesapeake & Ohio the total locomotive mileage was 20,836,727, or 26,275 miles per locomotive. The average revenue train load on the N. & W. was 692 tons, and on the C. & O., 756 tons. The average revenue train load per locomotive mile was 455 on the N. & W. and 657 on the C. & O. The percentage of empty car mileage to total car mileage on the Norfolk & Western was 38.85, and on the Chesapeake & Ohio was 36.9 per cent. If the grades were the same on both roads, or the percentage of empty car mileage the same, this comparison of work done by equipment would be strongly in favor of the Chesapeake & Ohio; but the grades are not the same, the Chesapeake & Ohio's being considerably more favorable than the Norfolk & Western's, and the greater percentage of empty car mileage also helps to explain the smaller average revenue train load.

It is not the purpose of this discussion to draw a definite conclusion as to the comparative adequacy and efficiency of maintenance on the Norfolk & Western and on the Chesapeake & Ohio; but sufficient has been said to show how difficult such a comparison would be with the only figures available being those reported to the Interstate Commerce Commission in the form prescribed for the primary accounts under maintenance of equipment. On the other hand, sufficient has been said to show that these figures form a basis on which a test of adequacy of maintenance can be based. In the example which we have taken the evidence that the Norfolk & Western's expenditures

for repairs of equipment are not inadequate is very strong. Of course, a thorough analysis of the entire equipment account will take into consideration also the policy of the company in charging depreciation and in adding new equipment. During the four years which we have been considering there was a net increase in the locomotives in service of 64, with a net increase of 20 per cent. in available tractive effort; a net increase of six passenger-train cars and 5 per cent. in seating capacity; and of 6,641 freight cars and 30 per cent. in tonnage capacity. During these four years the Norfolk & Western spent a total of \$12,701,420 for new equipment, from which total \$1,240,952 was deducted as credit for equipment destroyed or sold. The total number of new locomotives added during these four years was 109; passenger-train cars, 16; freight-train cars, 9,883; ballast and other work cars, 92; cabin cars, 150, together with eight locomotive cranes and one steam shovel, and one officers' car. Here again there is strong evidence that the equipment has been added to as rapidly as business demanded.

It will be seen from all this how far afield it is necessary to go from the mere primary accounts as shown by the Interstate Commerce Commission under maintenance of equipment to form any intelligent judgment of the adequacy of maintenance of equipment expenditures.

The conclusion from all this appears to be that the commission's classification of accounts for maintenance of equipment expenditures is as yet only in the process of formation.

II. MAINTENANCE OF EQUIPMENT.

The primary accounts included in this general account are designed to show the expenses of maintaining the car-

rier's equipment and the carrier's expense for the repairs of other equipment used in its operations, also the cost of maintaining the fixed improvements which are classified as shop and power plant machinery, and power substation apparatus. The repair accounts shall include foreign roads' freight charges for transporting the carrier's equipment to shops for repairs and for transporting such equipment to the carrier's line after repairs have been made. No charge shall be made to these accounts for transporting equipment in the carrier's transportation service trains to shops for repairs or from shops after repairs have been made.

The accounts for maintenance of equipment shall be kept in such manner as to show separately, by primary accounts, the expenses directly assignable to sleeping car operations, water-line operations, dining and buffet service, producing power sold, and other miscellaneous operations.

301. SUPERINTENDENCE.

This account shall include:

PAY OF OFFICERS.—The pay of officers directly in charge of or engaged in the maintenance of equipment.

PAY OF CLERKS AND ATTENDANTS.—The pay of clerks and other employees in the offices and on business cars of officers whose pay is chargeable to this account.

OFFICE AND OTHER EXPENSES.—Office expenses and other expenses of officers and employees whose pay is chargeable to this account, and amounts paid to detective agencies and others for investigations in connection with repairs of equipment.

NOTE A.—When employees designated above are engaged on construction or other work not chargeable to Maintenance of Equipment, their pay and expenses while thus employed shall be charged to accounts covering the specific work on which engaged.

NOTE B.—When officers designated above have supervision over more than one department, their salaries, the pay of their clerks and attendants, and their office and other expenses shall be apportioned equally among the departments over which they have jurisdiction.

NOTE C.—The cost of stationery purchased for maintenance of equipment offices is chargeable to account No. 334, "Stationery and Printing."

NOTE D.—The pay of general foremen in small shops, who exercise direct supervision over all departments, unassisted by departmental foremen, shall be apportioned through clearing account "Shop Expenses."

302. SHOP MACHINERY.

This account shall include the cost of repairing machinery and other apparatus, including special foundations, in shops and engine houses.

NOTE A.—The cost of repairing power plant machinery for shop power when located in distinct buildings shall be included in account No. 304, "Power Plant Machinery."

NOTE B.—The cost of repairing boilers used exclusively for heating shall be included in the appropriate repair accounts for buildings.

NOTE C.—The cost of small tools which are soon worn out, when used by mechanics on miscellaneous work, shall be included in clearing account "Shop Expenses," and when used on repairs of equipment shall be included in the appropriate accounts for repairs of equipment.

NOTE D.—The cost of repairing machinery and tools in shops used exclusively for maintenance of way and structures shall be included in account No. 229, "Roadway Buildings."

303. SHOP MACHINERY—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of shop machinery.

304. POWER PLANT MACHINERY.

This account shall include the cost of repairing machinery and other apparatus, including special foundations, for generating power in power plants used for the operation of trains and cars and to furnish power, heat, and light for general purposes. It shall also include the cost of repairing machinery and other apparatus for transforming and storing power, when such apparatus is contained in a power plant.

NOTE A.—The cost of repairing power apparatus in shops

where no distinct plant is provided shall be included in account No. 302, "Shop Machinery."

NOTE B.—The cost of repairing power apparatus in stations and offices used solely for station and office purposes, where no distinct plant is provided, shall be included in account No. 227, "Station and Office Buildings."

NOTE C.—The cost of repairing power apparatus in plants used solely for operating signals and interlockers shall be included in account No. 249, "Signals and Interlockers."

305. POWER PLANT MACHINERY—DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power plant machinery.

306. POWER SUBSTATION APPARATUS.

This account shall include the cost of repairing machinery and other apparatus, including special foundations, for transforming or storing power in power substations used for the operation of trains and cars and for power, heat, and light for general purposes.

NOTE.—When machinery and other apparatus for transforming and storing power are located in a power plant the cost of repairs shall be included in account No. 304, "Power Plant Machinery."

307. POWER SUBSTATION APPARATUS — DEPRECIATION.

This account shall include charges covering the current loss from depreciation of power substation apparatus.

308. STEAM LOCOMOTIVES—REPAIRS.

This account shall include the cost of repairing transportation service steam locomotives and tenders, including all appurtenances, and the cost of small hand tools used in repair work.

This account shall also include the cost of work-train service for the transportation of locomotives without steam to shops for repairs, including the pay and expenses of caretakers, and the pay and expenses of caretakers of locomotives without steam which are hauled in transportation ser-

vice trains to shops for repairs; also notarial fees in connection with reports on conditions of locomotives.

NOTE A.—The cost of inspecting smokestacks and ash pans of locomotives in service shall be included in the appropriate engine house expense accounts.

NOTE B.—The cost of repairing steam locomotives and tenders of foreign lines, waybilled as freight, and damaged in transit shall be charged to account No. 418, "Loss and Damage—Freight"; and the cost of repairing steam locomotives and tenders of foreign lines having trackage rights over the carrier's line, damaged by collision, wreck, or other cause, for which the carrier is liable, shall be charged to account No. 416, "Damage to Property."

NOTE C.—The cost of running locomotives under steam to shops for repairs in connection with transportation service shall be included in the cost of the service in connection with which the movement occurs.

NOTE D.—The cost of repairing steam locomotives used solely in work service in connection with operations shall be included in account No. 326, "Work Equipment—Repairs." The cost of repairing locomotives on account of construction work shall be included in the cost of the work.

309. STEAM LOCOMOTIVES—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of steam locomotives. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the percentages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

Depreciation charges with respect to any locomotive shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.

310. STEAM LOCOMOTIVES—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of steam locomotives retired from service and the amount of accrued depreciation charged on account of such retired locomotives to the date of their retirement.

311. OTHER LOCOMOTIVES—REPAIRS.

This account shall include the cost of repairs of transportation service locomotives other than steam locomotives, analogous to those set forth for steam locomotives in account No. 308, "Steam Locomotives—Repairs."

312. OTHER LOCOMOTIVES—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of other than steam locomotives. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the percentages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

Depreciation charges with respect to any locomotive shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.

NOTE.—All charges to this account for depreciation of the carrier's equipment shall be concurrently credited to balance-sheet account No. 776, "Accrued Depreciation—Equipment."

313. OTHER LOCOMOTIVES—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of locomotives other than steam locomotives retired from service

and the amount of accrued depreciation charged on account of such retired locomotives to the date of their retirement.

NOTE.—Locomotives permanently retired from service but held pending disposition shall be written out of service and carried in an appropriate suspense account at an equitable valuation.

314. FREIGHT-TRAIN CARS—REPAIRS.

This account shall include the cost of repairing freight-train cars and appurtenances, and cost of repairs of the freight car feature of motor cars engaged in transportation service; also cost of small hand tools used in repairs. This account shall also include the net loss sustained on account of the destruction of foreign freight cars in the carrier's transportation service and amounts paid to others for repairs of freight cars for which the carrier is liable.

NOTE A.—The cost of candles, wicks, lamp chimneys, globes, and shades for oil or other lamps in freight-train cars shall be charged to account No. 402, "Train Supplies and Expenses."

NOTE B.—The cost of repairing freight-train cars of foreign lines waybilled as freight and damaged in transit shall be charged to account No. 418, "Loss and Damage—Freight"; and the cost of repairing freight-train cars of foreign lines having trackage rights over the carrier's line, when damaged by collision, wreck, or other cause, for which the carrier is liable, shall be charged to account No. 416, "Damage to Property."

315. FREIGHT-TRAIN CARS—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of freight-train cars. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the percentages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

Depreciation charges with respect to any freight-train car

shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.

NOTE.—All charges to this account for depreciation of the carrier's equipment shall be concurrently credited to balance-sheet account No. 776, "Accrued Depreciation—Equipment."

316. FREIGHT-TRAIN CARS—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of freight-train cars retired from service and the amount of accrued depreciation charged on account of such retired cars, to the date of their retirement.

NOTE.—Freight-train cars permanently retired from service but held pending disposition, shall be written out of service, and carried in an appropriate suspense account at an equitable valuation.

317. PASSENGER-TRAIN CARS—REPAIRS.

This account shall include the cost of repairing passenger-train cars and appurtenances and passenger car features of motor cars used in transportation service; small hand tools used in repairs; the net loss sustained on account of the destruction of foreign passenger-train cars in the carrier's transportation service, and amounts paid others for repairs of passenger-train cars for which the carrier is liable.

NOTE A.—The cost of candles, wicks, and lamp chimneys, and of globes and shades for electric and other lights in passenger-train cars shall be charged to account No. 402, "Train Supplies and Expenses."

NOTE B.—The cost of repairing passenger-train cars of foreign lines, which are waybilled as freight and have been damaged in transit, shall be charged to account No. 418, "Loss and Damage—Freight," and the cost of repairing passenger-train cars of foreign lines having trackage rights over the carrier's line, when damaged by collision, wreck, or otherwise, for which the carrier is liable, shall be charged to account No. 416, "Damage to Property."

318. PASSENGER-TRAIN CARS—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of passenger-train cars. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the percentages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

Depreciation charges with respect to any passenger-train car shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.

NOTE.—All charges to this account for depreciation of the carrier's equipment shall be concurrently credited to balance-sheet account No. 776, "Accrued Depreciation—Equipment."

319. PASSENGER-TRAIN CARS—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of passenger-train cars retired from service and the amount of accrued depreciation charged on account of such retired cars to the date of their retirement.

NOTE.—Passenger-train cars permanently retired from service, but held pending disposition, shall be written out of service and carried in an appropriate suspense account at an equitable valuation.

320. MOTOR EQUIPMENT OF CARS—REPAIRS.

This account shall include the cost of repairing motor equipment affixed to cars; also cost of small hand tools used in repairs. The cars to which this account has reference are distinct from independent locomotives used for the propulsion of trains.

321. MOTOR EQUIPMENT OF CARS—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of the motor equipment of cars. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the percentages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

Depreciation charges with respect to the motor equipment of cars shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.

NOTE.—All charges to this account for depreciation of the carrier's equipment shall be concurrently credited to balance-sheet account No. 776, "Accrued Depreciation—Equipment."

322. MOTOR EQUIPMENT OF CARS—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of motor equipment of cars retired from service, and the amount of accrued depreciation charged on such retired equipment to the date of its retirement.

NOTE.—The motor equipment of cars permanently retired from service but held pending disposition shall be written out of service and carried in an appropriate suspense account at an equitable valuation.

323. FLOATING EQUIPMENT—REPAIRS.

This account shall include the cost of repairing floating equipment (other than work equipment), including appurtenances, and cost of small hand tools used in repairs.

The pay and expenses of captains and engineers and of boat employees, while engaged on maintenance of floating equipment, shall be included in this account.

NOTE A.—When the compensation for the use of floating equipment includes rent, maintenance, and operation, the por-

tion covering rent shall be included in income account No. 539, "Rent for Floating Equipment," the portion covering repairs shall be included in this account, the portion covering depreciation shall be included in account No. 324, "Floating Equipment—Depreciation," and the portion covering operation shall be included in account No. 408, "Operating Floating Equipment," or in the primary accounts in general account V, Transportation—Water Line, as may be appropriate.

NOTE B.—The cost of repairs resulting from casualties shall be charged to the casualty accounts when covered by insurance and to insurance reserves to the extent of the accruals therein when such reserves have been provided for the damage to property. Any part of such cost not recoverable from underwriters or chargeable to insurance reserves shall be charged to the repair account.

324. FLOATING EQUIPMENT—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of floating equipment other than work equipment. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the percentages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

Depreciation charges with respect to any floating equipment shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.

NOTE A.—All charges to this account for depreciation of the carrier's equipment shall be concurrently credited to balance-sheet account No. 776, "Accrued Depreciation—Equipment."

NOTE B.—When the compensation for the use of floating equipment includes rent, maintenance, and operation, the portion covering rent shall be included in income account No. 539, "Rent for Floating Equipment," the portion covering repairs shall be included in account No. 323, "Floating Equipment—

Repairs," the portion covering depreciation shall be included in this account, and the portion covering operation shall be included in account No. 408, "Operating Floating Equipment," or in the primary accounts in general account V, Transportation—Water Line, as may be appropriate.

325. FLOATING EQUIPMENT—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of floating equipment, other than work equipment, retired from service and the amount of accrued depreciation charged on account of such retired equipment to the date of its retirement.

NOTE.—When floating equipment is permanently retired from service but held pending disposition, it shall be written out of service and carried in an appropriate suspense account at an equitable valuation.

326. WORK EQUIPMENT—REPAIRS.

This account shall include the cost of repairing rail and floating work equipment, including appurtenances, and cost of small hand tools used in repairs.

The cost of fitting up commercial cars for work service in connection with maintenance and operation; the cost of refitting them for commercial service; the cost of repairs to locomotives while in service for repairs of road and equipment; and the cost of repairs to foreign cars damaged while in such service shall be included in this account; also amounts paid in settlement for such cars destroyed in such service.

NOTE.—The cost of repairs to work equipment on account of construction work shall be included in the cost of the construction work on which it is used.

327. WORK EQUIPMENT—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of work equipment. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment, determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the percent-

ages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

Depreciation charges with respect to any work equipment shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.

NOTE.—All charges to this account for depreciation of the carrier's equipment shall be concurrently credited to balance-sheet account No. 776, "Accrued Depreciation—Equipment."

328. WORK EQUIPMENT—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of work equipment retired from service and the amount of accrued depreciation charged on account of such retired equipment to the date of its retirement.

NOTE.—When work equipment is permanently retired from service, but held pending disposition, it shall be written out of service and carried in an appropriate suspense account at an equitable valuation.

329. MISCELLANEOUS EQUIPMENT—REPAIRS.

This account shall include the cost of repairing miscellaneous equipment, such as wagons, automobiles, and other highway vehicles, and harness.

330. MISCELLANEOUS EQUIPMENT—DEPRECIATION.

This account shall include uniform monthly charges representing the depreciation of miscellaneous equipment. These charges shall be based upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of such equipment, determined to be equitable from the carrier's experience and best sources of information as to the average current loss from depreciation. A statement of the bases used by the carrier for computing these charges shall be included in its annual report to the Commission.

NOTE.—All charges to this account for depreciation of the carrier's equipment shall be concurrently credited to balance-sheet account No. 776. "Accrued Depreciation—Equipment."

331. MISCELLANEOUS EQUIPMENT—RETIREMENTS.

This account shall include amounts necessary to adjust the difference between the ledger value (less salvage) of miscellaneous equipment, including horses, retired from service and the amount of accrued depreciation charged on account of such retired equipment to the date of its retirement.

NOTE.—Miscellaneous equipment permanently retired from service, but held pending disposition, shall be written out of service and carried in an appropriate suspense account at an equitable valuation.

332. INJURIES TO PERSONS.

This account shall include expenses on account of injuries to persons which occur directly in connection with repairs of equipment.

Services of employees and others called in consultation in relation to claim adjustments, pay and expenses of employees while engaged as witnesses at inquests and lawsuits, and a suitable proportion of donations made to hospitals shall be included in this account.

NOTE A.—Expenses incident to personal injury suits, not otherwise provided for, shall be included in account No. 454, "Law Expenses."

NOTE B.—Amounts donated by a carrier to hospitals shall be distributed, 25 per cent. to account No. 274, "Injuries to Persons"; 25 per cent. to account No. 332, "Injuries to Persons"; and 50 per cent. to account No. 420, "Injuries to Persons."

NOTE C.—The pay, office rent, and office and other expenses of claim adjusters, claim clerks, and others in charge of or engaged in connection with claim cases, when not assignable to a distinct class of claims, shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged.

333. INSURANCE.

This account shall include premiums, except reinsurance premiums, for insuring the carrier against loss, through injuries to persons or damage to or destruction or loss of property, whether caused by fire, accident, or other cause, when

such loss to the carrier would be chargeable to Maintenance of Equipment; also premiums on fidelity bonds of employees whose pay is chargeable to Maintenance of Equipment.

NOTE.—The premiums paid by the carrier to its insurance fund shall be credited to an insurance reserve account, to which account shall be charged the amount of all claims for injuries to persons and damages to the property covered by its insurance. To such account shall also be charged all reinsurance premiums paid to insurance companies, and to it shall be credited all amounts recovered from insurance companies for damage to the property reinsured by them.

334. STATIONERY AND PRINTING.

This account shall include the cost of stationery and printing used in connection with maintenance of equipment.

335. OTHER EXPENSES.

This account shall include expenses in connection with the maintenance of equipment not properly chargeable to other accounts for maintenance of equipment or to clearing accounts such as "Material Store Expenses" and "Shop Expenses."

ITEMS OF EXPENSE

Pay and expenses of mechanical department employees attending conferences with officers in connection with mechanical department wage disputes.

Fees paid arbitrators in connection with mechanical department wage disputes.

Payments to mechanical department employees for time absent on account of sickness when not in compensation for personal injuries.

336. MAINTAINING JOINT EQUIPMENT AT TERMINALS —DR.

This account shall include the carrier's proportion of expenses incurred by others in maintaining equipment used for the operation of joint terminals, including the carrier's proportion of expenses of repairing equipment made necessary

by accidents in terminals, when such expenses are participated in by more than one party using the joint terminals.

NOTE.—The purpose of this account is to show the amount accruing against the carrier for its proportion of the expense of maintaining equipment at terminals which is maintained by others and in the joint use of which the carrier participates.

337. MAINTAINING JOINT EQUIPMENT AT TERMINALS —CR.

This account shall include amounts chargeable to others as their proportions of expenses incurred by the carrier in maintaining equipment used for the operation of joint terminals, and for expenses of repairing equipment made necessary by accidents in terminals, when such expenses are participated in by more than one party using the joint terminals.

NOTE.—The purpose of this account is to show the amounts accruing in favor of the carrier and against others for their proportions of the expense of maintaining equipment at terminals which is maintained by the carrier and in the joint use of which others participate.

CHAPTER VI

TRAFFIC EXPENSES

Before the Interstate Commerce Commission's rules of accounting were put into effect in 1907 it was customary for railroads to keep in one general account the expenses of "Conducting Transportation," which included both the cost of securing traffic and the cost of handling it. In other words, the sales cost and the manufacturing cost were not separated. The Interstate Commerce Commission has split up the general account Conducting Transportation into two general accounts, Traffic Expenses and Transportation Expenses. Traffic Expenses includes advertising and the other expenses of securing traffic, while Transportation Expenses includes only the cost of moving freight and passengers.

In a manufacturing business, selling cost is often a large per cent. of the total expenses. In the business of the manufacture and sale of transportation, the cost of securing traffic, which corresponds only roughly with the industrial manufacturer's sales costs, is only a very small percentage of the total operating expenses. Traffic expenses are but slightly more than 2 per cent. of the total operating revenues for all roads in the United States.

Traffic expenses can be justified either because the traffic department creates new business or secures business for one road which would without the efforts of the traffic department go to another road.

Two rather notable examples of railroad advertising, both of which were considered successful by the companies, were

the Delaware, Lackawanna & Western's advertising of its service between New York and Buffalo, and the Great Northern's advertising of the advantages of the territory which it reaches. In the case of the Great Northern, Louis Hill, who was at that time president, took a personal interest in the work of the traffic department in advertising the advantages of locating in that section of the Northwest served by the Great Northern; and, as in the case of all successful advertising, not only was the literature that was distributed made attractive, but the company actually had a solid foundation for their advertising statements. This advertising was for the purpose of interesting people in travel who would not have otherwise traveled, and only secondarily was his object to take business away from other railroads. The Delaware, Lackawanna & Western's advertising, on the other hand, was for the purpose of getting competitive business. They picked out the points about their own service which they considered, distinguished it from the service of other roads running between New York and Buffalo and put these points before the public in a very attractive form. Here again the advertising was successful because the statements made by the passenger department were founded on fact.

Rate-making is a science, and the prosperity of large sections of the country may be materially affected by the railroad rates which they enjoy. Before the Hepburn amendment to the Act to Regulate Commerce was passed in 1907, the rate-making power on interstate traffic lay largely with the railroad companies themselves. Rates were adjusted for the purpose of securing business, even if what is now considered unjust discrimination resulted. Rates were cut to individual large shippers and rebates were given. Much of the rate-making power of the railroads was taken away by the Hepburn amendment and indirectly given to the Interstate Commerce Commission, and the

Mann-Elkins amendment further deprived the roads of this power by compelling them to justify before the Interstate Commerce Commission any increase in rates before they could be made effective.

In the past, the way business was obtained in the face of competition was to cut prices. This led, on the one hand, to rate wars, and on the other to rebates to large shippers. The railroads themselves, through the "community of interest," have eliminated to a large extent the evils of rate wars, and it is largely through the railroads themselves, under the leadership of the late A. J. Cassett, that an end was put to rebates to large shippers. The Interstate Commerce Commission and the legislature have always taken credit to themselves for stopping rebating, and, of course, what actually stopped rebating was the Hepburn amendment, which made this practice a criminal offense punishable by imprisonment. It was, however, the decision of Mr. Cassett, then president of the Pennsylvania Railroad, to throw the whole influence of the Pennsylvania against rebates that made possible the passage of these sections of the Hepburn amendment. With rates the same on different roads between the same points, and the same for different shippers for the same haul, the traffic department became largely an industrial department, or commercial department, as it is called in England.

Not only should a traffic department endeavor to develop the territory served by a railroad, to exploit the natural resources, and to encourage manufacture and agriculture in its territory, but its officers can also study the requirements of their own property with a view to developing the kind of traffic that it will be the most profitable for the road to carry. Thus, on a comparatively short north and south road the president who acted as head of the traffic department as well as head of the operating department, after studying the situation with great care, induced

an ore furnace company to locate a large plant at the southern end of the railroad. Before the location of this ore furnace the railroad had hauled almost all of its coal cars southbound empty. With the establishment of the furnace a considerable portion of these cars could be loaded with lake ore and hauled south at a very trifling increase in expenses.

The English law prescribing the form of railroad accounts does not separate the costs of conducting transportation and of securing the traffic. The following general accounts are called in the English classification Traffic Expenses. It will be seen that Printing, Advertising, Stationery, Stamps and Tickets are about all the expenses that would be included under the Interstate Commerce Commission system in Traffic Expenses. The remaining accounts are Transportation Expenses.

Salaries and wages.

Superintendence, station masters and clerks.

Signalmen and gatemen.

Ticket collectors, policemen, porters, etc.

Guards.

Fuel, lighting, water and general stores.

Clothing.

Printing, advertising, stationery, stamps and tickets.

Wagon covers, etc.

Expenses of joint stations and junctions.

Cleansing, lubricating and lighting vehicles.

Shunting expenses (switching charges).

Washing of stationary engines, hoists, cranes, etc.

Coal, etc., tipping expenses.

Railway clearing house expenses.

Miscellaneous expenses.

The English classification has not tried to separate selling costs under an entirely different heading as has the Interstate Commerce Commission. The expenses which are

called traffic expenses here include in part the cost of manufacture of transportation and in part the selling cost; but the English accounts are so arranged that anyone studying them can roughly make this separation for himself.

The following pages contain the rules in the latest classification of expenses prescribed by the Interstate Commerce Commission for charging items to the primary accounts under this general head.

III. TRAFFIC.

The primary accounts included in this general account are designed to show the expenses incurred for advertising, soliciting, and securing traffic for the carrier's lines and for preparing and distributing tariffs governing such traffic.

The accounts for traffic expenses shall be kept in such manner as to show separately, by primary accounts, the expenses directly assignable to water-line operations.

351. SUPERINTENDENCE.

This account shall include:

PAY OF OFFICERS.—The pay of officers directly in charge of or engaged in supervising the procurement of traffic, and the preparation and distribution of tariffs, division sheets, and classifications.

PAY OF CLERKS AND ATTENDANTS.—The pay of clerks and other employees in the offices and on business cars of officers whose pay is chargeable to this account.

OFFICE AND OTHER EXPENSES.—Office expenses and other expenses of officers and employees whose pay is chargeable to this account.

NOTE A.—When officers designated above have supervision over more than one department, their salaries, the pay of their clerks and attendants, and their office and other expenses shall be apportioned equally among the departments over which they have jurisdiction.

NOTE B.—The pay and expenses of officers engaged exclusively in soliciting traffic are chargeable to account No. 352, "Outside Agencies."

NOTE C.—The cost of stationery for traffic offices is chargeable to account No. 358, "Stationery and Printing," except stationery chargeable to accounts Nos. 354, 355, and 356.

352. OUTSIDE AGENCIES.

This account shall include the pay, and the office, traveling, and other expenses of general, commercial, city, and district agents and others soliciting traffic, the employees of their offices, and traveling agents and solicitors located on or off the line of the carrier's road.

City ticket and freight offices, separate from regular station ticket and freight offices, shall be treated as outside agencies; the pay and expenses of the employees therein and the expenses of such offices shall be charged to this account.

Commissions for services pertaining to either freight or passenger business, except commissions paid in lieu of salaries to carrier's agents located upon the carrier's own line (which shall be charged to account No. 373, "Station Employees"), shall be included in this account.

353. ADVERTISING.

This account shall include the cost of advertising for the purpose of securing traffic; pay of advertising agents, their clerks and attendants; rent of offices, and the office, traveling, and other expenses of such employees; also donations to carnivals, local development associations, summer schools, and other gatherings, when made for the purpose of increasing traffic.

NOTE.—Advertising expenses of industrial and immigration bureaus shall be included in account No. 356, "Industrial and Immigration Bureaus."

354. TRAFFIC ASSOCIATIONS.

This account shall include the cost to the carrier of participation in traffic associations, including its proportion of the pay of officers and employees of such associations and

of their office, stationery and printing, traveling, and other expenses.

355. FAST FREIGHT LINES.

This account shall include the cost to the carrier of participation in fast freight or dispatch organizations, including its proportion of the pay of officers, soliciting agents, and employees of such organizations, and their office, stationery and printing, traveling, and other expenses.

356. INDUSTRIAL AND IMMIGRATION BUREAUS.

This account shall include the cost to the carrier of industrial and immigration bureaus, including the pay of industrial and immigration agents, and exhibit agents, their clerks and attendants and their office, stationery and printing, traveling, and other expenses.

357. INSURANCE.

This account shall include premiums, except reinsurance premiums, for insuring the carrier against loss through injuries to persons or damage to or destruction or loss of property, whether caused by fire, accident, or other cause, when such loss to the carrier would be chargeable to Traffic; also premiums on fidelity bonds of employees whose pay is chargeable to Traffic.

NOTE.—The premiums paid by the carrier to its insurance fund shall be credited to an insurance reserve account, to which account the amount of all claims for injuries to persons and damages to the property covered by its insurance shall be charged. To such account shall also be charged all reinsurance premiums paid to insurance companies, and to it shall be credited all amounts recovered from insurance companies for damage to the property reinsured by them.

358. STATIONERY AND PRINTING.

This account shall include the cost of stationery and printing used in connection with securing traffic, including the cost of tariffs governing such traffic.

NOTE A.—The cost of dictionaries, periodicals, technical books, etc., shall be included in the appropriate superintendence accounts.

NOTE B.—The cost of stationery and printing used by the traffic associations, fast freight lines, and industrial and immigration bureaus shall be included in the accounts provided for the expenses of such organizations.

359. OTHER EXPENSES.

This account shall include all expenses in connection with traffic not properly chargeable to other traffic accounts.

CHAPTER VII

TRANSPORTATION EXPENSES

Transportation expenses (rail) are the expenses of the company directly incurred in handling passengers and freight, mail and express, etc., carried in its trains. Maintenance expenses may at times be deferred and are to some degree influenced by the general prosperity of the company. They may be high or low in response to a policy of the management. Transportation expenses, however, are compulsory. If the freight rate or the passenger fare is to be earned, the business must be moved. There is, especially in the case of freight, some latitude as to how quickly it is necessary to move business, but the accounts themselves under Transportation Expenses designate the particular item for which the expenditure was incurred. Every dollar in transportation expenses that a management, by increasing its efficiency, can save, is a clear gain. There can be no question as to whether or not a saving in transportation expenses is made by starving the property or by postponing expenses that should have been made now but will in any case eventually have to be made. About the only error in judgment that a management can show in cutting down transportation expenses is to reduce service, either in the number of trains or in their speed, to such an extent that this company will lose business.

The security holder of a railroad company or the prospective investor in railroad securities should scrutinize carefully any radical reduction in expenses that is made

in either maintenance of way or maintenance of equipment; but a reduction in transportation expenses without any falling off in the revenue of the road may be fairly safely accepted as a reflection of increased efficiency; it may be the subject of investigation as far as the internal management of a company is concerned, but it is one that may be safely left by the stockholders to their management.

Transportation expense accounts are not usually subject to manipulation. It is true that one of the most telling arguments used in rebuttal against the railroad's 1910 case for higher freight rates was the accusation—for almost no direct proof was offered in substantiation—that the railroads were losing huge sums of money through inefficient management. One reason that this accusation took such firm hold in the imagination of the public was that the great majority of people, while they have not the training or experience to understand the problems that have been overcome by railroad managers in this country, are quick to recognize waste and extravagance and have seen instances of both waste and extravagance on railroad lines. Until there comes about a radical change in the attitude of investors in transportation securities the needs of security holders for information would be amply met if transportation expenses were reported without further subdivision by railroad companies. This would be quite certainly so if railroads were to divide their transportation expenses as between passenger business and freight business. As will be shown at some length in a later chapter, the greater part of transportation expenses can quite accurately be divided between these two classes of service. Security holders then, in respect to transportation expenses, could get a comparison as between different roads of the *transportation expenses* per ton mile and per passenger mile, costs and the ratio of *transportation* expenses per ton mile to average receipts per ton mile, and the ratio of passenger *transporta-*

tion expenses per passenger mile to receipts per passenger per mile. This would form a basis for a good working judgment of the earning power of a railroad company after manufacturing costs had been deducted which, if taken in connection with a detailed study of maintenance expenditures, would constitute a knowledge on which to make an investment.

If we were to entirely divorce accounting and statistics, therefore, and consider information compiled for the purpose of statistics as outside of the province of accounting, it would not be necessary to go into any elaborate analysis of the primary accounts which come under the head of transportation expenses. But, as has been pointed out, if railroad accounting is to fully meet the requirements which may properly be made on it, the accounts should be capable of forming the basis of the current statistical information which a railroad management requires in the conduct of its business. As railroad systems have increased in size, the importance of this function of accounts, namely, to form the basis of statistics, has greatly increased.

The reason for this is obvious. The larger a railroad system the more impossible it becomes for the man having final authority to have a personal knowledge of the daily detailed working of the property. The larger the property the more dependent is the man having the final authority on either the opinion of his subordinates or the information furnished him through statistics.

Many of the older generation of American railroad men have been slow to acknowledge, if not to recognize, this fact, and even slower to recognize the fact that not only are they dependent on statistics to control expenses, but their subordinates are becoming more and more dependent on statistics also, and the statistics furnished subordinates can only be of real help to them if the subordinates understand the basis on which the figures have been compiled.

The often quoted statement made before the Interstate Commerce Commission in 1910 that \$1,000,000 a day could be saved in railroad operating expenses through greater efficiency was a startling statement, but was to some extent borne out by savings that were subsequently made in renewed efforts that were made by the railroad companies to increase their efficiency.

The majority of railroad officers, until recent years, were willing and able to rely on their own judgment of character in selecting their subordinate officers, and on their own knowledge of conditions gained at first hand. When the burden of supervision had grown so large that it was physically impossible for a general manager to keep in close personal touch with his subordinate officers and with the property, old methods and former prejudices stood in the way of the proper use of what Ray Morris calls, in his book, "Railroad Administration," "control by statistics." There were two contributing causes. Railroad accounting had been very much at the mercy of executives whose training had developed shrewd business instincts but arbitrary methods, and whose respect for the means was often entirely outweighed by their desire for the end, which was sometimes obtained by manipulation of accounts. For this reason accounts were in some instances looked on by general managers and general superintendents as immaterial when compared with the net result. The other important reason for neglect to use accounts and statistics as a means of control of expenses was the working of the law which applies to nearly all businesses, namely, that during a time of pressure the science of conducting the business is neglected while men are actually engaged in getting the business done. Intensive methods were not appreciated in the early days of railroading and were hardly necessary.

The Pennsylvania Railroad has had both the opportunity and the incentive to go far ahead of most other railroad

companies in studying and developing the scientific side of manufacturing transportation on a large scale. Here and there over the country there were men of genius who were capable not only of developing traffic facilities and building up a great transportation machine, but also of keeping such control over their expenses that their stockholders were able to reap a large share of the profit resulting from their work. In the great majority of cases, however, methods of operation and the plant used in operation have been changing so rapidly that scientific statistical methods based on experience in a sufficient number of cases has been impossible of attainment. It has been stability of management and stability of conditions that have made the great intensive development of the Pennsylvania Railroad possible.

The Pennsylvania, before the Interstate Commerce Commission put into effect its rules for uniform accounting, divided conducting transportation expenses under thirty-six primary accounts, two of which, Advertising and Foreign Agencies, were expenses incident to obtaining business and were transferred bodily to traffic expenses when the commission's rules for accounting went into effect in 1907. The commission's system of transportation expense accounts was an elaboration of the Pennsylvania practice, and the latest revised rules, which are printed at the end of this chapter and under which no reports have as yet been made, are a still further elaboration along the same general lines.

The Interstate Commerce Commission's efforts to develop a system of expense accounts have been directed toward the elaboration of a cost system. This, of course, has been the line of development that has been followed in industrial manufacturing accounting, but the problems to be met by a railroad company are on a scale so much greater than that of an industrial manufacturing company that there is a question as to whether or not the commission might not have aided railroad managements more by a system of ac-

counts more closely following the English system. Since, however, cost accounting is the end toward which the commission is working, it is fair to examine their classification of transportation expenses with a view to determining the adequacy of this system of accounts to serve as a basis for arriving at costs.

It might have been better to have divided all operating expenses in such a way as to keep separate productive expenses and non-productive expenses. Overhead expenses are in this consideration non-productive. All of the expenses that come under the head of traffic expenses and general expenses are non-productive. If a railroad management can make a separation between productive expenses and non-productive, it is in a position to hold non-productive expenses down to a minimum. If, however, these two classes of expenses are lumped together as the cost of performing some particular service, the accounts are less of an aid to the management either for detecting extravagance or of effecting economies.

It is obvious that before any comparison of costs can be made as between different periods of time on the same road, or as between different railroads, some measure of work done must be adopted. It was found in studying costs of maintenance that both the size of the plant and the work required from the plant had to be considered in determining the relative costs of repairs and renewals. In addition to this there was the factor of standard of the plant. Thus, renewals of the same proportion of parts on a Mallet locomotive were much more expensive than on a switching locomotive; and while it is often said that the higher the standard originally adopted in construction of the plant the lower will be the annual maintenance expenses, this has not actually been the history of American railroad maintenance expenses, and there is some question as to whether or not it is a true statement of fact. On the other hand,

experience has shown conclusively that if the volume of business justifies it, the condition of the plant tends to diminish the cost of transportation.

Thomas F. Woodlock, in his classic essay on ton mile cost, published a good many years ago, points out that transportation is made up of quantity multiplied by distance, quantity for freight service being usually measured in tons, and for passenger service in passengers, distance being measured in miles. We thus get the two quantitative units in almost universal use in America, namely, the ton mile and the passenger mile.

The ton mile and passenger mile have been so universally accepted in this country that American railroad men have sometimes lost sight of the inaccuracies of these units as the quantitative measure in arriving at the cost of manufacturing transportation. A ton composed of a mixed assortment, including a cook stove, a plowshare, a bag of potatoes, a box of soap, a roll of barbed wire, etc., has little in common when it comes to transporting it a mile with a ton of coal, except that both exert the same pressure on the springs and axles of the car in which they are carried. The English railroad practice has been diametrically opposed to American practice on this question of ton mileage. The English divide the traffic of their railroads as between passengers, goods and minerals. Their quantitative measure for goods is generally the wagon load, and for minerals, the ton.

For our present purposes, instead of further subdividing or getting additional quantitative measures for transportation, we want to get one measure which will apply to both freight and passengers. The accompanying chart and its explanatory notes suggest a quantitative measure, units of service, A, which can be used for a comparison of transportation costs on the same road in different periods with a fair degree of accuracy.

	Per Cent. Labor	Per Cent. Materials	Per Cent. Overhead	Per Cent. Terminal	Per Cent. Yard	Per Cent. Train Movement	Quantitative Measure
371 Superintendents.....	90	10	100	....	....	....	A
372 Dispatching Trains.....	95	5	....	....	....	100	Train Miles *
373 Station Employees.....	100	....	....	100	....	....	....
374 Weigh'g, Inspect'n and Demurrage Bur.	100	....	....	100	....	....	....
375 Coal and Ore Wharves.....	95	5	....	100	....	....	....
376 Station Supplies and Expenses.....	....	100	....	100	....	....	....
377 Yard Masters and Yard Clerks.....	100	....	....	....	100	....	A
378 Yard Conductors and Brakemen.....	100	....	....	....	100	....	A
379 Yard Switch and Signal Tenders.....	100	....	....	....	100	....	A
380 Yard Enginemen.....	100	....	....	....	100	....	A
381 Yard Motormen.....	100	....	....	....	100	....	A
382 Fuel for Yard Locomotives.....	5	95	....	....	100	....	A
383 Yard Switching Power Produced.....	60	40	....	....	100	....	A

* These expenses should be divided in the same proportion as are the total of all other expenses.

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384 Water for Yard Locomotives.....	20	80	100	A
385 Lubricants for Yard Locomotives.....	100	100	A
386 Other Supplies for Yard Locomotives..	....	100	....	....	100	....	A
387 Engine House Expenses Yard.....	50	50	....	....	100	....	A
388 Yard Supplies and Expenses.....	....	100	....	....	100	....	A
389 Operating Joint Yards and Terminals..	....	....	....	....	....	....	....
390 Train Enginemen.....	100	....	....	....	....	100	A
391 Train Motormen.....	100	....	....	....	....	100	A
392 Fuel for Train Locomotives.....	5	95	....	....	....	100	A
393 Train Power Produced.....	60	40	....	....	....	100	A
394 Train Power Purchased.....	....	100	....	....	....	100	A
395 Water for Train Locomotives.....	20	80	....	....	....	100	A
396 Lubricants for Train Locomotives.....	....	100	....	....	....	100	A
397 Other Supplies for Locomotives.....	....	100	....	....	....	100	A

	Per Cent. Labor	Per Cent. Materials	Per Cent. Overhead	Per Cent. Terminal	Per Cent. Yard	Per Cent. Train Movement	Quantitative Measure
398 Engine House Expense Trains.....	50	50	....	....	....	100	A
399 Train Men.....	100	....	....	....	....	100	A
400 Train Supplies and Expense.....	15	85	....	....	....	100	A
401 Operating Sleeping Cars.....	95	5	....	....	....	100	A
402 Signal and Interlocker Operation.....	85	15	....	....	....	†	A
403 Crossing Protection.....	95	5	....	....	....	100	A
404 Draw Bridge Operation.....	85	15	....	....	....	100	A
405 Telegraph and Telephone Operation...	85	15	....	....	....	100	A
406 Operating Floating Equipment.....	60	40	....	100	....	....	....
407 Express Service.....	90	10	....	100	....	....	....
408 Stationery and Printing.....	....	100	100	....	....	....	A
409 Other Expenses.....	....	100	100	....	....	....	A

† The percentage chargeable to train movement and to terminal can only be determined by the percentage of signals and interlocking plants on line and at terminals.

410	Operating Joint Tracks and Facilities..	....	....	....	....	....	....	....	....
411	Insurance.....	....	100	....	....	....	....	....	A
412	Clearing Wrecks.....	90	10	....	....	....	....	100	A
413	Damage to Property.....	....	100	....	....	....	....	100	A
414	Damage to Live Stock.....	....	100	....	....	....	....	100	A
415	Loss and Damage, Freight.....	5	95	....	15	65	....	20	A
416	Loss and Damage, Baggage.....	5	95	....	90	....	....	10	A
417	Injuries to Persons.....	15	85	....	5	65	....	30	A

NOTE.—Of course a table of this kind would have to be made up for each particular road on a different basis, the percentages shown in the above table simply being what might be called normal for a road doing a freight business from which it derived about 75 per cent. of its revenue and a passenger business from which it derived the other 25 per cent.

NOTE.—Unit of service A is what might be called a theoretically weighted ton mile. It is arrived at by determining first, the average number of passengers per passenger-train mile over a period of four years. The average freight-train load of revenue freight for four years is then determined, and on the basis of the relationship of these four-year averages a theoretical equivalent in ton miles of each passenger mile is arrived at. This figure is then applied to the business done in the year under review or in the month or period which is being studied—example: If it is found that the average number of passengers per passenger-train mile for five years has been 40, and the average revenue train load for this period 400 tons, then one passenger mile is equivalent to 10 ton miles. The present year's business, therefore, expressed in units of service is 10 times the passenger miles, plus the total ton miles. If two different roads are to be compared, this system of arriving at units of service has little more value than a comparison of costs per train mile; but where the same roads showing from one period to another is to be compared, it is thought that this method, which properly reflects an increase in train loading either in passen-

Not only does the ton as a quantitative measure fail of accuracy, but the mile also is an inaccurate measure to be used in arriving at the cost of service. The locomotive mile is the direct cause of transportation expenses. Transportation of either passengers or freight includes certain overhead charges which have little, if any, relation to the number of locomotive miles; also certain terminal charges which are little affected by distance, and also yard expenses, which apply rather to freight than to passengers, but which are not directly affected by the number of locomotive miles.

ger business or freight business, is a considerably more accurate basis on which to figure transportation expenses than would be the train mile.

NOTE.—In dividing labor and material expenses it is necessary, of course, to distinguish between labor paid directly by the railroad company and the cost of labor which enters into the cost of materials. Of course, traced back to a final analysis, all material costs are the aggregate of labor costs. In the accompanying table, therefore, by labor is meant labor which is on the payrolls of the railroad company. It is a real defect in the Interstate Commerce Commission's system of accounts that this distinction between cost of materials and cost of labor is not kept strictly separate. Railroad employees' wage controversies are now very generally settled by arbitration, especially when they involve the wages of men engaged in train operation, and the question of what wages the company or companies are now paying and what effect an increase would have is a continual bone of contention and one which it is almost impossible to answer satisfactorily since the Interstate Commerce Commission's accounts do not show wages separate from material costs. In the table the figures, of course, are simply an approximation, since actual costs on different roads may vary considerably. Thus, under Water for Yard Locomotives, which includes the supplies for water stations as well as the wages of men engaged in pumping or attending water stations, one road may have a service which requires a fairly large proportion of the total expenditures for supplies, while on another supplies may be but an insignificant sum as compared with labor costs.

THE TRANSPORTATION EXPENSES DIVIDED AS BETWEEN OVERHEAD TERMINAL, YARD AND TRAIN MOVEMENT
ON DISSIMILAR ROADS, 1912
(Old Classification)

	Overhead	Per Cent.	Terminal	Per Cent.	Yard	Per Cent.	Train Movement	Per Cent.
Southern Ry.	\$ 845,079	4	\$ 3,456,268	16	\$ 4,016,350	18	\$13,760,623	62
Ches. & Ohio	417,137	4	1,401,124	13	2,564,108	24	6,273,410	59
Illinois Central.....	1,154,556	5	4,852,496	21	3,699,138	15	13,948,730	59
Southern Pac.	1,580,841	4	7,205,753	19	5,185,098	13.5	24,292,184	63.5
Hocking Valley	104,255	4	401,418	18	624,352	28	1,139,935	50
Pennsylvania.....	4,314,746	7	11,467,401	18	12,085,718	19	35,017,652	56
C. R. I. & P.	1,047,980	4	3,836,990	15	4,100,177	16	17,215,139	65

What we would like to do, of course, is to find some quantitative measure of business done which could be applied to overhead charges, to terminal costs, to yard costs and to train movement costs. It is obvious that there will be no accurate measure on which to base overhead charges. The very fact that increased overhead charges, if it represents a higher grade of superintendence, may decrease terminal, yard and train movement expenses out of all proportion to the increase per unit, whatever that unit may be, of business done, throws suspicion on any unit to be used in determining cost of overhead charges. It will be seen that not only is there an interlacing of overhead charges with the other three classes of expenses, but there are interrelations between these three classes of expenses themselves which it is difficult, if not impossible, to analyze in any way which will cover all of the possible cases that may arise. The table on page 162 shows each one of the primary accounts as prescribed by the Interstate Commerce Commission's new classification of transportation expenses, with the proportion of each charge which may be properly allocated to overhead, terminal, yard or train movement. The table also shows the per cent. of each of the primary accounts which is spent respectively for labor and materials, and shows a rough quantitative measure which may be used in estimating the cost of each class of service. The table on page 167 shows the total overhead, terminal, yard and train movement expenses in 1912 for each of seven widely separated roads, and also shows the percentage of each class of expenses to total transportation expenses.

If transportation expenses are kept allocated as between passenger and freight service, the ton mile is the proper quantitative unit to use for train movement expenses in freight service, and the passenger mile in passenger service. If, however, no allocation as between the two classes of

service is made, it becomes necessary as suggested in the note to the table, to formulate some common denominator as between passenger miles and ton miles. The unit cost arrived at by this method is principally of use in comparing one period with another for the same road. On the other hand, if one road were to show a much lower overhead, terminal and yard expense per unit than other roads similarly situated or doing a similar business, and also a lower unit cost of train movement, it would be quite safe to assume that the road with the lower unit costs would be doing its work more effectively and more economically than most of the other roads in that territory.

It will be noticed that the percentage of overhead, terminal, yard and train movement expenses to total expenses differs widely as between the different roads that are shown. Thus, train movement expenses on the Rock Island are 65 per cent. of the total expenses, while they are but 50 per cent. on the Hocking Valley; while yard expenses are 16 per cent. on the Rock Island and 28 per cent. on the Hocking Valley. The Pennsylvania is noticeable, especially because of the high percentage of overhead charges. Train movement, however, consumes but 56 per cent. of total expenses.

To return once again to the interrelation of the various charges: It may be that a railroad manager, by double-tracking out of a certain yard, might decrease his yard expenses while somewhat increasing his train movement expenses. On the other hand, it might be possible that a manager, by putting more engines in switching service in certain yards, might make up his train in such a way as to save very considerable amounts in wages of train crews and in road locomotive fuel without by any means increasing his yard expenses proportionately. Again, by cutting down the force of station employees, which is far in a way the largest item under terminal expenses, handling of freight

and, to a less extent, of passengers may be so delayed as to materially increase train movement and possibly yard expenses. To say, therefore, that a single one of the four classes of expenses are high without carefully analyzing the other three is to quite miss the point of this study of transportation expenses.

There is a practical drawback to the use of ton miles and passenger miles as a universal basis for gaging transportation expenses. The transportation department is not always left free in the matter of deciding as to what trains shall be run, as trains are required to be run by courts, and commissions often require the running of unprofitable trains. The moment that a wheel begins to turn expenses begin to accrue. It is not fair to a superintendent who has to run one or more passenger trains through a sparsely settled country where his average earnings per train mile will amount to but 80 cents or \$1.00, to compare his transportation expenses per passenger mile with a superintendent whose division and character of business permit of passenger-train earnings averaging \$1.00 to \$2.00 per mile. Another instance of this is when fast freight trains are often run on a schedule, to maintain which it is necessary to send out trains with only a part of their locomotive rating.

In connection, therefore, with an analysis of ton mile and passenger mile costs, or of the equated unit suggested in this chapter, a study should be made of the costs per train mile and the business handled, that is, passenger miles and ton miles per train mile; and in this connection also there should be stated the amount of helper and light mileage made by locomotives. If we find that although ton mile and passenger mile costs appear to be high, train mile costs are low, it is pertinent to inquire whether the small train load which this implies results from conditions and causes beyond the control of the operating department.

The further a study of transportation costs and transpor-

tation expenses is carried the more obvious it becomes that any intelligently adopted system for measuring transportation costs has the advantage of being an automatic sign post which will call attention to figures which need explanation. The explanation may be sufficient or not, but it is of importance that attention be called to the matter. Changes in expenses are either increases or decreases. The increases are what the management wants particularly called to its attention; and, of course, the more scientific the basis on which comparisons are made the more accurate will be the indication of changes.

THE INTERSTATE COMMERCE COMMISSION RULES FOR COMPILING TRANSPORTATION EXPENSES

IV. TRANSPORTATION—RAIL LINE.

The primary accounts included in this general account are designed to show expenses incurred for transporting persons and the property of others, including the expenses of station, train, yard, and terminal service; also the expense of transporting company material in transportation service trains.

371. SUPERINTENDENCE.

This account shall include:

PAY OF OFFICERS.—The pay of officers directly in charge of or engaged in conducting transportation.

PAY OF CLERKS AND ATTENDANTS.—The pay of clerks and others employed in the offices and on business cars of officers whose pay is chargeable to this account.

OFFICE AND OTHER EXPENSES.—Office expenses and other expenses of officers and employees whose pay is chargeable to this account; also the pay and expenses of employees attending investigations concerning the cause of or responsi-

bility for accidents, and amounts paid detective agencies and others for work in connection with such investigations.

NOTE A.—When officers designated above have supervision over more than one department, their salaries, the pay of their clerks and attendants, and their office and other expenses shall be apportioned equally among the departments over which they have jurisdiction.

NOTE B.—The cost of stationery purchased for transportation offices is chargeable to account No. 410, "Stationery and Printing."

372. DISPATCHING TRAINS.

This account shall include the pay of chief and other train dispatchers, their clerks, copying operators, and attendants, and pay of operators on the line whose duties are confined to directing train movements; also the office, traveling, and other expenses of such employees.

NOTE.—Pay of operators who also perform station work shall be charged to account No. 373, "Station Employees."

373. STATION EMPLOYEES.

This account shall include:

AGENTS, CLERKS, AND ATTENDANTS.—The pay of agents, clerks, and attendants in charge of, or engaged in, the operation of stations, wharves, and piers located on the carrier's line; also payments to such station or ticket agents in lieu of salaries.

Special payments to customs inspectors on account of opening and resealing cars under unusual conditions, and payments to produce exchange inspectors for inspecting, measuring, and weighing grain shall be here included.

LABOR AT STATIONS.—Station and other labor expended in handling freight, mail, baggage, and express at stations, wharves, and piers; in loading, unloading, feeding, and watering stock; in disinfecting stations, stockyards, and stock pens; in transferring, picking up, straightening, and reloading freight in the ordinary course of transportation; in miscellaneous station work, including (when done by station employees) cleaning station grounds, station platforms, walks,

stockyards, and stock pens, and removing snow and ice therefrom; and in tending switch lamps not in yards and terminals.

Payments to elevator companies (when not made as division of rate) for transferring grain en route, and payments to other companies and individuals for loading and unloading commercial freight under contract or otherwise shall be included in this account.

LIST OF EMPLOYEES

Baggage storeroom employees.	Mail carriers.
Car sealers.	Mail weighers.
Checkmen.	Station cleaners.
Coal handlers.	Stationary engineers.
Coopers.	Stationary firemen.
Delivery men.	Stevedores.
Electricians.	Stock-pen laborers.
Freight callers.	Tallymen.
Freight handlers.	Teamsters.
Freight house foremen.	Truckmen.
Freight loaders.	Warehousemen.
Freight unloaders.	Weighmasters.
Longshoremen.	

NOTE A.—The cost of transferring freight, mail baggage, and express on account of wrecks shall be included in account No. 415, "Clearing Wrecks."

NOTE B.—This account shall not include the pay of telegraph and telephone operators provided for under accounts No. 372, "Dispatching Trains," and No. 407, "Telegraph and Telephone Operation," or pay of employees provided for under account No. 375, "Coal and Ore Wharves."

374. WEIGHING, INSPECTION, AND DEMURRAGE BUREAUS.

This account shall include the cost to the carrier of its participation in joint weighing, inspection, demurrage, and car distribution bureaus and associations.

375. COAL AND ORE WHARVES.

This account shall include the cost of operating docks, and wharves, piers, and other marine, lake, or river landings,

and the machinery located thereon, used in connection with the transportation of coal and ore.

LABOR AND EXPENSES.—The pay and the office, traveling, and other expenses of employees engaged in operating coal and ore wharves.

TOOLS AND SUPPLIES.—The cost of all tools and supplies used in the operation of coal and ore wharves.

NOTE.—The cost of switching service in connection with coal and ore wharves shall not be included in this account.

376. STATION SUPPLIES AND EXPENSES.

This account shall include:

HEATING.—The cost of fuel (including cost of unloading), water, steam, and miscellaneous supplies used for heating stations, waiting rooms, freight and passenger offices, and other station buildings.

LIGHTING.—The cost of fuel, water, gas, oil, electricity, lamp globes, lamp chimneys, wicks, lamp carbons, incandescent lamps, and miscellaneous supplies used in lighting stations, waiting rooms, freight and passenger offices, other station buildings, street approaches thereto, and passenger foot-bridges and subways at stations.

OTHER EXPENSES.—The cost of miscellaneous station supplies and station expenses.

377. YARDMASTERS AND YARD CLERKS.

This account shall include the pay of general yardmaster, yardmaster, assistant yardmaster, general yard foreman, and yard clerks and attendants in yards where regular switching service is maintained and in terminal switching and transfer service, including employees engaged in calling yardmen and trainmen; also pay of policemen, watchmen, and detectives in yard service. (See account No. 389, "Yard Supplies and Expenses.")

378. YARD CONDUCTORS AND BRAKEMEN.

This account shall include the pay of yard conductors or foremen and yard brakemen or switchmen handling cars in

passenger and freight yards where regular switching service is maintained and in terminal switching and transfer service, including pay while deadheading in connection with such service. (See account No. 389, "Yard Supplies and Expenses.")

NOTE.—When conductors and brakemen are engaged in both train and yard service their pay shall be apportioned between the train and yard accounts on the basis of service rendered. This does not apply to train switching service performed by train crews, the entire pay of whom shall be charged to account No. 401, "Trainmen."

379. YARD SWITCH AND SIGNAL TENDERS.

This account shall include the pay of employees in yards where regular switching service is maintained, who are engaged in the operation of yard switches and signals, including interlockers used solely or principally for the government of all movements of locomotives and trains between main and yard tracks, movements of locomotives between yard tracks and engine houses, and yard switching movements. (See account No. 389, "Yard Supplies and Expenses.")

380. YARD ENGINEMEN.

This account shall include the pay of yard engineers, and firemen while engaged in yards where regular switching service is maintained and in terminal switching and transfer service, including pay of such employees while deadheading in connection with yard service.

NOTE.—The pay of enginemen on locomotives engaged in more than one class of service shall be apportioned on the basis of service rendered. Pay of enginemen on train locomotives while engaged in train switching service shall be included in account No. 392, "Train Enginemen." The pay of enginemen on locomotives engaged in work service shall be included in the cost of the work to which the service pertains.

381. YARD MOTORMEN.

This account shall include the pay of yard motormen while engaged in switching service in yards where regular switch-

ing service is maintained, and in terminal switching and transfer service, including pay of such employees while deadheading in connection with yard service.

NOTE.—The pay of motormen on locomotives engaged in more than one class of service shall be apportioned on the basis of service rendered. Pay of motormen on train locomotives while engaged in train switching service shall be included in account No. 393, "Train Motormen." The pay of motormen on locomotives engaged in work service shall be included in the cost of the work to which the service pertains.

382. FUEL FOR YARD LOCOMOTIVES.

This account shall include the cost, delivered on locomotive tenders, of coal, coke, oil, wood, and other fuel consumed by locomotives in switching service in yards where regular switching service is maintained, and in terminal switching and transfer service, including a suitable proportion of the pay of fuel agents, fuel inspectors, fuel weighers, and clerks engaged in accounting for fuel at fuel stations; pay of foremen and other fuel station employees; also a suitable proportion of the cost of tools, such as wheelbarrows, shovels, scoops, and picks, used for handling fuel at such stations, and the cost of operating machinery at fuel stations.

NOTE A.—The cost of repairs and renewals of coal chutes, buggies, pockets, air hoists, mechanical hoists, and mechanical conveyors at fuel stations shall be charged to account No. 233, "Fuel Stations."

NOTE B.—The cost of supplies consumed by locomotives engaged in more than one class of service shall be apportioned upon the basis of service rendered. The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

383. YARD SWITCHING POWER PRODUCED.

This account shall include the cost of the production and distribution of electric power used in operating locomotives and cars in switching service in yards where regular switch-

ing service is maintained, and in terminal switching and transfer service.

EMPLOYEES.—The pay of employees engaged in operating electric power stations and substations, such as engineers, firemen, electricians, dynamo men, oilers, cleaners, and coal passers.

FUEL.—The cost of coal, oil, gas, and other fuel, including the cost of labor unloading or stocking fuel.

WATER.—The cost of water used to produce steam or to operate water plants, including pumping, rent of ponds, streams, and pipe lines; also water tests, boiler compounds, and other like supplies and expenses.

OTHER SUPPLIES AND EXPENSES.—The cost of lubricants, such as oil and grease used in lubricating engines, shafting, dynamos, and pumps; cost of waste, carbon brushes, fuses, lamps, and other supplies; also the cost of heating and lighting power plants, and other expenses not elsewhere specified in connection with operation of electric power plants.

NOTE.—The cost of supplies consumed by locomotives engaged in more than one class of service shall be apportioned upon the basis of service rendered. The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

384. YARD SWITCHING POWER PURCHASED.

This account shall include the cost of electric power purchased for the propulsion of engines and cars in switching service in yards where regular switching service is maintained, and in terminal switching and transfer service.

NOTE.—The cost of supplies consumed by locomotives engaged in more than one class of service shall be apportioned upon the basis of service rendered. The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

385. WATER FOR YARD LOCOMOTIVES.

This account shall include the cost of water supplied to locomotives in switching service in yards where regular switching service is maintained, and in terminal switching and transfer service, including rent of ponds, lakes, other sources of water supply, and right of way for pipe lines; cost of water purchased, expenses of work trains while engaged in hauling water for locomotive supply, and cost of testing water; also cost of labor expended and cost of materials and supplies used in the operation of water stations and purifying plants.

The cost of operating boilers, engines, and pumps at water stations; heating and lighting water stations, breaking ice in water tanks, thawing out tank spouts and water cars, keeping fires in tanks and water cars to prevent freezing, shoveling snow into locomotive tanks; also temporary connections between water cars and locomotive tenders, compounds injected into locomotive boilers to decrease scale formation, and other expenses directly incident to the supplying of water to such locomotives, shall be included in this account.

An equitable proportion of the pay and the office, traveling, and other expenses of superintendent of water service engaged in connection with water supply for locomotives shall be included in this account.

NOTE.—The cost of supplies consumed by locomotives engaged in more than one class of service shall be apportioned upon the basis of service rendered. The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

386. LUBRICANTS FOR YARD LOCOMOTIVES.

This account shall include the cost of valve, engine, car, and other lubricating oils, grease, compounds, and waste used for lubrication of locomotives in switching service in yards where regular switching service is maintained and in terminal switching and transfer service.

NOTE.—The cost of supplies consumed by locomotives engaged in more than one class of service shall be apportioned upon the basis of service rendered. The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

387. OTHER SUPPLIES FOR YARD LOCOMOTIVES.

This account shall include the cost of supplies, other than fuel, water, and lubricants, used on locomotives in switching service in yards where regular switching service is maintained and in terminal switching and transfer service, including the cost of repairs and renewals of furniture, tools, and other movable articles required for use on locomotives in yard service.

The cost of sand charged to this account shall include the cost of material and supplies used in preparing and drying the sand for use, such as the cost of fuel, wheelbarrows, shovels, and sand screens.

NOTE A.—Where the quantity of sand used on locomotives engaged in yard service is relatively small as compared with the quantity used by locomotives engaged in train service, the entire cost of such material shall be included in account No. 399, "Other Supplies for Train Locomotives." Where the quantity used in yard service is relatively large, the entire cost shall be included in this account.

NOTE B.—The cost of other supplies consumed by locomotives engaged in more than one class of service shall be apportioned upon the basis of service rendered. The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

388. ENGINE HOUSE EXPENSES—YARD.

This account shall include the expense of caring for and preparing locomotives for switching service in yards where regular switching service is maintained and in terminal switching and transfer service, including a proportion of

such expenses as are common to train, yard switching, and work service.

ENGINE HOUSE MEN.—The pay of engine house employees engaged in wiping, cleaning, watching, and dispatching locomotives; keeping and preparing fires, dumping ashes, washing boilers, cleaning fire boxes, packing driving boxes and truck boxes; cleaning smokestacks, air-brake equipment, and front ends of locomotives; checking locomotive tool equipment, cleaning ash and cinder pits; operating turntables, drying sand, inspecting smokestacks and ash pans; calling enginemen; and moving locomotives around engine yards when operated by hostlers; also a proportion of the pay of engine house foremen and their clerks.

MISCELLANEOUS EXPENSES.—The cost of tools, supplies, and sundry expenses on account of caring for and preparing locomotives at engine houses.

NOTE A.—Engine house expenses of locomotives in work service shall be included in the cost of the work to which the service pertains.

NOTE B.—The pay of mechanics and laborers engaged in locomotive repair work in engine houses shall be charged to the appropriate accounts for locomotive repairs.

389. YARD SUPPLIES AND EXPENSES.

This account shall include the cost of supplies (except locomotive supplies) used in yard service, yard signal and interlocker supplies, and miscellaneous yard expenses for yards where regular switching service is maintained; also office and other expenses of employees whose pay is chargeable to accounts Nos. 377, 378, and 379.

390. OPERATING JOINT YARDS AND TERMINALS—DR.

This account shall include the carrier's proportion of the costs incurred by others in their operation of joint yards and terminals, including signals, interlockers, and other facilities at such joint yards and terminals.

NOTE A.—The purpose of this account is to show the amounts accruing against the carrier for its proportion of the cost of

operating yards and terminals operated by others, and in the joint use of which the carrier participates.

NOTE B.—No proportions of items of expense chargeable by the operating carrier to accounts Nos. 392 to 402, inclusive, shall be included in this account.

391. OPERATING JOINT YARDS AND TERMINALS—CR.

This account shall include amounts chargeable to others as their proportions of the costs incurred by the carrier in the operation of joint yards and terminals, including signals, interlockers, and other facilities at such joint yards and terminals.

NOTE A.—The purpose of this account is to show the amounts accruing in favor of the carrier and against others for their proportions of the cost of operating yards and terminals operated by the carrier and in the joint use of which others participate.

NOTE B.—No proportions of items of expense chargeable by the operating carrier to accounts Nos 392 to 402, inclusive, shall be included in this account.

392. TRAIN ENGINEMEN.

This account shall include the pay of steam locomotive engineers and firemen while engaged in transportation train service or while deadheading in connection therewith and pay of such enginemen engaged in piloting trains over home lines; also the pay of employees while regularly engaged in shoveling coal forward on locomotive tenders.

NOTE.—The pay of enginemen on locomotives engaged in more than one class of service shall be apportioned on the basis of service rendered. Pay of enginemen on train locomotives while engaged in train switching service shall be included in this account. The pay of enginemen on locomotives engaged in work service shall be included in the cost of the work to which the service pertains.

393. TRAIN MOTORMEN.

This account shall include the pay of motormen while engaged in running other than steam locomotives and cars in transportation train service or while deadheading in con-

nection therewith; also the pay and expenses of motormen while engaged in piloting trains or cars over home lines.

NOTE.—The pay of motormen on locomotives engaged in more than one class of service shall be apportioned on the basis of service rendered. Pay of motormen on train locomotives while engaged in train switching service shall be included in this account. The pay of motormen on locomotives engaged in work service shall be included in the cost of the work to which the service pertains.

394. FUEL FOR TRAIN LOCOMOTIVES.

This account shall include the cost, delivered on locomotive tenders, of coal, coke, oil, wood, and other fuel consumed by locomotives in transportation train service, including a suitable proportion of the pay of fuel agents, fuel inspectors, fuel weighers, and clerks engaged in accounting for fuel at fuel stations; pay of foremen and other fuel station employees; also a suitable proportion of the cost of tools, such as wheelbarrows, shovels, scoops, and picks, used for handling fuel at such stations, and the cost of operating machinery at fuel stations.

NOTE A.—The cost of repairs and renewals of coal chutes, buggies, pockets, air hoists, mechanical hoists, and mechanical conveyors shall be charged to account No. 233, "Fuel Stations."

NOTE B.—The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

395. TRAIN POWER PRODUCED.

This account shall include the cost of producing and distributing electric power for the propulsion of electric locomotives and cars in transportation train service.

EMPLOYEES.—The pay of employees engaged in operating electric power stations and substations, such as engineers, firemen, electricians, dynamo men, oilers, cleaners, and coal passers.

FUEL.—The cost of coal, oil, gas, and other fuel, including the cost of labor unloading or stocking fuel.

WATER.—The cost of water used to produce steam or to operate water plants, including pumping, rent of ponds, streams, and pipe lines; also water tests, boiler compounds, and other like supplies and expenses.

OTHER SUPPLIES AND EXPENSES.—The cost of lubricants, such as oil and grease, used in lubricating engines, shafting, dynamos, and pumps; cost of waste, carbon brushes, fuses, lamps, and other supplies; also cost of heating and lighting power plants, and other expenses not elsewhere specified in connection with operation of electric power plants.

NOTE.—The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

396. TRAIN POWER PURCHASED.

This account shall include the cost of electric power purchased for the propulsion of locomotives and cars in transportation train service.

NOTE.—The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

397. WATER FOR TRAIN LOCOMOTIVES.

This account shall include the cost of water supplied to locomotives in transportation train service, including rent of ponds, lakes, other sources of water supply, and right of way for pipe lines; cost of water purchased, expenses of supply trains while engaged in hauling water for locomotive supply, and cost of testing water; also cost of labor expended and cost of material and supplies used in the operation of water stations and purifying plants.

The cost of operating boilers, engines, and pumps at water stations, heating and lighting water stations, breaking ice in water tanks, thawing out tank spouts and water cars, keeping fires in tanks and water cars to prevent freez-

ing, shoveling snow into locomotive tanks; also temporary connections between water cars and locomotive tenders, compounds injected into locomotive boilers to decrease scale formation, and other expenses directly incident to the supplying of water to such locomotives, shall be included in this account.

An equitable proportion of the pay and the office, traveling, and other expenses of superintendent of water service, engaged in connection with water supply for locomotives, shall be included in this account.

NOTE.—The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

398. LUBRICANTS FOR TRAIN LOCOMOTIVES.

This account shall include the cost of valve, engine, car, and other lubricating oils, grease, compounds, and waste used for lubrication of locomotives in transportation train service.

NOTE.—The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

399. OTHER SUPPLIES FOR TRAIN LOCOMOTIVES.

This account shall include the cost of supplies other than fuel, water, and lubricants, including the cost of repairs and renewals of furniture, tools, and other movable articles required for use on locomotives in transportation train service.

The cost of sand charged to this account shall include the cost of material and supplies used in preparing and drying the sand for use, such as the cost of fuel, wheelbarrows, shovels, and sand screens.

NOTE A.—Where the quantity of sand used on locomotives engaged in train service is relatively small as compared with the quantity used by locomotives engaged in yard service, the entire cost of such material shall be included in account No. 387,

“Other Supplies for Yard Locomotives.” Where the quantity used in train service is relatively large, the entire cost shall be included in this account.

NOTE B.—The entire cost of supplies consumed by train locomotives in train switching service shall be included in the accounts provided for train service. The supplies consumed by locomotives in work service shall be included in the cost of the work to which the service pertains.

400. ENGINE HOUSE EXPENSES—TRAIN.

This account shall include the expense of caring for and preparing locomotives for transportation train service, including a proportion of such expenses as are common to train, yard switching, and work service.

ENGINE HOUSE MEN.—The pay of engine house employees engaged in wiping, cleaning, watching, and dispatching locomotives; preparing and keeping fires, dumping ashes, washing boilers, cleaning fire boxes, packing driving boxes and truck boxes; cleaning smokestacks, air-brake equipment, and front ends of locomotives; checking locomotive tool equipment, cleaning ash and cinder pits; operating turntables, drying sand, inspecting smokestacks and ash pans; and moving locomotives around engine yards when operated by hostlers; also a proportion of the pay of engine house foremen and their clerks.

MISCELLANEOUS EXPENSES.—The cost of tools and supplies and sundry expenses on account of caring for and preparing locomotives at engine houses.

ITEMS OF MISCELLANEOUS EXPENSES

Boiled oil.	Lampblack.
Compounds for cleaning and polishing.	Lanterns used by engine house men.
Gas, oil, and electricity for lighting.	Lighting engine houses, including offices.
Heating engine houses, including offices.	Lubricating oil.
	Lye.

Packing tools.	Signal lights on transfer tables and turntables.
Paint for front ends of locomotives.	Waste.
Power for operation of turntables and transfer tables.	Water for cinder pits.
Rent of roundhouse stalls.	Water for washing boilers.
Shovels.	Water hose.
	Wheelbarrows.

NOTE A.—Engine house expenses of locomotives in work service shall be included in the cost of the work to which the service pertains.

NOTE B.—The pay of mechanics and laborers engaged in locomotive repair work in engine houses shall be charged to the appropriate accounts for locomotive repairs.

401. TRAINMEN.

This account shall include the pay of conductors, of train auditors, ticket collectors, and others engaged in lifting or examining authorities for transportation; and of baggage-men, brakemen, flagmen, train porters, train guards, train stenographers, maids, and other train employees while engaged in transportation train service or while deadheading in connection therewith; also the pay of trainmen while engaged in piloting trains over home lines.

NOTE.—The pay of trainmen while engaged in work-train service shall be included in the cost of the work to which the service pertains.

402. TRAIN SUPPLIES AND EXPENSES.

This account shall include miscellaneous expenses of transportation service trains and the cost of all supplies other than locomotive supplies.

CLEANING CARS.—The cost of cleaning and disinfecting passenger and freight cars in transportation train service, including cost of removing from freight-train cars such refuse material as sawdust, hay, and straw.

HEATING CARS.—The cost of heating cars in transportation train service, including cost of operating steam-heating plants for car heating at stations and yards.

LIGHTING CARS.—The cost of lighting cars in transportation train service, including the cost of filling and cleaning lamps and of operating plants for supplying gas or electricity for lighting purposes.

NOTE.—Repairs of gas lighting and electric lighting plants shall be included in the proper maintenance accounts. Repairs and renewals of electric lighting equipment of cars, except supplies as above provided, shall be included in the appropriate car-repair account.

LUBRICATING CARS.—The cost of lubricating cars in transportation train service, including cost of inspecting, repacking, and oiling car journal boxes and air-brake equipment.

ICING AND WATERING CARS.—The cost of icing and watering cars in transportation train service, including icing cars for refrigeration purposes. Credits shall be made to this account for refrigeration charges collected from other companies and individuals.

DETOURING TRAINS.—The compensation for temporary use of tracks of other carriers, including the cost of pilot service, on account of wrecks, washouts, landslides, snow blockades, and other defects of the tracks, bridges, or tunnels on the carrier's line.

TRAIN SUPPLIES.—The cost of supplies furnished for use on cars in transportation train service.

OTHER EXPENSES.—The cost of miscellaneous supplies required to equip trains for transportation service and miscellaneous expenses incident to operation of such trains.

ITEMS OF EXPENSE ON ACCOUNT OF EMPLOYEES.

Apparatus for testing the sight and hearing of enginemen and trainmen.

Employees' reading and bunk room expense, including pay of attendants and supplies furnished.

Laundry work.

Physicians' fees for examination of train employees.

Wages paid to superintendents and secretaries of reading rooms.

ITEMS OF EXPENSE ON ACCOUNT OF TRANSPORTATION

- Bedding for stock cars.
- Boarding and slatting box and stock cars for carrying coal, coke, and other freight.
- Boards for flooring fruit cars.
- Chains for securing loads.
- Cleaning, trimming, and filling trainmen's lanterns and rear signal lamps.
- Coupling and uncoupling cars at terminals.
- Disinfecting cars.
- Dunnage used in loading cars or fitting cars for freight shipments.
- Feed for live stock in snow-bound or otherwise delayed trains.
- Flowers and plants for cars.
- Laundry for revenue service cars other than for dining and buffet service and sleeping car service.
- Occasional turning of engines on Y of other carriers.
- Oil and other supplies for locomotives hauled as freight.
- Periodicals for use of passengers on trains.
- Planking cars for billet shipments and other material.
- Provisions, supplies, or board for passengers in delayed trains.
- Removing advertisements from cars.
- Rent of fare registers in cars.
- Safety chains for use between twin and triple cars.
- Supplies for parlor and chair cars.
- Supplies furnished cars for the purpose of protection against accidents and fires.
- Temporary grain doors.
- Temporary lining of cars for freight shipments and stoves and heaters to prevent freezing.
- Temporary openings in cars for freight shipments.
- Temporary racking of cars for handling sugar-cane, corn, bark, or cordwood.
- Transferring passengers, express matter, baggage, mail, and freight on account of defective tracks, bridges, or tunnels.

NOTE.—The expenses of operating sleeping, dining, and buffet car features of train service shall be included in the account No. 403, "Operating Sleeping Cars," or in account No. 441, "Dining and Buffet Service," as may be appropriate.

403. OPERATING SLEEPING CARS.

This account shall include the cost of operating sleeping car service on trains.

SUPERINTENDENCE.—The pay of officers directly in charge of operating sleeping car service; the pay of their clerks and office attendants; also the office, traveling, and other expenses of such officers and employees.

STATION EMPLOYEES.—The pay and expenses of local agents, ticket agents, cashiers, clerks, and attendants; also the office and other expenses of such employees.

STATION EXPENSES.—The expenses of fuel, water, steam, and supplies used in heating station offices; gas, oil, electric current, and other supplies for lighting; repairs and renewals of station furniture, and all other station expenses connected with sleeping car service when separable from the station expenses chargeable to account No. 376, "Station Supplies and Expenses."

CONDUCTORS.—The pay of conductors employed on sleeping cars.

PORTERS AND MAIDS.—The pay of porters and maids employed on sleeping cars.

CAR SUPPLIES.—The cost of miscellaneous supplies used on sleeping cars, such as combs, brushes, brooms, and toilet paper; also uniforms, caps, and service stripes for employees.

LAUNDRY.—Expenses for laundry work, such as laundering sheets, pillow-cases, towels, blankets, etc.

OTHER EXPENSES.—The cost of flowers and plants, heating cars, cleaning the interior of cars, and of supplies used in interior cleaning, rent and cost of supplies for rooms furnished for sleeping car service employees, and such other expenses in connection with the operation of sleeping cars as are not provided for elsewhere.

NOTE.—When officers have immediate supervision over sleeping car service and other operations their pay, office, and other expenses, as also the pay, office, and other expenses of their assis-

tants, clerks, and office attendants, shall be equitably apportioned to the accounts appropriate to the operations over which they have supervision.

404. SIGNAL AND INTERLOCKER OPERATION.

This account shall include the cost of operating signals and interlockers other than those solely or principally used for governing all movements of locomotives and trains between main and yard tracks, movements of locomotives between yard tracks and engine houses, and yard switching movements.

LABOR.—The wages of employees engaged in operating signals and interlockers or power producing plants in connection therewith, such as switch tenders, signalmen other than telegraph operators, lever men, switch and signal oilers, battery men, lamp men, lamp cleaners, and lamplighters; gatemen at crossings of other railroads, engineers and others operating plants furnishing compressed air for signals and interlockers; engineers, electricians, and others operating plants furnishing electric power for signals and interlockers.

SUPPLIES.—The cost of supplies used in operating signals and interlockers or in signal offices, such as gasoline, vitriol, battery zincs, battery coppers, lubricating oils, fuel for heating, fuel for power purposes, produced and purchased power used in operating switches and signals, furniture repairs and renewals, water, and light.

NOTE.—The cost of operating signals and interlockers solely or principally used for governing the movement of yard locomotives and trains shall be included in the appropriate yard expense accounts.

405. CROSSING PROTECTION.

This account shall include the pay of street and highway crossing gatekeepers and flagmen, the cost of supplies used by them, the cost of lights at street and highway crossings not a part of the lighting outfit at stations or in yards, and the cost of compressed air for operating gates.

406. DRAWBRIDGE OPERATION.

This account shall include the cost of operating drawbridges.

LABOR.—The wages of employees engaged in operating drawbridges, such as bridge engineers, tenders, and watchmen.

SUPPLIES.—The cost of produced and purchased power and of supplies, such as fuel, oil, lanterns, water, waste, boats, stoves, chairs, brooms, and pails used in drawbridge operation.

407. TELEGRAPH AND TELEPHONE OPERATION.

This account shall include the cost of telegraph and telephone operation not provided for elsewhere.

SUPERINTENDENCE—TELEGRAPH.—The pay of superintendents of telegraph, telegraph censors, their clerks, and attendants.

TELEGRAPH OPERATORS AND MESSENGERS.—The pay of telegraph operators, block inspectors, and messengers in telegraph and relay offices other than those employed in dispatching trains and those located in general offices or at stations.

OTHER TELEGRAPH EXPENSES.—Office, traveling, and incidental expenses, including office rent, of employees whose pay is chargeable to this account; rent of telegraph conduits, lines, and poles; cost of battery renewals and supplies, bicycles for messengers, and electric current for telegraph purposes; also excess payments to telegraph companies when in connection with telegraph service and not provided for elsewhere.

NOTE A.—The pay, rent, other office expenses, and traveling expenses of superintendents of telegraph, their assistants, clerks, and attendants, when engaged both in maintaining and operating telegraph lines, shall be apportioned equally between this account No. 247, "Telegraph and Telephone Lines."

SUPERINTENDENCE—TELEPHONE.—The pay of superintendents of telephone, their clerks and attendants.

TELEPHONE OPERATORS AND MESSENGERS.—The pay of telephone operators and messengers in telephone offices other than those employed in dispatching trains and those located in general offices or at stations.

OTHER TELEPHONE EXPENSES.—Office, traveling, and incidental expenses, including office rent, of employees whose pay is chargeable to this account; rent of telephone conduits, lines, and poles; cost of battery renewals and supplies, bicycles for messengers, and electric current for telephone purposes; also excess payments to telephone companies when in connection with telephone service and not provided for elsewhere.

NOTE B.—The pay, rent, other office expenses and traveling expenses of superintendents of telephone, their assistants, clerks, and attendants, when engaged both in maintaining and operating telephone lines, shall be apportioned equally between this account and account No. 247, "Telegraph and Telephone Lines."

408. OPERATING FLOATING EQUIPMENT.

This account shall include the cost of operating floating equipment in water transfer service (ferriage, lighterage, and floatage).

SUPERINTENDENCE.—The pay of vice presidents and other officers directly in charge of or engaged in the operation of boats; the pay of their assistants, clerks, and attendants; also the office, traveling, and other expenses of such officers and their employees.

WAGES OF CREWS.—The pay of captains, pilots, chief officers, mates, sailors, wireless telegraph operators, and other employees of the deck department; engineers, assistant engineers, electricians, oilers, firemen, coal passers, and all other employees of the engineer's department; and pursers, porters, and all other employees in the steward's department, except when engaged in dining and buffet service.

FUEL.—The cost, on board boats (including the cost of trimming) of coal, oil, wood, and other fuel used for generating power, heat, or light.

LUBRICATION.—The cost of oil, grease, tallow, graphite, and other material furnished for lubricating purposes.

OTHER SUPPLIES AND DEPARTMENTAL EXPENSES.—The cost of supplies furnished to deck department; the incidental expenses of deck department employees; supplies other than fuel and lubricants, furnished the engineer's department; water furnished to boats; incidental expenses of engineer's department employees; supplies (other than dining and buffet supplies) furnished to the steward's department; laundry for boats; and incidental expenses of steward's department employees.

OTHER EXPENSES.—Expenses incident to the operation of floating equipment not otherwise provided for in this account.

ELEVATION AND LONGSHORE LABOR.—The cost of shore labor in connection with loading and unloading lighterage freight at wharves and piers, such as labor of bridgemen at transfer bridges and of watchmen, longshoremen, stevedores, and other wharf men.

ELEVATION AND SHORE EXPENSES.—Shore expenses in connection with loading and unloading lighterage freight, such as the cost of steam and electricity for power, heating, and lighting; power and supplies used for transfer or float bridges; supplies used in connection with operating wharves and piers and not chargeable to account No. 376, "Station Supplies and Expenses."

NOTE A.—When the compensation for the use of floating equipment used in water transfer service includes rent, maintenance, and operation, the portion covering rent shall be charged to income account No. 539, "Rent for Floating Equipment," the portion covering maintenance shall be charged to the appropriate account for maintenance of equipment, and the portion covering operation shall be included in this account.

NOTE B.—The cost of labor expended in transferring freight between cars and boats shall be distributed in such manner as to include in account No. 373, "Station Employees," the expense of handling between the cars and the string piece of the

wharf or rail of the boat, and to include in this account the expense of handling upon the boats.

409. EXPRESS SERVICE.

This account shall include the cost of operating express service.

DRIVERS AND MESSENGERS.—Pay of express messengers, drivers, and helpers, and cost of their uniforms, uniform trimmings, and badges; and pay of baggagemasters handling express.

OTHER EXPENSES.—Pay of stablemen in express service, rent of stables, and expense of feeding and shoeing horses.

410. STATIONERY AND PRINTING.

This account shall include the cost of stationery and printing used in connection with rail line transportation, including operation of floating equipment.

NOTE.—The cost of dictionaries, periodicals, technical books, etc., shall be included in appropriate superintendence accounts, and city directories and books of reference used by station agents shall be charged to account No. 376, "Station Supplies and Expenses."

411. OTHER EXPENSES.

This account shall include all expenses in connection with rail line transportation not properly chargeable to other transportation accounts.

ITEMS OF EXPENSE.

Amounts paid for switching empty cars otherwise than in connection with loaded movements or with the repairs to the equipment.

Amounts paid on account of bills of lading issued on fraudulent receipts.

Amounts paid to suspended transportation department employees covering periods of suspension.

Compensation for property loss incident to failure to stop at station to pick up passengers.

Demurrage accruing on a foreign line by reason of error of carrier's agent.

- Extra drayage due to agent's error in routing interline shipment.
- Fees paid arbitrators in wage disputes of transportation department employees.
- Loss of station funds by burglary, when not covered by insurance.
- Loss of train collections in holdup.
- Overcharges paid foreign lines on account of error of the carrier's agent in routing and billing.
- Pay and expenses of transportation department employees attending conferences with officers in connection with wage disputes.
- Payments for switching on account of cars not passing inspection at junction points.
- Penalties imposed under reciprocal demurrage laws for failure to furnish cars.
- "Penalty switching" payments on account of improper delivery of cars to other carriers.

412. OPERATING JOINT TRACKS AND FACILITIES—DR.

This account shall include the carrier's proportion of the transportation expenses incurred by others in the operation of joint tracks, interlockers, and other facilities which are not provided for in account No. 390, "Operating Joint Yards and Terminals—Dr."

NOTE A.—The purpose of this account is to show the amount accruing against the carrier for its proportion of the cost of operating tracks and facilities (other than at joint yards and terminals) operated by others and in the joint use of which the carrier participates.

NOTE B.—No proportions of items of expense chargeable by the operating carrier to accounts Nos. 392 to 402, inclusive, shall be included in this account.

413. OPERATING JOINT TRACKS AND FACILITIES—CR.

This account shall include amounts chargeable to others as their proportions of transportation expenses incurred by the carrier in the operation of joint tracks, interlockers, and other facilities which are not provided for in account No. 391, "Operating Joint Yards and Terminals—Cr."

NOTE A.—The purpose of this account is to show the amounts accruing in favor of the carrier and against others for their pro-

portions of the cost of operating tracks and facilities (other than at joint yards and terminals) operated by the carrier and in the joint use of which others participate.

NOTE B.—No proportions of items of expense chargeable by the operating carrier to accounts Nos. 392 to 402, inclusive, shall be included in this account.

414. INSURANCE.

This account shall include premiums, except reinsurance premiums, for insuring the carrier against loss through injuries to persons or damage to or destruction or loss of property, whether caused by fire, accident, or other cause, when such loss to the carrier would be chargeable to Transportation—Rail Line; also premiums on fidelity bonds of employees whose pay is chargeable to Transportation—Rail Line.

NOTE.—The premiums paid by the carrier to its insurance fund shall be credited to an insurance reserve account, to which account shall be charged the amount of all claims for injuries to persons and damages to the property covered by its insurance. To such account shall also be charged all reinsurance premiums paid to insurance companies, and to it shall be credited all amounts recovered from insurance companies for damage to property reinsured by them.

415. CLEARING WRECKS.

This account shall include the cost of clearing wrecks other than wrecks of work trains.

LABOR.—The wages of employees while engaged in connection with wrecking service, loading, and transferring contents of wrecked cars, building temporary tracks around wrecks, and removing such tracks.

TRAIN SERVICE.—The cost of train service in connection with replacing wrecked equipment upon the tracks and transporting such equipment to shops for repairs, including amounts paid to other companies for service of locomotives, derricks, and other equipment and for wages of crews in wrecking service.

OTHER SUPPLIES AND EXPENSES.—Payments for reloading or transferring freight, express, baggage, and mail; transferring passengers, and cost of provisions or board for men clearing up or watching at wrecks.

NOTE A.—Expenses of clearing wrecks of work trains shall be included in the cost of the work in connection with which the wrecked train was engaged.

NOTE B.—The cost of restoring roadbed and tracks to original condition after wrecks and the cost of repairing equipment damaged or destroyed by wrecks shall be charged to the appropriate accounts for maintenance of way and structures and maintenance of equipment.

NOTE C.—That proportion of payments to other companies for use of locomotives, derricks, and other equipment in wrecking service which represents rent shall be included in the income accounts.

416. DAMAGE TO PROPERTY.

This account shall include payments and expenses on account of damages to the property of others, whether by fire, collision, flood, or other cause, with the exception of payments and expenses on account of damage to property intrusted to the carrier for transportation, and for damage to stock on right of way. It shall include also fines or compensation paid for interference with the business of others, as by detention of vessels at drawbridges, or by blocking streets.

This account shall include also the pay, office rent, and office, traveling, and other expenses of employees and others engaged as claim adjusters or as witnesses in lawsuits in connection with damage to property cases, or engaged in detection of thieves; notarial fees paid in connection with such cases; and payments for or repairs of damage to equipment of other carriers, or to property contained therein, such carriers having trackage rights upon or grade crossings over the carrier's tracks.

NOTE A.—Damage to live stock on right of way, and damage to freight and baggage intrusted for transportation, are pro-

vided for under accounts No. 417, "Damage to Live Stock on Right of Way"; No. 418, "Loss and Damage—Freight"; and No. 419, "Loss and Damage—Baggage."

NOTE B.—Expenses incident to suits growing out of damage to property claims, not otherwise provided for, shall be included in account No. 454, "Law Expenses."

NOTE C.—The pay, office rent, and the traveling, office, and other expenses of claim adjusters, claim clerks and others engaged in claim matters when not accurately assignable to a distinct class of claims, shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged. This provision does not apply to the pay and expenses of general officers or general office employees whose pay is includible in general account VII, General.

417. DAMAGE TO LIVE STOCK ON RIGHT OF WAY.

This account shall include payments on account of cattle and other live stock killed or injured while crossing or trespassing on the right of way, including cost of removing and burying the same.

There shall be included in this account also the pay and the traveling, office, and other expenses of employees and others engaged as live-stock claim adjusters or engaged as witnesses in lawsuits in connection with damage to live stock on right of way; also notarial fees in connection with claims for damage to live stock on right of way.

NOTE A.—Expenses incident to suits growing out of live-stock claims, not otherwise provided for, shall be included in account No. 454, "Law Expenses."

NOTE B.—The pay, office rent, and the traveling, office and other expenses of claim adjusters, claim clerks, and others engaged in claim matters when not accurately assignable to a distinct class of claims, shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged. This provision does not apply to the pay and expenses of general officers or general office employees whose pay is includible in general account VII, General.

418. LOSS AND DAMAGE—FREIGHT.

This account shall include payments and expenses on account of loss, destruction, damage, or delays to revenue freight shipments, including locomotives and cars transported as freight, express matter, milk shipments, and live stock, and expenses incurred on account of such payments; also expenses on account of loss, destruction, or damage to shipments of company material.

This account shall also include the cost of repacking and boxing damaged freight shipments; notarial fees in connection with freight claims; freight charges paid other carriers on lost, destroyed, or damaged shipments; pay, traveling, office, and other expenses of employees or others engaged as freight-claim adjusters, as witnesses in lawsuits in connection with freight-claim cases, in selling damaged and unclaimed shipments, or in detecting thieves; rent of warehouses used for storage of damaged and astray freight shipments, payments for storage of such shipments in public warehouses, and interest and penalties assessed for non-payment of freight claims.

Amounts received from the sale of astray and damaged freight shall be credited to this account.

NOTE A.—Expenses incident to suits growing out of loss and damage (freight) claims, not otherwise provided for, shall be included in account No. 454, "Law Expenses."

NOTE B.—The pay, office rent, and traveling, office, and other expenses of claim adjusters, claim clerks, and others engaged in claim matters when not accurately assignable to a distinct class of claims, shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged. This provision does not apply to the pay and expenses of general officers or general office employees whose pay is includible in general account VII, General.

419. LOSS AND DAMAGE—BAGGAGE.

This account shall include payments for loss, destruction, damage, or delays to baggage and other personal property carried as baggage, and damage to personal apparel; also expenses on account of such loss or damage.

This account shall also include the cost of repacking and boxing damaged baggage; notarial fees in connection with baggage claims; baggage claim payments made to other carriers on lost, destroyed, damaged, or delayed shipments; pay, traveling, office, and other expenses of employees or others engaged as baggage claim adjusters, as witnesses in lawsuits in connection with baggage claim cases, in selling damaged and unclaimed baggage, or in detecting thieves; rent of warehouses used exclusively for storage of damaged and unclaimed baggage, payments for storage of such shipments in public warehouses, and interest and penalties assessed for nonpayment of claims.

Amounts received from the sale of astray and damaged baggage shall be credited to this account.

NOTE A.—Expenses incident to suits growing out of loss and damage (baggage) claims, not otherwise provided for, shall be included in account No. 454, "Law Expenses."

NOTE B.—The pay, office rent, and traveling, office, and other expenses of claim adjusters, claim clerks, and others engaged in claim matters when not accurately assignable to a distinct class of claims shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged. This provision does not apply to the pay and expenses of general officers or general office employees whose pay is includible in general account VII, General.

NOTE C.—When a payment on account of injuries to passengers includes allowance for damage to personal apparel the damage allowance shall be included in this account when separable; otherwise in the appropriate personal injury account.

420. INJURIES TO PERSONS.

This account shall include expenses on account of injuries to persons which occur directly in connection with transportation service, including damages for ejection of passengers.

Services of employees and others called in consultation in relation to claim adjustments; pay and expenses of employees while engaged as witnesses at inquests and lawsuits,

and a suitable proportion of donations made to hospitals, shall be included in this account.

NOTE A.—Expenses incident to personal injury suits, not otherwise provided for, shall be included in account No. 454, "Law Expenses."

NOTE B.—Amounts donated by a carrier to hospitals shall be distributed, 25 per cent. to account No. 274, "Injuries to Persons"; 25 per cent. to account No. 332, "Injuries to Persons"; and 50 per cent. to account No. 420, "Injuries to Persons."

NOTE C.—The pay, office rent, and traveling, office and other expenses of claim adjusters, claim clerks, and others engaged in claim matters, when not accurately assignable to a distinct class of claims, shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged. This provision does not apply to the pay and expenses of general officers or general office employees whose pay is includible in general account VII, General.

NOTE D.—When a payment on account of injuries to persons includes allowance for damage to personal apparel, the damage allowance shall be included in account No. 419, "Loss and Damage—Baggage," when separable; otherwise the entire payment shall be included in this account.

V. TRANSPORTATION—WATER LINE.

The primary accounts included in this general account are designed to show the expenses incurred in transporting persons and property by water lines.

When the compensation for the use of floating equipment used in water-line operations includes rent, maintenance, and operation, the portion covering rent shall be charged to income account No. 539, "Rent for Floating Equipment," the portion covering maintenance shall be charged to the appropriate accounts for maintenance of equipment, and the portion covering operation shall be distributed to the primary accounts in this account.

431. OPERATION OF VESSELS.

This account shall include the cost of operating vessels in water-line service. It shall include:

SUPERINTENDENCE.—The pay of vice presidents and other officers directly in charge of or engaged in the operation of vessels; the pay of their assistants, clerks, and attendants; also the office, traveling, and other expenses of such officers and their employees.

WAGES OF CREWS.—The pay of captains, pilots, chief officers, mates, sailors, wireless telegraph operators, and other employees of the deck department; engineers, assistant engineers, electricians, oilers, firemen, coal passers, and all other employees of the engineer's department; and pursers, stewards, stewardesses, cooks, pantrymen, waiters, porters, and all other employees in the steward's department.

FUEL.—The cost, on board vessels (including the cost of trimming), of coal, oil, wood, and other fuel used for generating power, heat, or light.

LUBRICATION.—The cost of oil, grease, tallow, graphite, and other material furnished for lubricating purposes.

STATIONERY AND PRINTING.—The cost of stationery and printing used in connection with the operation of vessels. (For stationery and printing items, see expense account No. 410.)

FOOD SUPPLIES.—The cost of all food supplies furnished to the steward's department.

BAR SUPPLIES.—The cost of all wines, liquors, beers, ales, mineral waters, cigars, cigarettes, tobacco, and other bar supplies.

OTHER SUPPLIES AND DEPARTMENTAL EXPENSES.—The cost of supplies furnished to deck department; the incidental expenses of deck department employees; supplies, other than fuel and lubricants, furnished the engineer's department; water furnished to ships; and incidental expenses of engineer's department employees; supplies (other than food and bar) furnished to the steward's department; laundry for ships; and incidental expenses of steward's department employees.

LAY-UP EXPENSES.—The pay of crews and all other transportation expenses incurred on account of floating equipment when laid up and not undergoing repairs or betterment.

OTHER EXPENSES.—Expenses incident to the operation of vessels not otherwise provided for in this account.

NOTE A.—When officers enumerated above have supervision over other departments also, their pay, office and other expenses, as also the pay, office and other expenses of their assistants, clerks, and attendants, shall be equitably apportioned among the departments over which they have jurisdiction.

NOTE B.—The rent for offices and other structures of minor importance used in the operation of vessels shall be included in this account. The rent for such property of major importance, which is ordinarily leased for a period of years, shall be included in Income.

432. OPERATION OF TERMINALS.

This account shall include the expenses of the operation of terminals devoted to water-line operations. It shall include:

SUPERINTENDENCE.—The pay of vice presidents and other officers in charge of or engaged in the operation of terminals; the pay of their assistants, clerks, and attendants; also the office, traveling, and other expenses of such officers and their employees; the salaries of agents, clerks, and attendants; the pay of port or station agents and their employees; the pay of wharf employees (except stevedores and other laborers provided for in the subheading "Stevedore and Wharf Labor"); agency and office expenses; expenses of telegraph and telephone service; postage, heat, light, power, water, ice, furniture, and other supplies (except stationery and printing); and incidental office and traveling expenses of port or station agents, their clerks, and attendants.

STATIONERY AND PRINTING.—The cost of stationery and printing used in connection with the operation of terminals. (For stationery and printing items see expense account No. 410.)

STEVEDORE AND WHARF LABOR.—The pay of stevedores, foremen, and longshoremen when engaged directly in loading

and unloading vessels; payments for labor in connection with handling, trimming, and stowing cargoes in vessels, including payments to companies and individuals engaged to handle cargoes by contract; and the pay of laborers on wharves when engaged in piling, tiering, and handling freight, and in unloading and loading baggage.

TUGS AND LIGHTERS—OPERATION.—Expenses in connection with the operation of tugs, lighters, and other floating equipment employed in terminal operations, including superintendence, wages, fuel, water, lubricants, food supplies, wharfage, and laborers engaged in handling lightered cargoes (except directly to or from ships).

SWITCHING, LIGHTERAGE, AND OTHER TRANSFERS.—Payments made to other companies or individuals for lightering, switching, or transferring freight; teaming; operating team transfers owned by the carrier; and other expenses in connection with the transfer of freight not provided for in the foregoing paragraph or in revenue account No. 121, "Freight."

LIGHT, HEAT, POWER, AND WATER.—The expenses of light, heat, power, and water used in the operation of terminals (except in agents' or superintendents' offices), both when purchased and when produced by the carrier.

WHARF SUPPLIES AND EXPENSES.—The cost of supplies used by and expenses of wharf employees, such as meals furnished, advertising for wharf employees, cost or rent of equipment for watchmen, firemen, and police; uniforms for wharf employees; supplies for coopering, marking, and tagging freight; car standards, binders, etc.; and expenses not chargeable as repair items incident to keeping wharves in proper condition.

OTHER EXPENSES.—Expenses incident to the operation of terminals not otherwise provided for in this account, including harbor master's fees, quarantine expenses, custom-house and other port charges.

NOTE A.—When officers enumerated above have supervision over other departments also, their pay, office and other expenses, as also the pay, office and other expenses of their assistants,

clerks, and attendants, shall be equitably apportioned among the departments over which they have jurisdiction.

NOTE B.—The rent for offices and other structures of minor importance used in the operation of terminals shall be included in this account. The rent for such property of major importance, which is ordinarily leased for a period of years, shall be included in Income.

433. INCIDENTAL.

This account shall include incidental transportation expenses in connection with water-line operations. It shall include:

LOSS AND DAMAGE—FREIGHT.—Payments and expenses for loss, damage, delays, or destruction of freight (including company material); uncollectible freight charges paid other carriers or misrouted, lost, damaged, or destroyed shipments; cost of repacking and boxing damaged merchandise; pay and expenses of employees and others engaged as adjusters and in detecting thieves; and the pay and expenses of employees and others engaged as witnesses in lawsuits in connection with loss and damage cases. The net amount received from the sale of astray and damaged freight shall be credited to this account.

LOSS AND DAMAGE—BAGGAGE.—Payments and expenses for loss, damage, delays, or destruction of baggage or other personal property carried as baggage, and damage to personal apparel; the cost of repacking and boxing damaged baggage; and the pay and expenses of employees or others while engaged as adjusters and witnesses in lawsuits in cases involving loss or damage to baggage. The net amount received from the sale of astray and damaged baggage shall be credited to this account.

DAMAGE TO PROPERTY.—Payments and expenses on account of damages to or destruction of property of others, whether by fire, collision, or other cause, with the exception of payments and expenses on account of damage to property intrusted to the carrier for transportation; and pay and expenses of employees and others while engaged as adjusters and as witnesses in lawsuits arising out of damage to property.

INJURIES TO PERSONS.—Compensation and expenses incident to injuries to persons occurring directly in connection with the transportation operations of water lines; a proportion of the pay and expenses of physicians and surgeons; of claim adjusters and clerks; expenses of nurses and hospital attendants; medical and surgical supplies; artificial limbs; funeral expenses; railway, boat, and carriage fares for conveying injured persons and attendants; donations or contributions to hospitals in which employees are cared for; pay and expenses of employees and others while attending coroners' inquests, while engaged as witnesses in lawsuits in connection with personal injury cases, or when called in consultation in relation to personal injury claims.

INSURANCE.—Premiums paid, except reinsurance premiums, for insuring the carrier against loss through injuries to persons, or damage to or destruction or loss of property, whether caused by fire, accident, or other cause, when such loss to the carrier would be chargeable to Transportation—Water Line; also premiums on fidelity bonds of employees whose pay is chargeable to that account.

NOTE A.—The premiums paid by the carrier to its insurance fund shall be credited to an insurance reserve account, to which account shall be charged the amount of all claims for injuries to persons and damages to the property covered by its insurance. To such account shall also be charged all reinsurance premiums paid to insurance companies, and to it shall be credited all amounts recovered from insurance companies for damage to property reinsured by them.

NOTE B.—Expenses not otherwise provided for in connection with the conduct of loss, damage, and personal injury suits shall be charged to account No. 454, "Law Expenses," but the amount of final judgments, including plaintiff's court costs, shall be included in this account.

NOTE C.—The pay, office rent, and traveling, office and other expenses of claim adjusters, claim clerks, and others engaged in claim matters when not directly assignable to a distinct class of claims, shall be apportioned equally among the several classes of claims over which they have jurisdiction or in connection with which they are engaged.

CHAPTER VIII

GENERAL EXPENSES

General expenses are the expenditures incurred in the general administration of the business. The headings are self-explanatory. They include the expenses of the accounting department and of the law department, and similar expenses which are not chargeable to either the maintenance of the plant or rolling stock, to the manufacture of transportation or to the cost of getting business. General expenses are from 2 per cent. to 3 per cent. of total operating revenues. The importance of the duties performed by the general officers and by the accounting and legal department so far outweigh the difference between minimum and maximum expenditures on these accounts that the security holder, in studying the annual report of his road, needs generally only to make sure that there has been no radical change in the amount spent under this head. If an increase in general expenses means that a board of directors has appointed higher class men as general officers, it is an increase in expenses that the security holder ought to welcome. There is to-day a general tendency to recognize somewhat more fully the importance of the office of president of a large railroad company. Where the owner of control has been the president, it has happened that a railroad property suffered from absentee landlordism or from the fact that the president had other financial interests which he considered more important than his duties as president of the railroad. Where the president was hired

by the board of directors, the tendency in the past has sometimes been to pay too low salaries. This tendency has materially changed within the last few years. When George Gould was president of the Missouri Pacific he gave his services without salary. When, however, it was decided to put the property in the hands of a man who could devote his whole time to it, it was generally understood that the salary offered was \$50,000 a year. Of course, in this connection it should be borne in mind that there can be no question of salary for such a man as the late E. H. Harriman. His service to his companies cannot, of course, be measured in this way. Moreover, the fact that one man was capable both of managing a great railroad system and also of acting as his own board of directors is the exception which proves the rule.

The Interstate Commerce Commission includes under General Expenses the salaries and expenses of general officers, of their clerks and attendants, and of their office supplies; also law expenses, which are shown separately, relief department expenses, all pensions, and the cost of printing annual reports, and stationery and printing expenses of general officers. The accounts are comparatively simple and the only complication at all in the Interstate Commerce Commission's form is the fact that law expenses are shown separately from the expenses of other general officers, such as accounting officers, auditors, etc. It is probable that the commission desired to have these expenses shown separately, so that in its work of regulating rates, and in cases where its decisions were appealed from the courts, it could scrutinize legal expenses separately.

The English law includes as general expenses, directors' fees; auditors' and public accountants' salaries and expenses; salaries of the secretary, general manager, accountants, clerks and attendant office expenses; lading expenses; fire insurance; superannuation and benevolent funds, pen-

sions, etc.; subscriptions and donations; and miscellaneous expenses. It will be seen that the English definition of General Expenses tallies very closely with that of the Interstate Commerce Commission, with the exception of separating law expenses. Law expenses are shown separately from general expenses under the English classification, as are also parliamentary expenses.

Neither the English nor the American classification of general expenses provides for showing the expenses of the auditing department separately from the expenses of other general officers and their clerks and attendants. Almost all railroad companies make up such a separation for their own information in their accounts, and while, of course, the gross cost of auditing a railroad's accounts is not large when compared with the expenditures for many of the items under transportation expenses, for instance, yet cost of auditing, like most of the costs under transportation expenses, is one in which a smaller expenditure means an actual saving. The cost of auditing is usually compared on a percentage of gross revenue basis. Thus on one road it may cost three mills to audit each dollar of gross revenue, while on another it may cost but two mills. Here is a difference of $33\frac{1}{3}$ per cent., and it would seem that it were wrong to lump together with this cost of auditing and of general office clerks, the salaries of general officers having supervision over all departments. A reduction in the cost of auditing is a real economy, while the reduction in salaries paid general officers may be a false economy. It has been the experience of most roads that it is well worth while to keep these two costs separately.

The failure of the Interstate Commerce Commission to recognize or at least make an allowance for this fact is in keeping with certain other theories which practical railroad men have been inclined to criticize. The commission, in its formulation of a system of accounts, had in mind

primarily that the system of accounts should furnish the information which the commissioners themselves wanted as a basis for rate regulation ; secondly, that it should furnish information which security holders of the companies should have ; and only in the third place that it should best serve the needs of the management itself. This is an explanation of many of the omissions that may be noted in the commission's system of accounts. It is not, however, entirely a justification. While the commission probably argued that uniformity was of the greatest importance to outsiders in seeking information from railroad accounts, it was not of great importance to the railroad managers themselves who were intimately familiar with the basis upon which their own accounts were compiled. From a broader view, however, the commission's regulation of accounts has been of a good deal of importance to railroad officers themselves, and it may be that in just such a case as this of separating certain classes of expenditures, the commission could well have gone further than it did, for as was pointed out in discussing transportation expenses the commission's work can only reach its greatest usefulness when the commissioners act as a constructive board of railroad critics as well as a police board to act only as a protection to the public against the railroad companies.

VI. MISCELLANEOUS OPERATIONS.

The primary accounts included in this general account are designed to show the expenses incurred in miscellaneous operations.

441. DINING AND BUFFET SERVICE.

This account shall include the cost of operating dining and buffet service on trains and transfer boats. It shall include:

SUPERINTENDENCE.—The pay of officers directly in charge of operating dining and buffet service; the pay of their as-

sistants, clerks, and office attendants; also the office, traveling, and other expenses of such officers and their employees.

COMMISSARIAL EMPLOYEES.—The pay of storekeepers, assistant storekeepers, clerks, porters, and other employees in commissarial supply depots and storehouses.

STEWARDS.—The pay of stewards or conductors employed on dining and buffet cars and transfer boats.

COOKS AND WAITERS.—The pay of cooks, waiters, and assistants on dining and buffet cars and transfer boats.

FUEL AND SUPPLIES.—The cost of fuel for cooking purposes; of provisions, such as meats, groceries, vegetables, fish, table waters, ice, etc.; bar supplies, such as wines, liquors, beers, ales, etc.; cost of licenses; and cost of cigars, cigarettes, and tobacco.

LAUNDRY.—Expenses for laundry work, such as laundering tablecloths, napkins, aprons, etc.

STATIONERY AND PRINTING.—The cost of stationery and printing used in connection with dining and buffet service.

OTHER EXPENSES.—The cost of flowers and plants; cleaning the interior of cars; rent and cost of supplies for rooms furnished for dining and buffet service employees; and such other expenses in connection with the operation of dining and buffet service as are not provided for elsewhere.

NOTE.—When officers have immediate supervision over dining and buffet service and other operations their pay, office and other expenses, as also the pay, office and other expenses of their assistants, clerks, and office attendants, shall be equitably apportioned to the accounts appropriate to the operations over which they have supervision.

442. HOTELS AND RESTAURANTS.

This account shall include the cost of operating hotels, restaurants, and lunch counters when the cost of the operated property is includible in the road and equipment accounts. It shall include:

SUPERINTENDENCE.—The pay of officers directly in charge of operating hotels, restaurants, and lunch counters; pay of

their clerks and office attendants; also the office, traveling, and other expenses of such officers.

EMPLOYEES.—The pay of stewards, hotel keepers, storekeepers, checkers, linen clerks, butchers, chefs, cooks, kitchen help, maids, porters, elevator men, call boys, hat and cloak attendants, waiters, waitresses, laundresses, engineers, firemen, and other employees engaged in operating hotels, restaurants, and lunch counters.

FUEL AND SUPPLIES.—The cost of fuel for cooking and heating purposes; provisions, such as meats, groceries, vegetables, fish, table waters, ice, etc.; bar supplies, such as wines, liquors, beers, ales, etc.; the cost of liquor licenses; the cost of tobacco, cigars, cigarettes, etc.; and miscellaneous supplies for operating the service.

STATIONERY AND PRINTING.—The cost of stationery and printing used in connection with the operation of hotels and restaurants.

OTHER EXPENSES.—The cost of lighting, and other items of expense not otherwise provided for in this account.

NOTE.—When officers have immediate supervision over hotels, restaurants, and lunch counters and other operations their pay, office and other expenses, as also the pay, office and other expenses of their assistants, clerks, and office attendants, shall be equitably apportioned to the accounts appropriate to the operations over which they have supervision.

443. GRAIN ELEVATORS.

This account shall include the cost of operating grain elevators other than small elevators which are classed as station facilities. It shall include:

SUPERINTENDENCE.—The pay of officers directly in charge of grain-elevator service; the pay of their assistants, clerks, and office attendants; also the office, traveling, and other expenses of such officers and their employees.

EMPLOYEES.—The pay of engineers, firemen, foremen, machine men, oilers, millwrights, carpenters, trimmers, weighers, spout men, sweepers, laborers, watchmen, and all other employees engaged in operating grain elevators.

FUEL AND SUPPLIES.—The cost of fuel for power, heating, and lighting plants; power for heating, lighting, and operating machinery; and water, ice, oil, waste, and other supplies for operating such property.

STATIONERY AND PRINTING.—The cost of stationery and printing used in connection with the operation of grain elevators.

OTHER EXPENSES.—The cost of grain used to make up shortage in elevators; stationery and printing; rent for and repairs of rented offices; and other operating expenses not otherwise provided for in this account.

NOTE.—When officers have immediate supervision over grain elevators and other operations their pay, office and other expenses, as also the pay, office and other expenses of their assistants, clerks, and office attendants, shall be equitably apportioned to the accounts appropriate to the operations over which they have supervision.

444. STOCKYARDS.

This account shall include the cost of operating stockyards other than small stockyards or stock pens at stations, which are classed as station facilities. It shall include:

SUPERINTENDENCE.—The pay of officers directly in charge of stockyard operations; the pay of their assistants, clerks, and office attendants; also the office, traveling, and other expenses of such officers and employees.

EMPLOYEES.—The pay of foremen, subforemen, yardmen, tallymen, weighmasters, stock loaders, drovers, drivers, engineers, firemen, shovelers, watchmen, policemen, and other stockyard employees.

FUEL AND SUPPLIES.—The cost of fuel, gas, electric current, water; hay, grain, oats, and other feed for stock; straw and other bedding material; and other stockyard supplies.

STATIONERY AND PRINTING.—The cost of stationery and printing used in connection with the operation of stockyards.

OTHER EXPENSES.—Payments for loss or damage to live stock, and other expenses not otherwise provided for in this account.

NOTE.—When officers have immediate supervision over stockyard service and other operations their pay, office and other expenses, as also the pay, office and other expenses of their assistants, clerks, and office attendants, shall be equitably apportioned to the accounts appropriate to the operations over which they have supervision.

445. PRODUCING POWER SOLD.

This account shall include the cost of operating power plants, substations, transmission systems and distribution systems for the production of power sold.

The proportion of the cost assignable to the production of the power sold only shall be included in this account.

This account shall include:

SUPERINTENDENCE.—The pay of officers directly in charge of power plants, substations, transmission systems and distribution systems; pay of their clerks and office attendants; also the office, traveling, and other expenses of such officers and employees.

EMPLOYEES.—The pay of foremen, subforemen, engineers, firemen, electricians, system operators or load dispatchers, dynamo tenders, foremen regulators, regulators and assistants, switchboard men, brush men, oilers, wipers, wiremen, and others engaged in the operation of power plant and substation apparatus and devices.

FUEL.—The cost of fuel used in the production of power and for heating power plants.

OTHER SUPPLIES.—The cost of water, lubricants, and other power plant and substation supplies.

STATIONERY AND PRINTING.—The cost of stationery and printing used in connection with producing power sold.

OTHER EXPENSES.—The items of expense not otherwise provided for in this account.

NOTE.—When officers have immediate supervision over producing power sold and other operations their pay, office and other

expenses, as also the pay, office and other expenses of their assistants, clerks, and office attendants, shall be equitably apportioned to the accounts appropriate to the operations over which they have supervision.

446. OTHER MISCELLANEOUS OPERATIONS.

This account shall include the operations of facilities such as cold-storage plants; cotton-compress plants; wood-preserving plants; ice-supply plants, etc., when the cost of the facilities is includible in the road and equipment accounts and they are operated for the benefit of the carrier and others. The proportion assignable to the commercial operations only shall be included in this account.

NOTE.—When officers have immediate supervision over other miscellaneous service and other operations their pay, office and other expenses, as also the pay, office and other expenses of their assistants, clerks, and office attendants, shall be equitably apportioned to the accounts appropriate to the operations over which they have supervision.

VII. GENERAL.

The primary accounts included in this general account are designed to show the expenses incurred of a general character not chargeable to the preceding general accounts, such as those for general administration and accounting, and those of the financial, law, real estate, tax, and claim departments.

The accounts for general expenses shall be kept in such manner as to show separately, by primary accounts, the expenses directly assignable to water-line operations.

NOTE.—Directly assignable organization and administration expenses incident to investments in leased or nonoperating physical property, and in stocks, bonds, and other securities, are chargeable to income account No. 549, "Maintenance of Investment Organization."

451. SALARIES AND EXPENSES OF GENERAL OFFICERS.

This account shall include:

SALARIES.—The pay of all general officers not otherwise provided for, including salaries and fees of receivers and commissions paid to general officers in lieu of salaries.

EXPENSES.—The traveling and other expenses of officers whose pay is included in this account, including supplies for business cars used by them, cost of running official trains for them, and cost of membership fees and dues in railway and other associations.

NOTE A.—When officers' duties are restricted to a single department, their salaries and expenses shall be charged to that department in the accounts for superintendence or for law expenses, as may be appropriate. When officers have immediate supervision over more than one operating department, their salaries and expenses shall be apportioned equally among the departments over which they have jurisdiction.

NOTE B.—The pay and expenses of the purchasing agent, assisting purchasing agent, assistant to purchasing agent, general storekeeper, division storekeeper, their clerks and attendants, shall be charged through clearing accounts, "Material Store Expenses," and "Stationery Store Expenses," or material account "Fuel," as may be appropriate.

452. SALARIES AND EXPENSES OF CLERKS AND ATTENDANTS.

This account shall include the pay and expenses of clerks and attendants of the officers whose salaries are includible in account No. 451, "Salaries and Expenses of General Officers."

PAY OF CLERKS.—The pay of persons employed in accounting and clerical service.

PAY OF ATTENDANTS.—The pay of persons employed in attendance at general offices and on business cars.

EXPENSES.—The traveling and other expenses of employees designated above, including the cost of supplies for business cars and cost of running official trains for them.

453. GENERAL OFFICE SUPPLIES AND EXPENSES.

This account shall include the office expenses of officers designated in account No. 451, "Salaries and Expenses of General Officers."

NOTE.—The proportion of general office expenses occasioned by the law department shall be included in account No. 454, "Law Expenses."

454. LAW EXPENSES.

This account shall include the pay and the office and other expenses, when not provided for elsewhere, of officers and employees of the law departments, the cost of suits, and the payments of special law fees.

455. INSURANCE.

This account shall include premiums, except reinsurance premiums, for insuring the carrier against loss, through injuries to persons or damage to or destruction or loss of property, whether caused by fire, accident, or other cause, when such loss to the carrier would be chargeable to general account VII, General; also premiums on fidelity bonds of officers and employees whose pay is chargeable to general account VII, General.

NOTE.—The premiums paid by the carrier to its insurance fund shall be credited to an insurance account, to which account shall be charged the amount of all claims for injuries to persons and damages to the property covered by its insurance. To such account shall also be charged all reinsurance premiums paid to insurance companies, and to it shall be credited all amounts recovered from insurance companies for damage to the property reinsured by them.

456. RELIEF DEPARTMENT EXPENSES.

This account shall include salaries and expenses incurred in connection with conducting relief departments; also contributions to such departments.

457. PENSIONS.

This account shall include pensions or gratuities paid out of the carrier's funds to retired employees or their heirs and the expenses solely in connection therewith.

458. STATIONERY AND PRINTING.

This account shall include the cost of stationery and printing used in general offices and not chargeable to other accounts, including the cost of printing annual reports, contracts, leases, stock certificates, and passes.

NOTE A.—The cost of printing briefs, legal forms, testimony reports, etc., for the law department is chargeable to account No. 454, "Law Expenses."

NOTE B.—The cost of printing bonds, etc., in connection with the carrier's funded debt shall be included in balance-sheet account No. 725, "Discount on Funded Debt."

459. VALUATION EXPENSES.

This account shall include expenses incident to the ascertainment (in accordance with the Act to Regulate Commerce as amended March 1, 1913, or with other Federal or State requirements) of the value of property owned or used by the carrier, such expenses including pay, and office, traveling, and other expenses of officers specially employed or assigned to such work, and of their assistants, clerks, and attendants, and the cost of stationery and printing, and of engineering supplies consumed.

NOTE.—No charge shall be made to this account for the salaries of officers or of their clerks and attendants for incidental services in connection with valuation work; but special office, clerical, traveling, and incidental expenses incurred by these officers on account of such work shall be included as a part of the cost of the work.

460. OTHER EXPENSES.

This account shall include incidental general expenses which are not properly chargeable to any of the foregoing accounts.

ITEMS OF EXPENSE.

Cost of draping buildings.

Cost of publishing annual reports in newspapers, and other corporate and financial notices of general character.

Cost of publishing notices of stockholders' meetings and of election of directors.

Donations on account of catastrophes, epidemics, etc.

Donations to local fire departments.

Donations to Y. M. C. A., and similar institutions.

Exchange on checks cashed or deposited.

Exchange on drafts bought.

Fees and expenses paid to directors and trustees.

Loss through payment of wages to a wrong person.
Penalties assessed for nonpayment of claims for overcharges.

461. GENERAL JOINT FACILITIES—DR.

This account shall include the carrier's proportions of general expenses incurred by others incident to maintaining and operating tracks, yards, terminals and other facilities used jointly.

NOTE.—The purpose of this account is to show the amount accruing against the carrier for its proportion of the expense of general administration of tracks, yards, terminals, and other facilities administered by others, and in the joint use of which the carrier participates.

462. GENERAL JOINT FACILITIES—CR.

This account shall include amounts chargeable to others as their proportions of general expenses incurred by the carrier incident to maintaining and operating tracks, yards, terminals, and other facilities used jointly.

NOTE.—The purpose of this account is to show the amounts accruing in favor of the carrier and against others for their proportions of the expense of general administration of tracks, yards, terminals and other facilities administered by the carrier, and in the joint use of which others participate.

VIII. TRANSPORTATION FOR INVESTMENT—CR.

This account shall include fair allowances representing the expense to the carrier of transporting, on transportation trains, men engaged in and material for construction.

Amounts credited to this account shall be concurrently charged to the appropriate property investment accounts.

CHAPTER IX

THE INCOME, PROFIT AND LOSS AND BALANCE-SHEET STATEMENTS

To the general public interested in railroads' accounts, investors and the like, detailed expense accounts are seldom useful. The income account, which is the running narrative of the history of a company for the year; the balance sheet, which is a statement of the company's assets and its liabilities—a cross-section, as it were, of the business; and the profit and loss account, which is the connecting link between the running narrative and the statement of present position, are the statements on which the great majority of investors and the casual students of railroad history depend for their knowledge of the financial condition of a company. It was thought by the Interstate Commerce commissioners when they put into effect the classification of accounts which were prescribed up to June 30, 1914, that they had gained uniformity in railroad accounts. As a matter of fact, however, the recent investigations of certain railroad companies have revealed the fact that there was by no means uniformity. The latest classification, therefore, was an attempt to more precisely define the terms and rules as well as to somewhat change the principles on which the Interstate Commerce Commission accounting theories rest.

The commission defines an income account as the account designed to show as nearly as practicable for each fiscal period the total amount of money that a carrier becomes

entitled to receive for services rendered, the returns accrued upon investments, the accrued costs paid or payable for the services rendered by it, the losses sustained by it, the amounts accrued for taxes, for use of moneys and for use of properties of others, and the appropriations made from income during the period.

The form of income statement is as follows:

OPERATING INCOME:

Railway operating revenues.
Railway operating expenses.
 Net revenue from railway operations.
Railway tax accruals.
Uncollectible railway revenues.
 Railway operating income.
Revenues from miscellaneous operations.
Expenses of miscellaneous operations.
 Net revenue from miscellaneous operations.
Taxes on miscellaneous operating property.
 Miscellaneous operating income.
 Total operating income.

NONOPERATING INCOME:

Hire of freight cars—Cr. balance.
Rent from locomotives.
Rent from passenger-train cars.
Rent from floating equipment.
Rent from work equipment.
Joint facility rent.
Increase from lease of road.
Miscellaneous rent income.
Miscellaneous nonoperating physical property.
Separately operated properties—profit.
Dividend income.
Income from funded securities.
Income from unfunded securities and accounts.
Income from sinking and other reserve funds.
Release of premiums on funded debt.

Contributions from other companies.
 Miscellaneous income.
 Total nonoperating income.
 Gross income.

DEDUCTIONS FROM GROSS INCOME:

Hire of freight cars—Dr. balance.
 Rent for locomotives.
 Rent for passenger-train cars.
 Rent for floating equipment.
 Rent for work equipment.
 Joint facility rents.
 Rent for leased roads.
 Miscellaneous rents.
 Miscellaneous tax accruals.
 Separately operated properties—loss.
 Interest on funded debt.
 Interest on unfunded debt.
 Amortization of discount on funded debt.
 Maintenance of investment organization.
 Income transferred to other companies.
 Miscellaneous income charges.
 Total deductions from gross income.
 Net income.

DISPOSITION OF NET INCOME:

Income applied to sinking and other reserve funds.
 Dividend appropriations of income.
 Income appropriations for investment in physical property.
 Stock discount extinguished through income.
 Miscellaneous appropriations of income.
 Total appropriations.
 Income balance transferred to credit of profit
 and loss.

The New York Central's income statement for 1913, which was compiled under the old rules, of course, is given on pages 224 and 225.

To make an intelligent analysis of the income account of a railroad property the investor should have before him the income statements for at least four or five years. The changed accounting rules of the commission will, of course, make this comparative statement for a period of years impossible, although probably most roads will recast the figures for the fiscal year ended June 30, 1914, when making up their 1915 figures so as to show a comparison over two years. Even a superficial study of the comparative income account would include a comparison of the increase or decrease in railway operating revenues with a normal increase or decrease and with the increase or decrease shown by other railroad companies in the same territory, the trend of the ratio of operating expenses to operating revenues, the trend of taxes and its ratio to operating revenues, the trend or changes in hire of freight cars and rent of other equipment, the trend of profit or loss from separately operated properties, the changes in interest on funded debt and on unfunded debt, dividend appropriations and appropriations for investment from income, and, of course, the balance transferable to profit and loss. Of course any large change in any one of the items in the income account should be scrutinized and an explanation sought in the other figures either in the income account, the balance sheet or such detailed accounts as are given to security holders in the annual report. Any considerable change in the balance for hire of freight cars or other equipment should be compared with the amount of business done and with the charges made to expenses for retirements of equipment and also with capital charges for new equipment as shown on the balance sheet. If the balance sheet shows that new securities have been issued the charges for amortization of discount on funded debt, if the securities are bonds, or stock discount extinguished through income if the securities are stock, should be noted and compared with stock discount

RAILROAD ACCOUNTING

INCOME ACCOUNT

	1913	1912*	Increase	Decrease
Operating Income				
RAIL OPERATIONS				
Revenues.....	3,759.12 miles operated \$116,904,304.05	3,731.81 miles operated \$109,697,588.34	21.31 miles \$7,206,715.71	
Expenses.....	87,932,040.97	81,129,838.65	6,802,202.32	
Net revenue from rail operations.....	\$28,972,263.08	\$28,567,749.69	404,513.39	
Percentage of expenses to revenues.....	(75.22%)	(73.96%)	(1.26%)	
AUXILIARY OPERATIONS				
Revenues.....	\$5,780,345.32	\$5,579,083.89	\$201,261.43	
Expenses.....	5,725,537.41	5,255,057.55	470,479.86	
Net revenue from outside operations.....	\$54,807.91	\$324,026.34		\$269,218.43
Net revenue from all operations.....	\$29,027,070.99	\$28,891,776.03	\$135,294.96	
TAXES ACCRUED.....	6,356,545.91	5,893,995.91	462,550.00	
Operating income.....	\$22,670,525.08	\$22,997,780.12		\$327,255.04
OTHER INCOME				
Joint facilities rents.....	\$2,283,363.39	\$1,929,462.60	\$353,900.79	
Miscellaneous rents.....	702,493.98	406,187.82	296,306.16	
Net profit from investments in physical property.....	117,027.37	62,073.62	54,953.75	
Dividends on stocks owned or controlled.....	12,168,536.78	12,791,889.90		\$623,353.12
Interest on funded debt owned.....	450,181.03	508,829.12		58,648.09
Interest on other securities, loans and accounts.....	652,588.69	1,785,755.12		1,133,166.43
Contributions from other companies.....	260,359.34		260,359.34	
Miscellaneous income.....	33,677.84	395,944.16		362,266.32
Total other income.....	\$16,668,228.42	\$17,880,142.34		\$1,211,913.92
Gross corporate income.....	\$39,338,753.50	\$40,877,922.46		\$1,539,168.96

DEDUCTIONS FROM GROSS CORPORATE INCOME					
Rentals of leased lines.....	\$8,518,856.66	\$10,055,192.32			\$1,536,335.66
Hire of equipment.....	1,026,558.22	1,969,039.74			942,481.52
Joint facilities rents.....	567,853.23	619,975.18			52,121.89
Miscellaneous rents.....	455,335.33	838,710.77			383,375.54
Miscellaneous tax accruals.....	38,120.61	15,961.73		\$22,158.88	
Separately operated properties—loss.....	39,281.33	346,612.72			307,331.39
Interest on bonds.....	10,603,317.10	9,661,603.05		941,714.05	
Interest on three-year gold notes of 1911 and 1912.....	2,250,000.00	1,903,125.00		346,875.00	
Interest on equipment trust certificates.....	1,347,411.57	1,031,538.64		315,872.93	
Other interest.....	1,170,832.75	337,426.34		833,406.41	
Transfer of income to other companies.....	67,543.75	99,800.80			32,257.05
St. L. & A. Railway: rental of leased line.....	10,000.00	10,000.00			58,240.00
N. Y. & Ottawa Railway: interest on bonds.....		58,240.00			47,918.55
Other deductions.....	84.58	48,003.13			
Total deductions from gross corporate income.....	\$26,095,195.09	\$26,995,229.42			\$900,034.33
Net corporate income.....	\$13,243,558.41	\$13,882,693.04			\$639,134.63
Dividends, four each year at 5 per cent. per annum.....	11,243,027.25	11,136,465.00		\$106,556.25	
Surplus for the year carried to profit and loss.....	\$2,000,537.16	\$2,746,228.04			\$645,690.88

* Revised: Ottawa & New York Railway transactions eliminated.

extinguished through surplus or debt discount extinguished through surplus as shown by the profit and loss account, and with the discount on capital stock and discount on funded debt carried on the assets side of the balance sheet under unadjusted debits.

As in the previous accounting rules, the commission compels a company to charge no more and no less to income account for discount and expenses on funded debt than the proportion of the balance remaining unamortized applicable to that period so long as any portion of the discount and expenses remains unextinguished; any part, however, of the discount on stock may be charged to income. The company may at its option charge any part or all of the discount on an issue of securities off through profit and loss. It is an easy matter, therefore, to figure out exactly the price which the company receives for its securities, and this, of course, is an important piece of information, in regard to which the security holder ought to keep himself informed.

The Interstate Commerce Commission defines profit and loss account as that account designed to show the changes in the corporate surplus or deficit during each fiscal period as effected by the operations and business transactions during that period, by any disposition of net profits made solely at the option of the accounting company, by accounting adjustments of matters not properly attributable to the period, or by miscellaneous gains or losses not provided for elsewhere; and showing also the appropriated surplus of the carrier at the date of the balance sheet. The form of profit and loss account is not prescribed by the Interstate Commerce Commission, but the most satisfactory one under the commission's rules would be a statement showing the debits or credits to each one of the primary accounts as shown by the text printed at the end of this chapter. These primary accounts are:

CREDITS :

- Credit balance (at beginning of fiscal period).
- Credit balance transferred from income.
- Profit and loss on equipment sold.
- Delayed income credits.
- Unrefunded overcharges.
- Donations.
- Miscellaneous credits.

DEBITS :

- Debit balance (at beginning of fiscal period).
- Debit balance transferred from income.
- Surplus applied to sinking and other reserve funds.
- Dividend appropriations of surplus.
- Surplus appropriated for investment in physical property.
- Stock discount extinguished through surplus.
- Debt discount extinguished through surplus.
- Miscellaneous appropriations of surplus.
- Loss on retired road and equipment.
- Delayed income debits.
- Miscellaneous debits.

The New York Central's profit and loss statement for 1913 is shown on page 228.

Let us assume that a company has \$3,000,000 surplus for the year after paying dividends which call for \$4,000,000. The company can now appropriate this \$3,000,000 from income for investment in physical property, in which case the \$3,000,000 is charged to income account 554 (income appropriated for investment in physical property), or the company may transfer this \$3,000,000 to the credit of Profit and Loss and debit Profit and Loss with \$3,000,000 under Profit and Loss account 615 (Surplus Appropriated for Investment in Physical Property) or the company may simply credit profit and loss with \$3,000,000 and make expenditures out of surplus for physical property and other assets of \$3,000,000. The actual facts in the case are the same in all three suppositions, the differences being only ones of

PROFIT AND LOSS ACCOUNT.

Balance to credit of profit and loss (free surplus) as shown in report of December 31, 1912.....	\$52,951.91	\$13,185,413.04
Amended by eliminating surplus of the St. Lawrence & Adirondack Railway Company.....	95,535.53	42,583.62
and deficit of the Ottawa & New York Railway Company.....		
Additions for year		\$13,227,996.66
Surplus from operations.....	\$2,000,537.16	
New York, New Haven & Hartford Railroad Company for its proportion of special franchise assessment within Grand Central Terminal area prior to 1913.....	84,056.35	2,084,593.51
Deductions for year		\$15,312,590.17
Discount, commissions and expenses account of N. Y. C. Lines equipment trust of 1913.....	\$209,141.33	
Discount, commissions and expenses on various short term loans.....	905,069.47	
Discount and commissions account debentures of 1912.....	2,615.00	
Charging off amounts against Hudson River Bridge Company for expenditures prior to 1886, not collectible.....	854,423.36	
Charging off value of abandoned facilities.....	191,140.58	
Cash advances to Clearfield Bituminous Coal Corporation for interest, sinking fund and tax payments.....	114,921.26	
Charging off various accounts and reversal of accruals due to consolidation (net).....	43,625.00	
Reduction of book value of capital stock in the Merchants Despatch Transportation Company to par value.....	17,311.00	
Various adjustments and cancellations (net).....	8,549.02	2,346,796.02
Balance to credit of profit and loss (free surplus) December 31, 1913.....		\$12,965,794.15

intention. In the first case the company definitely commits itself to an expression of opinion that the needs of the business are such, or that conservatism requires, or that their definitely adopted policy requires that the stockholders make a further investment in the property. In the second case \$3,000,000 is recognized as a surplus belonging to stockholders, but it is considered wise to set up a sign-post proclaiming that the \$3,000,000 has been appropriated for a specific purpose. In the third case, although the surplus may be invested in exactly the same way as in the first and second case, it is considered as still a fund, not, of course, in the form of cash under our assumption, against which may be charged losses in the future or dividends or other proper debits to Profit and Loss.

The credit balance or the debit balance of the Profit and Loss account is carried on to the balance sheet.

English practice in regard to the income statement rendered to security holders differs quite materially from that described above. The London & North Western, as typical of the English railroads which make quite full reports to their stockholders, shows in its annual report a revenue account, a net revenue account and proposed appropriation of balance available for dividends. The revenue account shows expenses debited and revenues credited. The balance of this account is net revenue, to which is added on the credit side of the net revenue account the balance carried forward from the year before after the payment of appropriations; dividends received on stock held and against which, on the debit side, is shown interest and rentals. The balance of this net revenue account is the balance available for dividends and for any other appropriations which the stockholders may see fit to authorize.

The absence of a Profit and Loss account will be noticed, and the result is that the net revenue account is cleared directly into the general balance sheet. From the American

point of view, this makes a clumsy balance sheet; it ceases to be a clear statement of assets and liabilities, with a simple explanation account—the Profit and Loss account. However it is perfectly comprehensible.

Since an income statement is a record of the year's business, it is often, especially in regard to railroad corporations, viewed as something inevitable and beyond the control of the management. Money once invested in a railroad property becomes fixed capital, which can be used to earn a return only in one way, namely, in the manufacture of transportation. But it must be borne in mind that new capital is continually being required for railroads, and although it is customary for the investor in securities of a railroad which has been in operation for a number of years to study the records of past earning power rather than to try to make for himself a forecast of the probable future earning power of the property, the railroad management cannot take this attitude toward their expenditures for the coming year, and certainly investors in a new railroad project should not take this attitude.

When a man figures as to whether or not it will be profitable for him to go into a certain business he really makes use of an estimated inverted income account. He argues that if he is going to put \$100,000 into the business it must first pay at least a fair interest, we will say 4½ per cent., on the capital. This calls for \$4,500. In addition to the bare interest which he can get by loaning this money, he must have a prospect of the profit to induce him to go into this particular business and which shall be commensurate with the risk involved. We will say he fixes this at \$2,000. He then figures what revenue he may hope to get, and then he makes an estimate as to whether or not his expenses can be kept down to such a figure as will permit of the foregoing budget being carried out.

While, of course, the figures shown in an income account

are the narrative of what has taken place during the year, we may be pretty sure that the outline of that story was written before the events took place. Circumstances may have been such that actual events could not be made to conform with the outline of the projected story, but the income account of either a large or a small railroad is the result of the successful or unsuccessful working-out of a preconceived plan. A bookkeeper may consider his duty done when he uses the material which comes to him in the prescribed way, but the accountant who desires to analyze results as well as to merely record them, and the general student whose interest in knowing how the events are recorded is only that he may be able to analyze a record so made, must go back of the income statement and reconstruct for himself in terms of schemes and circumstances something of the real struggle and defeat or victory that the income statement partially reflects.

Although the income statement is a running narrative, it is brought to a close, but the difficulty with this lies in the fact that the events which are being recorded cannot be brought to a close. The dividing point between two narratives must be an arbitrary line, and yet transactions and operations which have been begun during the period of which the statement is a record must be shown on that statement although they have not as yet been carried to their conclusion. The accounts, therefore, that are brought into the statement are accounts of accruals. Taxes during a single period covered by an income statement are not taxes actually paid during that period but the taxes accrued during that period. It will be seen, therefore, that in a measure and for certain accounts the income statement is an estimate.

As previously stated, the balance sheet shows the assets, liabilities, and corporate surplus or deficit of the business. The form of this balance sheet is as follows:

LIABILITY SIDE

STOCK

Capital stock

Book liability at date (in short column)

Held by or for carrier at date (in short column)

Actually outstanding at date (in long column)

Stock liability for conversion

Premium on capital stock

Total

GOVERNMENTAL GRANTS

Grants in aid of construction

LONG-TERM DEBT

Funded debt unmatured

Book liability at date (in short column)

Held by or for carrier at date (in short column)

Actually outstanding at date (in long column)

Receiver's certificates

Non-negotiable debt to affiliated companies

(a) Notes

(b) Open accounts

Total

CURRENT LIABILITIES

Loans and bills payable

Traffic and car-service balances payable

Audited accounts and wages payable

Miscellaneous accounts payable

Interest matured unpaid

Dividends matured unpaid

Funded debt matured unpaid

Unmatured dividends declared

Unmatured interest accrued

Unmatured rents accrued

Other current liabilities

Total

DEFERRED LIABILITIES

Liability for provident funds
 Other deferred liabilities
 Total

UNADJUSTED CREDITS

Tax liability
 Premium on funded debt
 Insurance and casualty reserves
 Operating reserves
 Accrued depreciation—Road
 Accrued depreciation—Equipment
 Accrued depreciation—Miscellaneous physical property
 Other unadjusted credits
 Total

CORPORATE SURPLUS

Additions to property through income and surplus
 Funded debt retired through income and surplus
 Sinking fund reserves
 Miscellaneous fund reserves
 Appropriated surplus not specifically invested
 Total unappropriated surplus
 Profit and loss—Balance
 Total corporate surplus

ASSET SIDE

INVESTMENTS

Investment in road and equipment
 Improvements on leased railway property
 Sinking funds
 Total book assets at date (in short column)
 Carrier's own issues at date (in short column)
 Other assets at date (in long column)
 Deposits in lieu of mortgaged property sold
 Total book assets at date (in short column)
 Carrier's own issues at date (in short column)
 Other assets at date (in long column)
 Miscellaneous physical property

Investments in affiliated companies

- (a) Stocks
- (b) Bonds
- (c) Notes
- (d) Advances

Other investments

- (a) Stocks
- (b) Bonds
- (c) Notes
- (d) Advances
- (e) Miscellaneous

Total

CURRENT ASSETS

Cash

Demand loans and deposits

Time drafts and deposits

Special deposits

Total book assets at date (in short column)

Carrier's own issues at date (in short column)

Other assets at date (in long column)

Loans and bills receivable

Traffic and car-service balances receivable

Net balance receivable from agents and conductors

Miscellaneous accounts receivable

Material and supplies

Interest and dividends receivable

Rents receivable

Other current assets

Total

DEFERRED ASSETS

Working fund advances

Insurance and other funds

Total book assets at date (in short column)

Carrier's own issues at date (in short column)

Other assets at date (in long column)

Other deferred assets

Total

UNADJUSTED DEBITS

Rents and insurance premiums paid in advance
Discount on capital stock
Discount on funded debt
Property abandoned chargeable to operating expenses
Other unadjusted debits
Securities issued or assumed—unpledged (in short column only)
Securities issued or assumed—pledged (in short column only)

Total

The account on the balance sheet shows the value of road and equipment as it stood on the railroad company's books on June 30, 1907, with the additions thereto, to 1914. The commission has accepted in general the theory that accounting should be based on cost, although, as will be seen, it permits variations from this theory, with a proviso, however, that where a railroad company makes such variations, they shall be clearly indicated so that the commission's accountants could, if they desired, go back and recast the figures strictly on the basis of the cost.

Prior to June 30, 1907, the great majority of railroads in this country did not base the first item on the debit side of the balance sheet, that is, their principal asset, on cost. The figures that were given were in most instances derived figures. A group of men decided to build a railroad. They got together certain franchises, options on right of way, etc. They then issued a certain amount of stock with a nominal par value, and borrowed money, issuing bonds secured by a mortgage or some other form of indenture on the property, which they turned over to the company. When the books of the company were opened, the property which was turned over to it was entered on the debit side of the balance sheet as the first asset, not at what it cost anybody in money but at a figure expressed in dollars and

cents which corresponded with the nominal par value and face value of the total securities issued. It is largely because this was the method of constructing a balance sheet that was in common use by railroads up to 1907 that all the hue and cry for a physical valuation has been raised. This demand for a physical valuation is generally founded on a misconception of what would be shown by such a valuation. If a railroad property in the United States which has been a going concern for twenty years were to be valued to-day, and its books had been kept in strict accordance with the cost theory of accounting, and, moreover, the "value" of its roadbed and equipment had not been written up from the original cost through the Profit and Loss account, a physical valuation would in all probability show a far greater "value" for that property than would the books. On the other hand, a railroad company whose books had been kept for the last twenty years in accordance with the common practice during that time would probably in most cases in actual practice carry on its balance sheet as of June 30, 1907, a very considerably higher debit to road and equipment than would have been the case if the cost theory of accounting had been used, but would not show a higher debit to road and equipment than would a fair "valuation" of the property at that date.

If the advocates of a physical valuation want to show that the value of railroad property is less than its capitalization at present they will be pretty surely disappointed. If they want to show that its cost was less than its capitalization they could not prove their contention by a physical valuation. They would, however, in many cases be correct in their assumption. Since accounting is a matter of accepted practice, it is not fair to say that the former method of railroad companies in constructing this first and very important item on the balance sheet was ethically wrong. This method; however, is not the method that is now con-

sidered best adapted to truly record transactions for the information of those for whom accounts are kept.

It is vitally important that the distinction between Current Assets Investment and Deferred Assets be clearly shown on the balance sheet. One defect of the old form of balance sheet was that certain items were included under Working Assets which might or might not be current assets in the real sense of the word. In the old form of balance sheet under Property Owned as Investment there was included Securities. Under Working Assets there was included Marketable Securities. Whether certain securities should be carried as a part of the permanent investment or as a part of working assets might depend on the individual judgment of the management. The new form of balance sheet has under Permanent Investments an account for Other Investments to which account is charged the cost value of stocks, bonds and notes other than those issued by the accounting company or assumed by it. This is a step in the direction of more sound accounting. No very large block of bonds or stocks is really a current asset, and if a company makes a temporary investment in stocks or bonds of other companies simply to employ its idle cash, such investment might properly be classed under Other Current Assets. Another improvement in the new form of balance sheet is the transfer of securities issued or assumed held by the Treasury from Current Assets to Unadjusted Debits. The whole division of accounts under Unadjusted Debits is new and this form of showing these accounts is a marked improvement over the old form in which they were distributed between Current Assets and Deferred Debit Items.

In an analysis of a railroad company's balance sheet as in that of the incoming account, charges from year to year are the principal sources of information on which judgment of the company's condition must be based. A large

addition to any one of the seven accounts under Investments should be scrutinized carefully and an explanation sought in the other accounts of the company. The wisdom of a large addition to the investment in road and equipment can, of course, only be accurately determined when a thorough knowledge of the needs of the property is at the command of the investigator. As was previously mentioned, the cost of new money to the company is an important factor, showing the state of the company's credit.

Of course, more railroad failures have come about through the disproportionate increase in current liabilities as compared with the increase in current assets than from any other one cause. Nevertheless, it is quite possible for a railroad company to get into trouble within less than a year after having shown a balance-sheet statement on which Current Liabilities are small when compared with current assets, but on which current assets are also disproportionately small when compared to the total investment in property and the amount of business being done.

Cash-demand loans and deposits, traffic and car-service balances receivable and net balance receivable from agents and conductors are the current assets in the strictest sense of the word on which the company can depend. The Interstate Commerce Commission includes also time drafts, special deposits, miscellaneous accounts receivable, interest and dividends receivable, rents receivable and materials and supplies. There is nothing to show on the face of the balance-sheet statement how quickly such assets as these can be realized on, and as a matter of fact, material and supplies might better be carried as a separate and distinct account and not included under the heading "Current Assets."

A large amount of cash on hand may not be economical for a company with a high credit, since it presumably is

not drawing interest. On the other hand, a large aggregate of cash on hand and demand loans and deposits is a pretty good indication of financial strength. This may, however, be offset by excessive amounts of current liabilities. Commonly the most easily recognizable danger signal on a balance sheet is a shrinkage in cash and demand loans and deposits and an expansion of loans and bills payable, but loans and bills payable may be increased to a dangerous extent, although the company is holding what would, when compared with its total investment and the amount of business being done, seem to be an ample working supply of cash. A misleading appearance of sufficient working capital may also be obtained by permitting audited accounts and wages payable to amount up to an abnormal extent. It is well worth while, if studying a railroad company's balance sheet, to take each of the accounts under Current Liabilities and match it against the current assets which can properly be considered as protecting it. Thus loans and bills payable, under ordinary circumstances, can be offset by time drafts and deposits and loans and bills receivable; traffic and car-services balances payable by traffic and car-services balances receivable; audited accounts and wages payable by cash and demand loans and deposits; miscellaneous accounts payable by miscellaneous accounts receivable, and the sum of interest matured unpaid, dividends matured unpaid, funded debt matured unpaid, unmatured dividends declared, unpaid interest accrued and unmatured rents accrued by cash and demand loans and deposits. Companies which have been on the verge of receivership have sometimes shown a total of current assets greatly in excess of total current liabilities. Under the present form of Interstate Commerce Commission balance sheet this would not be likely to occur, but is not in the nature of accounts impossible.

It must also be borne in mind that a loss—a debit bal-

ance to profit and loss—is carried on the assets side of the balance sheet, although curiously enough the Interstate Commerce Commission's form for the balance sheet makes no provision for a debit balance to Profit and Loss Account. Under unadjusted debits, however, are included discount on capital stock, discount on funded debt and property abandoned chargeable to operating expenses. These are assets from a bookkeeping point of view only, and, like a profit and loss debit, are explanatory accounts.

TEXT PERTAINING TO THE INCOME ACCOUNTS.

I. CREDITS.

501. RAILWAY OPERATING REVENUES.

This account shall include the total revenues derived from operations as shown in the accounts provided in the classification of operating revenues.

502. REVENUES FROM MISCELLANEOUS OPERATIONS.

This account shall include the total revenues derived from the operations of miscellaneous operating physical property, such as that the cost of which is includible in balance-sheet account No. 705, "Miscellaneous Physical Property."

NOTE.—The income from miscellaneous nonoperating physical property shall be included in account No. 511, "Miscellaneous Nonoperating Physical Property."

503. HIRE OF FREIGHT CARS—CREDIT BALANCE.

This account shall include the net credit balance of (1) amounts receivable accrued for the use of the accounting company's freight cars leased or interchanged, and (2) amounts payable accrued for the use of the freight cars of other carriers, leased or interchanged, and for the use of freight cars of individuals and companies not carriers.

NOTE A.—If the net balance is a debit, it shall be included in account No. 536, "Hire of Freight Cars—Debit Balance."

NOTE B.—Rent for freight cars included in the lease of road

to another company shall be included in account No. 509, "Income from Lease of Road."

NOTE C.—Rents paid for freight cars used in construction work-train service are chargeable to the cost of the work.

NOTE D.—A fair rent for freight cars used in construction work-train service shall be credited to the account "Hire of Freight Cars."

504. RENT FROM LOCOMOTIVES.

This account shall include amounts receivable accrued as rent for the use of the accounting company's locomotives leased or interchanged.

NOTE A.—Rent for locomotives included in lease of road to another company shall be included in account No. 509, "Income from Lease of Road."

NOTE B.—A fair rent for locomotives used in construction work-train service shall be credited to this account.

505. RENT FROM PASSENGER-TRAIN CARS.

This account shall include amounts receivable accrued as rent for the use of the accounting company's passenger-train cars leased or interchanged.

NOTE.—Rent for passenger-train cars included in lease of road to another company shall be included in account No. 509, "Income from Lease of Road."

506. RENT FROM FLOATING EQUIPMENT.

This account shall include amounts receivable accrued as rent for the use of the accounting company's floating equipment leased or chartered.

NOTE.—Rent from floating equipment included in lease of road to another company shall be included in account No. 509, "Income from Lease of Road."

507. RENT FROM WORK EQUIPMENT.

This account shall include amounts receivable accrued as rent for the use of the accounting company's work equipment leased or interchanged.

NOTE A.—Rent for work equipment included in lease of road to another company shall be included in account No. 509, "Income from Lease of Road."

NOTE B.—A fair rent for work equipment used in construction work-train service shall be credited to this account.

508. JOINT FACILITY RENT INCOME.

This account shall include amounts receivable accrued for rent of tracks, yards, terminals and other facilities owned or controlled by the accounting company and used jointly with other companies or individuals.

Amounts receivable from other companies in reimbursement for taxes on property jointly used shall be credited to this account.

NOTE.—The portion of the cost of maintenance, operation, or administration of joint facilities recoverable from others shall be credited to the various joint facility accounts provided for operating expenses. When the compensation for the use of joint facilities is a fixed amount or is based upon a charge per passenger, ton, car, or other unit, it shall be fairly apportioned by the creditor between this account and the appropriate joint facility operating expense accounts.

509. INCOME FROM LEASE OF ROAD.

This account shall include the entire amount receivable accrued for the exclusive use of road, tracks, or bridges (including equipment or other railway property covered by the contract) owned or controlled by the accounting company, whether payable to the accounting company in cash or disbursed by the lessee on behalf of the accounting company as interest on funded debt, guaranteed dividends on stock, or otherwise.

When the lessor company maintains the road and equipment leased, the cost of maintaining the property rented shall be charged to this account, except that when the rent thus receivable for the use of property other than equipment is relatively small and the expense of maintenance is not separable, the entire amount received may be credited to revenue account No. 142, "Rents of Buildings and Other Property."

If, under the terms of a lease, the deficit, or any portion of it, resulting from the lessee company's operations of the

property leased is payable by the lessor company, the amount thus payable shall be charged to this account by the lessor.

NOTE A.—When taxes on leased property are assumed by the lessor, the accruals of such taxes shall be included in the lessor's account No. 532, "Railway Tax Accruals."

NOTE B.—If property the rent of which is chargeable to account No. 542, "Rent for Leased Roads," is sublet by the accounting company, the rent receivable therefor shall be credited to this account.

510. MISCELLANEOUS RENT INCOME.

This account shall include such rents of property owned and controlled by the accounting carrier as are not provided for in the foregoing accounts.

To this account shall be charged the cost of maintenance of the property rented, also specific incidental expenses in connection with such property, such as the cost of negotiating contracts, advertising for tenants, fees paid conveyances, collectors' commissions, and analogous items.

NOTE A.—If property the rent of which is chargeable to account No. 543, "Miscellaneous Rents," is sublet by the accounting company, the rent receivable therefor shall be credited to this account.

NOTE B.—Taxes on property the rent of which is creditable to this account shall be charged to account No. 532, "Railway Tax Accruals."

NOTE C.—The rent from property carried in balance-sheet account No. 705, "Miscellaneous Physical Property," shall not be included in this account, but in account No. 511, "Miscellaneous Nonoperating Physical Property."

NOTE D.—Rent and other income from real estate acquired for new lines or for additions and betterments shall be credited to the appropriate road and equipment accounts until the completion or coming into service of the property.

511. MISCELLANEOUS NONOPERATING PHYSICAL PROPERTY.

This account shall include the net credit balance of the nonoperating revenues or income from, and the expenses (in-

cluding depreciation, but excluding taxes) of, physical property the cost of which is carried in balance-sheet account No. 705, "Miscellaneous Physical Property."

NOTE A.—Net debit balances in this account shall be shown in red ink.

NOTE B.—The revenues from the operation of miscellaneous operating physical property shall be included in income account No. 502, "Revenues from Miscellaneous Operations," and the expenses of operation shall be included in account No. 534, "Expenses of Miscellaneous Operations."

512. SEPARATELY OPERATED PROPERTIES—PROFIT.

This account shall include amounts receivable under the terms of agreements or contracts whereby the surplus resulting from the operation by others of properties of other companies having a separate corporate existence is to be paid, in whole or in part, to the accounting company.

In determining the amount receivable by the accounting company, consideration shall be given not only to the operating revenues and operating expenses but also to other items of income or deduction which affect that amount.

NOTE A.—The amount payable by the operating company shall be charged by it to account No. 550, "Income Transferred to Other Companies."

NOTE B.—Dividends or other returns upon securities issued by separately operated companies, and held or controlled by the accounting company, shall be included in account No. 513, "Dividend income"; No. 514, "Income from Funded Securities"; No. 515, "Income from Unfunded Securities and Accounts"; or No. 516, "Income from Sinking and Other Reserve Funds," as may be appropriate.

513. DIVIDEND INCOME.

This account shall include dividends declared on railway and other stocks, the income from which is the property of the accounting company, whether such stocks are owned by the accounting company and held in its treasury or deposited in trust, or are controlled through lease or otherwise.

Dividends declared shall not be credited prior to actual

collection, unless their payment is reasonably assured by past experience, guaranty, anticipated provision, or otherwise.

Accruals of guaranteed dividends may be included in this account if their payment is reasonably assured.

NOTE A.—This account shall not include credits for dividends on stocks issued or assumed by the accounting company and owned by it, whether pledged as collateral or held in its treasury, in special deposits, or in sinking or other reserve funds.

NOTE B.—Dividends on stocks of other companies held in sinking or other reserve funds shall be credited to account No. 516, "Income from Sinking and Other Reserve Funds."

514. INCOME FROM FUNDED SECURITIES.

This account shall include interest on bonds and other funded securities and on debenture stock of other companies, the income from which is the property of the accounting company, whether such securities are owned by the accounting company and held in its treasury or deposited in trust, or are controlled through lease or otherwise. Interest accrued shall not be credited prior to actual collection unless its payment is reasonably assured by past experience, guaranty, anticipated provision, or otherwise.

At the option of the accounting company there may be included each year in this account the portion, applicable to the fiscal period, of the amount requisite to extinguish, during the interval between the date of acquisition and the date of maturity, the discount or premium on funded securities of other companies owned. Amounts thus credited or charged shall be concurrently charged or credited to the account in which the cost of the securities is carried.

NOTE A.—The term *funded securities* as here used means all unmatured bonds, notes, and other evidences of indebtedness (except open accounts for advances) none of which by the terms of the creation of the debt matures until more than one year after the date of such creation, provided that in case of an obligation maturing serially, such as car-trust notes, the entire amount shall be included in funded securities if any portion of the obligation matures later than one year after date of issue.

NOTE B.—This account shall not include interest on funded

securities issued or assumed by the accounting company and owned by it, whether pledged as collateral or held in its treasury, in special deposits, or in sinking or other reserve funds.

NOTE C.—Interest on funded securities of other companies held in sinking or other reserve funds shall be included in account No. 516, “Income from Sinking and Other Reserve Funds.”

NOTE D.—Interest accruing after maturity on any securities not in sinking or other reserve funds shall be included in account No. 515, “Income from Unfunded Securities and Accounts.”

515. INCOME FROM UNFUNDED SECURITIES AND ACCOUNTS.

This account shall include interest on unfunded securities, notes, and other evidences of indebtedness payable on demand or having dates of maturity one year or less from the date of issue, interest on matured funded securities of other companies, interest on bank balances and on open accounts, and other analogous items, including discount on short-term notes. The discount on short-term notes shall be distributed, through equal monthly credits, over the term of the notes.

NOTE A.—Interest on assets held in sinking and other reserve funds shall be included in account No. 516, “Income from Sinking and Other Reserve Funds.”

NOTE B.—Discount on bills for material purchased shall be credited to the accounts to which is charged the cost of the material with respect to which the discount is allowed.

516. INCOME FROM SINKING AND OTHER RESERVE FUNDS.

This account shall include the income accrued on cash, securities, and other assets (not including securities issued or assumed by the accounting company) held in sinking and other reserve funds.

At the option of the accounting company there may be included each year in this account the portion, applicable to the fiscal period, of the amount requisite to extinguish, during the interval between the date of acquisition and the date of maturity, the discount or premium on funded securities held in sinking or other reserve funds. Amounts thus cred-

ited or charged shall be concurrently charged or credited to the account in which the cost of the securities is carried.

NOTE.—Credits to fund reserve accounts representing income on reserve funds shall be concurrently charged to account No. 552, "Income Applied to Sinking and Other Reserve Funds."

517. RELEASE OF PREMIUMS ON FUNDED DEBT.

This account shall include, during each fiscal period, such proportion of the premiums on outstanding funded debt as may be applicable to the period. This proportion shall be determined in accordance with special instructions for balance-sheet accounts, section 3.

518. CONTRIBUTIONS FROM OTHER COMPANIES.

This account shall include amounts received or receivable from other companies or individuals, representing the whole or a part of the net deficit of the accounting company when, under the terms of agreements or contracts, no obligation for subsequent reimbursement is incurred.

In determining the amount receivable by the accounting company, consideration shall be given not only to the operating revenues and operating expenses, but also to other items of income or deduction which affect that amount.

NOTE.—The amount payable shall be charged by the contributing company to account No. 545, "Separately Operated Properties—Loss."

519. MISCELLANEOUS INCOME.

This account shall include all items, not provided for elsewhere, properly creditable to Income Account during the fiscal period.

II. DEBITS.

531. RAILWAY OPERATING EXPENSES.

This account shall include the total expenses caused by operations, as shown in the accounts provided in the classification of operating expenses.

532. RAILWAY TAX ACCRUALS.

This account shall include accruals for taxes of all kinds (including Federal income tax) relating to railway property (including floating equipment, if any), operations, and privileges, whether based upon the valuation of the property, amount of stocks and bonds issued or outstanding, gross or net earnings, dividends declared, number of passengers carried, quantity of freight transported, length of line operated or owned, rolling stock operated or owned, or other basis.

The taxes on leased property shall be included in this account by the carrier obligated to assume such expenses under the terms of the lease.

NOTE A.—Taxes on leased property paid by one party to the lease and chargeable to the other party to the lease shall be charged directly to the party bearing the expense and not included in the Income Account of the party first making payment.

NOTE B.—Taxes on other than railway property, operations, and privileges, shall be charged to account No. 544, "Miscellaneous Tax Accruals," when the amount is separable from the taxes chargeable to this account.

NOTE C.—Special assessments for street and other improvements, and special benefit taxes, such as water taxes and the like, shall be included in operating expense accounts or investment accounts, as may be appropriate.

NOTE D.—Amounts received in reimbursement of taxes on property jointly used shall be credited to account No. 508, "Joint Facility Rent Income." Amounts paid in reimbursement of such taxes shall be charged to account No. 541, "Joint Facility Rents."

NOTE E.—Taxes accruing on new lines under construction or on property acquired for the extension of existing lines or for addition or betterment purposes before the facilities are opened for commercial operation or the property acquired becomes available for service shall be charged to road and equipment accounts.

533. UNCOLLECTIBLE RAILWAY REVENUES.

This account shall include the amount of uncollected revenue charges against companies and individuals representing tariff charges for service rendered (including not only the accounting carrier's revenue charges, but also charges ad-

vanced to other carriers) when such amounts have been, during the period for which the Income Account is stated, determined to be uncollectible.

NOTE A.—This account shall not be construed to relieve the carrier from its responsibility for collecting the lawfully established charges.

NOTE B.—This account shall not include charges for service if it has not been performed in accordance with the contract and which, on that account, are not lawfully collectible from companies or individuals, such as freight charges on lost or destroyed shipments.

534. EXPENSES OF MISCELLANEOUS OPERATIONS.

This account shall include the total expenses caused by the operation of miscellaneous physical property the cost of which is includible in balance-sheet account No. 705, "Miscellaneous physical property."

NOTE.—The expenses of miscellaneous nonoperating physical property shall be included in account No. 511, "Miscellaneous Nonoperating Physical Property."

535. TAXES ON MISCELLANEOUS OPERATING PROPERTY.

This account shall include accruals of taxes paid or payable upon miscellaneous operating property, such as that the cost of which is includible in account No. 705, "Miscellaneous Physical Property."

NOTE.—Taxes upon miscellaneous nonoperating physical property shall be included in account No. 544, "Miscellaneous Tax Accruals."

536. HIRE OF FREIGHT CARS—DEBIT BALANCE.

This account shall include, except as provided for in the classification for investment in road and equipment, the net debit balance of (1) amounts receivable accrued for the use of the accounting company's freight cars leased or interchanged, and (2) amounts payable accrued for the use of the freight cars of other carriers, leased or interchanged, and for the use of freight cars of individuals and companies not carriers.

NOTE A.—If the net balance is a credit, it shall be included in account No. 503, "Hire of Freight Cars—Credit Balance."

NOTE B.—Rent for freight cars included in the lease of road to the accounting company shall be included in account No. 542, "Rent for Leased Roads."

NOTE C.—Interest accrued on equipment obligations shall be charged to account No. 546, "Interest on Funded Debt," or No. 547, "Interest on Unfunded Debt," as may be appropriate.

NOTE D.—Rents paid for freight cars used in construction work-train service are chargeable to the cost of the work.

NOTE E.—A fair rent for freight cars used in construction work-train service shall be credited to account "Hire of Freight Cars."

537. RENT FOR LOCOMOTIVES.

This account shall include amounts payable accrued for the use of the locomotives of others, leased or interchanged, except as provided for in the classification for investment in road and equipment.

NOTE A.—The rent for locomotives included in the lease of road to the accounting company shall be included in account No. 542, "Rent for Leased Roads."

NOTE B.—Interest accrued on equipment obligations shall be charged to account No. 546, "Interest on Funded Debt," or No. 547, "Interest on Unfunded Debt," as may be appropriate.

NOTE C.—Rent paid for locomotives used in construction work-train service is chargeable to the cost of the work.

538. RENT FOR PASSENGER-TRAIN CARS.

This account shall include amounts payable accrued for the use of the passenger-train cars of others, leased or interchanged, and also for use of sleeping cars operated under contract arrangement, except as provided for in the classification for investment in road and equipment.

NOTE A.—The rent for passenger-train cars included in the lease of road to the accounting company shall be included in account No. 542, "Rent for Leased Roads."

NOTE B.—Interest accrued on equipment obligations shall be charged to account No. 546, "Interest on Funded Debt," or No. 547, "Interest on Unfunded Debt," as may be appropriate.

539. RENT FOR FLOATING EQUIPMENT.

This account shall include amounts payable accrued for the use of the floating equipment of others, leased or chartered, except as provided for in the classification for investment in road and equipment.

NOTE A.—The rent of floating equipment included in the lease of road to the accounting company shall be included in account No. 542, "Rent for Leased Roads."

NOTE B.—Interest accrued on equipment obligations shall be charged to account No. 546, "Interest on funded debt," or No. 547, "Interest on Unfunded Debt," as may be appropriate.

540. RENT FOR WORK EQUIPMENT.

This account shall include amounts payable accrued for the use of the work equipment of others, leased or interchanged, except as provided for in the classification for investment in road and equipment.

NOTE A.—The rent for work equipment included in the lease of road to the accounting company shall be included in account No. 542, "Rent for Leased Roads."

NOTE B.—Interest accrued on equipment obligations shall be charged to account No. 546, "Interest on Funded Debt," or No. 547, "Interest on Unfunded Debt," as may be appropriate.

NOTE C.—Rent paid for work equipment when used in construction work-train service is chargeable to the cost of the work.

541. JOINT FACILITY RENTS.

This account shall include amounts payable accrued as rent for tracks, yards, terminals, and other facilities owned or controlled by other carriers, companies, or individuals, and in the joint use of which the accounting company participates.

Amounts paid or payable by the accounting company in reimbursement for taxes on property jointly used shall be charged to this account.

NOTE.—The cost of maintenance, operation, or administration of joint facilities, chargeable to the accounting company, shall be charged to the various joint facility accounts provided for operating expenses. When the compensation for the use of joint

facilities is a fixed amount or is based upon a charge per passenger, ton, car, or other unit, it shall be fairly apportioned between this account and the appropriate joint facility operating expense accounts. This apportionment shall be made by the operating company, and shall be followed by the accounting company.

542. RENT FOR LEASED ROADS.

This account shall include amounts payable accrued as rent for roads, tracks, or bridges (including equipment and other railway property covered by the contract) of other companies, held under lease or other agreement by the terms of which exclusive use and control for operating purposes are secured. The entire amount of rent payable by the lessee in accordance with the agreement shall be included in this account, whether paid to the lessor in cash or disbursed by the lessee, on behalf of the lessor, as interest on funded debt, guaranteed dividends on stock, or otherwise.

NOTE A.—When taxes on leased property are assumed by the lessee the accruals of such taxes shall be included in the lessee's account No. 532, "Railway Tax Accruals."

NOTE B.—If, under the terms of a lease, the deficit of any portion of it resulting from the lessee's operation of the property leased is payable by the lessor company, the amount shall be charged to account No. 509, "Income from Lease of Road," by the lessor and credited to this account by the lessee.

NOTE C.—If property, the rent of which is chargeable to this account, is sublet by the accounting company to others, the rent from this sublease shall be credited to account No. 509, "Income from Lease of Road."

NOTE D.—Payments for the exclusive use of road and equipment maintained by the lessor and used in the accounting company's operations (when considerable in amount and when not provided for in the classification of operating expenses) shall be divided into two portions: One, representing cost of maintenance, shall be charged to the appropriate maintenance accounts and the other, representing rent (amount applicable to the investment in the property), shall be charged to this account.

543. MISCELLANEOUS RENTS.

This account shall include rents payable accrued on property held by the accounting company under lease or other

agreement and not properly chargeable to any of the foregoing accounts.

NOTE A.—This account shall not include rents provided for in the operating expense accounts.

NOTE B.—If property, the rent of which is chargeable to this account, is sublet by the accounting company to others, the rent from the sublease shall be credited to account No. 510, "Miscellaneous Rent Income."

NOTE C.—Payments for the exclusive use of miscellaneous property maintained by the lessor and used by the accounting company shall be divided into two portions: One, representing the cost of maintenance, shall be charged to the appropriate operating accounts, and the other, representing rent (amount applicable to the investment in the property), shall be charged to this account. The bill rendered by the creditor shall show the distribution of the payments as between maintenance and rent, and such distribution shall be adhered to by the debtor.

544. MISCELLANEOUS TAX ACCRUALS.

This account shall include all accruals for taxes not provided for elsewhere, such as taxes on securities owned, taxes on income from securities owned, and taxes on miscellaneous nonoperating physical property the cost of which is includible in balance-sheet account No. 705, "Miscellaneous Physical Property."

NOTE A.—When the proper separation of any particular tax is not ascertainable the entire amount shall be included in account No. 532, "Railway Tax Accruals."

NOTE B.—Taxes upon miscellaneous operating property shall be charged to account No. 535, "Taxes on Miscellaneous Operating Property."

545. SEPARATELY OPERATED PROPERTIES—LOSS.

This account shall include amounts payable under the terms of agreements or contracts whereby the deficit resulting from the operation by others of properties of other companies having a separate corporate existence is to be paid, in whole or in part, by the accounting company.

In determining the amount payable by the accounting company, consideration shall be given not only to the operating

revenues and operating expenses, but also to other items of income or deduction which affect that amount.

NOTE A.—The amount receivable by the operating company shall be credited by it to account No. 518, "Contributions from other companies."

NOTE B.—Dividends or other returns upon securities issued by separately operated companies and held or controlled by the accounting company shall not be included in this account to offset a deficit payable, but in account No. 513, "Dividend Income"; No. 514, "Income from Funded Securities"; or No. 515, "Income from Unfunded Securities and Accounts," as may be appropriate.

546. INTEREST ON FUNDED DEBT.

This account shall include the current accruals of interest on all classes of debt, the principal of which is includible in balance-sheet account No. 755, "Funded Debt Unmatured," or No. 757, "Nonnegotiable Debt to Affiliated Companies"; also interest accruals on debenture stock and on receiver's certificates issued for a term of more than one year. This account shall be kept in such form that the interest on debenture stock, on receiver's certificates, and on other classes of funded debt may be shown separately in the annual report of the Commission.

NOTE A.—This account shall not include charges for interest on funded debt obligations issued or assumed by the accounting company and owned by it, whether pledged as collateral or held in its treasury in special deposits, or in sinking or other reserve funds. (See account No. 552, "Income Applied to Sinking and Other Reserve Funds.")

NOTE B.—When funded debt is incurred for new lines or extensions, or for addition and betterment purposes, the accruals of interest on such funded debt (less interest received on unexpended balances), to the date of completion or coming into service of the property so acquired shall be included in the road and equipment accounts.

547. INTEREST ON UNFUNDED DEBT.

This account shall include interest accrued on unfunded debt, such as short-term notes payable on demand or having

dates of maturity one year or less from dates of issue, interest on receiver's certificates issued for a term of one year or less, interest on matured funded securities and open accounts including interest on overcharge claims, discount and expense on demand and short-term loans, interest on receipts outstanding for installments paid on capital stock, and other analogous items. The discount on short-term notes, if of a considerable amount, shall be distributed, through equal monthly charges, over the term of the notes.

NOTE.—When short-term notes or other evidences of unfunded indebtedness are issued for new lines or extensions or for addition and betterment purposes the accrual of interest to the date of completion or coming into service of the property shall be included in the road and equipment accounts.

548. AMORTIZATION OF DISCOUNT ON FUNDED DEBT.

This account shall be charged during each fiscal period with the proportion of the discount and expense on funded debt obligations applicable to that period. This proportion shall be determined according to a rule the uniform application of which through the interval between the date of sale and the date of maturity will extinguish the discount and expense on funded debt. The charge to this account for any period must not be either greater or less than the proportion of the balance remaining unamortized applicable to that period so long as any portion of the discount and expense remains unextinguished.

NOTE.—The accounting company may, at its option, charge to profit and loss account No. 617, "Debt Discount Extinguished Through Surplus," all or any portion of the discount and expense on funded debt remaining at any time unextinguished.

549. MAINTENANCE OF INVESTMENT ORGANIZATION.

This account shall include the directly assignable organization and administration expenses of the accounting company which are incident to its investments in leased or non-operating physical property, and in stocks, bonds, or other securities.

ITEMS OF EXPENSE.

Advertising annual reports (lessor companies only).
 Calls for bonds in accordance with sinking fund provisions of mortgages.
 Directors' fees.
 Printing and mailing dividend checks.
 Publishing and mailing annual reports and other corporate statements to shareholders.
 Publishing notices of declaration of dividends.
 Law expenses.
 Office expenses.
 Salaries of officers, clerks, and attendants.
 Stationery and printing.

NOTE.—Organization and administration expenses incident to railway operation are provided for in operating expense general account VII, General.

550. INCOME TRANSFERRED TO OTHER COMPANIES.

This account shall include the whole or any portion of the income of the accounting company payable to another company under the terms of agreements or contracts without obligation for reimbursement.

In determining the amount payable by the accounting company, consideration shall be given not only to operating revenues and operating expenses, but also to other items of income or deduction which affect that amount.

NOTE A.—The amount receivable by the other company shall be credited by it to account No. 512, "Separately Operated Properties—Profit."

NOTE B.—Dividends or other payments upon securities issued or assumed by the accounting company shall not be included in this account.

551. MISCELLANEOUS INCOME CHARGES.

This account shall include all items in the nature of fixed charges properly chargeable to Income Account for a fiscal period not provided for elsewhere, such as "normal" and "additional" income tax upon the interest on accounting company's funded debt when assumed by it.

552. INCOME APPLIED TO SINKING AND OTHER RESERVE FUNDS.

This account shall include amounts applied to sinking and other reserve funds from income, whether definite appropriations from income; allotments or payments of definite amounts from income under the terms of mortgages, deeds of trust, or other contracts that provide for such allotments or payments; or accretions representing interest or other returns accrued on the contents of such funds and required to be retained therein.

NOTE A.—The amounts charged to this account shall be concurrently credited to balance-sheet accounts Nos. 773, 781, 782, and 783, as may be appropriate.

NOTE B.—Similar appropriations made from surplus shall be charged to profit and loss account No. 613, "Surplus Applied to Sinking and Other Reserve Funds."

553. DIVIDEND APPROPRIATIONS OF INCOME.

This account shall include amounts definitely declared payable from the income of the fiscal period, as dividends on actually outstanding capital stock issued or assumed by the accounting company, other than debenture stock. (See definition of the several classes of capital stock in balance-sheet account No. 751, "Capital Stock.") If a dividend is not payable in cash the consideration shall be described in the entry with sufficient particularity to identify it.

This account shall be subdivided so as to show separately the dividends on the various subclasses of capital stock.

NOTE A.—Interest accrued on debenture stock shall be charged to account No. 546, "Interest on Funded Debt."

NOTE B.—This account shall not include charges for dividends on capital stock issued or assumed by the accounting company and owned by it, whether pledged as collateral, or held in its treasury, in special deposits, or in sinking or other reserve funds. (See account No. 552, "Income Applied to Sinking and Other Reserve Funds.")

NOTE C.—This account shall be used when the appropriations are definitely made chargeable to Income. Similar appropria-

tions made from surplus shall be charged to profit and loss account No. 614, "Dividend Appropriations of Surplus."

554. INCOME APPROPRIATED FOR INVESTMENT IN PHYSICAL PROPERTY.

This account shall include amounts definitely appropriated from income to be applied for the construction or acquisition of new lines and extensions and of additions to and betterments of property the cost of which is chargeable to road and equipment accounts or applied for the construction or acquisition of property the cost of which is includible in balance-sheet account No. 705, "Miscellaneous Physical Property."

Records of the accounting carrier shall be so kept that the appropriations charged to this account for any fiscal period may be distinguished as relating to (a) amounts expended during preceding fiscal periods, (b) amounts expended during the current fiscal period, and (c) amounts held in reserve.

The records shall also show separately appropriations for investment in road and equipment and for investment in miscellaneous physical property.

NOTE A.—Similar appropriations made from surplus shall be charged to profit and loss account No. 615, "Surplus Appropriated for Investment in Physical Property."

NOTE B.—The amounts charged to this account shall be concurrently credited to balance-sheet account No. 779, "Additions to Property Through Income and Surplus," to No. 782, "Miscellaneous Fund Reserves," or to No. 783, "Appropriated Surplus Not Specifically Invested," as may be appropriate.

555. STOCK DISCOUNT EXTINGUISHED THROUGH INCOME.

This account shall include amounts definitely appropriated from income to reduce or extinguish the amount of discount on capital stock issued by the accounting company. (See balance-sheet account No. 724, "Discount on Capital Stock.")

NOTE.—Similar appropriations made from surplus shall be charged to profit and loss account No. 616, "Stock Discount Extinguished Through Surplus."

556. MISCELLANEOUS APPROPRIATIONS OF INCOME.

Except as provided in account No. 552, "Income Applied to Sinking and Other Reserve Funds," this account shall include amounts definitely appropriated from income for the discharge of the principal (less the discount, if any, suffered at the time of sale) of any indebtedness incurred in the acquisition or improvement of property carried in the road and equipment accounts; also amounts similarly appropriated to provide a reserve for doubtful accounts, and for other purposes not provided for elsewhere.

NOTE.—Similar appropriations made from surplus shall be charged to profit and loss account No. 618, "Miscellaneous Appropriations of Surplus."

TEXT PERTAINING TO PROFIT AND LOSS ACCOUNTS.**I. CREDITS.****601. CREDIT BALANCE (AT BEGINNING OF FISCAL PERIOD).**

This account shall include the net credit balance in the Profit and Loss Account at the beginning of the fiscal period.

602. CREDIT BALANCE TRANSFERRED FROM INCOME.

This account shall show the net credit balance brought forward from the Income Account for the fiscal period.

603. PROFIT ON ROAD AND EQUIPMENT SOLD.

This account shall include the proceeds from the sale of road and equipment property in excess of the amount at which such property was carried in the property account at the time of sale.

604. DELAYED INCOME CREDITS.

This account shall include relatively large credits relating to operating revenue, operating expense, and other income accounts of previous fiscal periods.

This account shall be used only after permission of the Interstate Commerce Commission has been obtained.

NOTE.—Except as provided for above, delayed items relating to operating revenue, operating expense, and other income items shall be included in the appropriate revenue, expense, or other income accounts for the fiscal period in which the audit of the items occurs.

605. UNREFUNDABLE OVERCHARGES.

This account shall include the amount of revenue overcharges which are determined during the current fiscal period to be unrefundable.

606. DONATIONS.

This account shall include amounts, creditable to surplus, of cash or its equivalent in estimated money value at the time of acquisition of lands or other property donated by individuals or companies for the construction or acquisition of property. It shall also include donations made by individuals and companies in connection with the construction of new lines for the purpose of compensating the carrier for loss anticipated during the early period of operation.

Any advances made by individuals or companies with absolute or conditional provision for partial or complete reimbursement shall not be considered a donation prior to the fulfillment of all conditions, and then only to the extent to which the liability for reimbursement is nullified or negated. Prior to such determination the amounts received shall be credited in balance-sheet account No. 778, "Other Unadjusted Credits."

NOTE.—Donations made by States, municipalities and other public corporations as their contributions toward the construction or acquisition of property shall be included in balance-sheet account No. 754, "Grants in Aid of Construction."

607. MISCELLANEOUS CREDITS.

This account shall include amounts, not provided for elsewhere, transferred from other accounts to Profit and Loss, and amounts representing increases of resources not properly assignable to the income accounts. Among the items which shall be included in this account are—

Adjustments or cancellations of balance-sheet accounts,

Cancellation of balance-sheet accounts representing unclaimed wages and vouchered accounts written off because of carrier's inability to locate the creditor,

Profit derived from the sale of investment securities,

Profit derived from the sale of property carried in balance-sheet account No. 705, "Miscellaneous Physical Property,"

Credits resulting from adjustments required to bring to par securities issued or assumed by the accounting company and reacquired at a cost less than the par value,

Premiums on capital stock at the time of its reacquirement,

Unreleased premiums on funded debt reacquired before maturity,

Collections of old accounts previously written off.

NOTE.—Revenue overcharges when determined to be unrefundable shall be credited to account No. 605, "Unrefundable Overcharges."

II. DEBITS.

611. DEBIT BALANCE (AT BEGINNING OF FISCAL PERIOD).

This account shall include the debit balance in the Profit and Loss Account at the beginning of the fiscal period.

612. DEBIT BALANCE TRANSFERRED FROM INCOME.

This account shall show the net debit balance brought forward from the Income Account for the fiscal period.

613. SURPLUS APPLIED TO SINKING AND OTHER RESERVE FUNDS.

This account shall include amounts definitely appropriated from surplus and applied to sinking and other reserve funds; and allotments or payments of definite amounts from surplus into sinking and other reserve funds under the terms of mortgages, deeds of trust, or other contracts that provide for such allotments or payments.

NOTE A.—The amounts charged to this account shall be concurrently credited to the appropriate balance-sheet accounts.

NOTE B.—Similar appropriations made from income shall be

charged to income account No. 552, "Income Applied to Sinking and Other Reserve Funds."

614. DIVIDEND APPROPRIATIONS OF SURPLUS.

This account shall include amounts definitely declared payable from surplus as dividends on actually outstanding capital stock issued or assumed by the accounting company, other than debenture stock. (See definition of the several classes of capital stock in balance-sheet account No. 751, "Capital Stock.") If a dividend is not payable in cash the consideration shall be described in the entry with sufficient particularity to identify it.

This account shall be subdivided so as to show separately the dividends on the various subclasses of capital stock.

NOTE A.—Interest accrued on debenture stock shall be charged to income account No. 546, "Interest on Funded Debt."

NOTE B.—This account shall not include charges for dividends on capital stock issued or assumed by the accounting company and owned by it, whether pledged as collateral or held in its treasury, in special deposits, or in sinking or other reserve funds. (See account No. 613, "Surplus Applied to Sinking and Other Reserve Funds.")

NOTE C.—Similar appropriations made from income shall be charged to income account No. 553, "Dividend Appropriations of Income."

615. SURPLUS APPROPRIATED FOR INVESTMENT IN PHYSICAL PROPERTY.

This account shall include amounts definitely appropriated from surplus, to be applied for the construction or acquisition of new lines and extensions and of additions to and betterments of property the cost of which is includible in the road and equipment accounts or applied for the construction, acquisition, or improvement of property the cost of which is includible in balance-sheet account No. 705, "Miscellaneous physical property," and also the amount of donations in aid of construction, made by individuals and companies, not subject to distribution as dividends.

Records of the accounting carrier shall be so kept that the appropriations charged to this account for any fiscal period

may be distinguished as relating to (a) amounts expended during preceding fiscal periods, (b) amounts expended during the current fiscal period, and (c) amounts held in reserve.

NOTE A.—Similar appropriations made from income shall be charged to income account No. 554, "Income Appropriated for Investment in Physical Property."

NOTE B.—The amounts charged to this account shall be concurrently credited to balance-sheet account No. 779, "Additions to Property Through Income and Surplus," to No. 782, "Miscellaneous Fund Reserves," or to No. 783, "Appropriated Surplus Not Specifically Invested," as may be appropriate.

616. STOCK DISCOUNT EXTINGUISHED THROUGH SURPLUS.

This account shall include amounts definitely appropriated from surplus to reduce or extinguish the amount of discount on capital stock issued by the accounting company.

NOTE.—Similar appropriations made from income shall be charged to income account No. 555, "Stock Discount Extinguished Through Income."

617. DEBT DISCOUNT EXTINGUISHED THROUGH SURPLUS.

This account shall include appropriations of surplus made, at the option of the accounting company, to reduce or extinguish the discount and expense on funded debt.

618. MISCELLANEOUS APPROPRIATIONS OF SURPLUS.

This account shall include amounts definitely appropriated from surplus to provide a reserve for doubtful accounts and, except as provided in account No. 613, "Surplus Applied to Sinking and Other Reserve Funds," for the discharge of the principal (less the discount, if any, suffered at the time of sale) of any indebtedness incurred in the acquisition or improvement of property carried in the road and equipment accounts; also other amounts appropriated from surplus and not provided for elsewhere.

NOTE.—Similar appropriations from income shall be charged to income account No. 556, "Miscellaneous Appropriations of Income."

619. LOSS ON RETIRED ROAD AND EQUIPMENT.

This account shall include charges to Profit and Loss as provided for in the classification of investment in road and equipment, on account of (1) road which has been abandoned, sold, or otherwise retired; and (2) equipment which has been abandoned, sold, or otherwise retired.

620. DELAYED INCOME DEBITS.

This account shall include relatively large debits relating to operating revenue, operating expense, and other income accounts of previous fiscal periods.

This account shall be used only after permission of the Interstate Commerce Commission has been obtained.

NOTE A.—Except as provided above, delayed items relating to operating revenue, operating expense, and other income items shall be included in the appropriate revenue, expense, or other income account for the fiscal period in which the audit of the items occurs.

NOTE B.—All entries in this account shall be made in such detail as will indicate the operating revenue, operating expense, or other income accounts to which they relate.

621. MISCELLANEOUS DEBITS.

This account shall include amounts, not provided for elsewhere, chargeable to Profit and Loss from other accounts, amounts written off in consequence of adjustments, and payments not properly chargeable to the income accounts. Among the items which shall be charged to this account are—

Adjustments or cancellations of balance-sheet accounts,

Losses or deficits not properly chargeable to Income, such as uncollectible bills (other than bills covering revenue charges) for which no reserve has been provided,

Losses resulting from the sale of investment securities,

Losses resulting from the sale, destruction, or abandonment of property carried in balance-sheet account No. 705, "Miscellaneous Physical Property,"

Debits resulting from adjustments required to bring to par securities issued or assumed by the accounting company and reacquired at a cost exceeding the par value,

Adjustments of the difference between the ledger value and estimated value of land withdrawn from railway service and charged to account No. 705, "Miscellaneous Physical Property,"

Discounts on stock remaining unextinguished at the time of its reacquirement,

Unextinguished discounts on funded debt reacquired before maturity,

Payments of old accounts previously written off,

Penalties and fines for violation of the Act to Regulate Commerce, or other Federal laws, when not specifically provided for elsewhere.

NOTE.—Revenue charges when determined to be uncollectible shall be charged to income account No. 533, "Uncollectible Railway Revenues."

TEXT PERTAINING TO GENERAL BALANCE-SHEET ACCOUNTS.

DEBITS.

701. INVESTMENT IN ROAD AND EQUIPMENT.

This account shall include the accounting company's investment in road and equipment (including that held under contract for purchase) in existence at the date of the balance sheet. The accounting company's records shall be kept in such manner as to show the amount credited to this account subsequent to June 30, 1914, for property retired, the cost of which was included in the account of that date.

NOTE A.—This account shall not include any items representing titles to securities.

NOTE B.—When any equipment is acquired under an agreement which provides that the cost shall be paid in installments, the cost (its money value at time of purchase) shall be charged to the appropriate road and equipment accounts at the time of its acquisition, and included in this account in the same manner as the cost of equipment purchased outright. When the par value of notes or other securities issued in payment, or in part payment, for such equipment is more (or less) than the actual cash value of the equipment at the time of the purchase, or of the

proportion to which the securities are applicable, the difference between the par value of the securities and the actual cash value of the equipment, or of the proportion paid for by the securities, shall be charged (or credited) to the proper discount and premium accounts.

702. IMPROVEMENTS ON LEASED RAILWAY PROPERTY.

This account shall include the accounting company's investment in additions and betterments made by it to railway property held under long-term lease or through control of the corporation owning the property and in existence at the date of the balance sheet. The accounting company's records shall be kept in such manner as to show the amount credited to this account subsequent to June 30, 1914, for property retired, the cost of which was included in the account at that date. The amounts included in this account shall be classified in the accounts provided in the classification for investment in road and equipment.

NOTE.—This account shall not include any items representing titles to securities.

703. SINKING FUNDS.

This account shall include the amount of cash, the ledger value of live securities of other companies, and other assets which are held by trustees of sinking and other funds for the purpose of redeeming outstanding obligations, including such assets so held in the hands of the accounting company's treasurer when the assets are segregated in a distinct fund; also amounts deposited with such trustees on account of mortgaged property sold the proceeds of which are to be held for the redemption of securities, and the par value of live securities issued or assumed by the accounting company and held in such funds. A separate account shall be kept for each fund. The title of each such account shall designate the obligation in support of which the fund is created.

NOTE.—In stating the balance sheet in the annual reports to the Commission the total amount of the funds and the par value of securities issued or assumed by the accounting company and

held in the funds shall be shown in the short columns, and the net amount of the funds (total amount less securities issued or assumed) shall be shown in the long column.

704. DEPOSITS IN LIEU OF MORTGAGED PROPERTY SOLD.

This account shall include funds deposited with trustees, to be held until mortgaged property sold is replaced.

NOTE.—In stating the balance sheet in the annual reports to the Commission the total amount of the funds and the par value of securities issued or assumed by the accounting company and held in the funds shall be shown in the short columns, and the net amount of the funds (total amount less securities issued or assumed) shall be shown in the long column.

705. MISCELLANEOUS PHYSICAL PROPERTY.

This account shall include the accounting company's investments in physical property other than transportation property assignable to accounts Nos. 701 and 702, including hotels, restaurants, commercial power plants, etc., which are entirely distinct from transportation property and are not operated in connection with the transportation service of the accounting company.

ITEMS OF INVESTMENT.

Coal and other mines.	participation of future use.
Commercial power plants.	Mineral and timber lands.
Hotels and restaurants.	Rails and other track material leased to others.
Lands and buildings not used in transportation operations.	Sawmills and other manufacturing plants not operated in connection with transportation service.
Lands and other property acquired and held in an-	

706. INVESTMENTS IN AFFILIATED COMPANIES.

This account shall include the ledger value of the accounting company's investment advances to affiliated companies, also of its investment in securities issued or assumed by such companies, such securities not being held in special deposits or in special funds.

This account shall be subdivided:

(a) Stocks.

(b) Bonds.

(c) Notes, including herein not only notes that run longer than one year and all notes of affiliated companies held as investments, but also notes payable on demand or within one year from the date of issue when it is mutually understood and intended that the notes shall not be enforced as current assets.

(d) Advances.

The accounting company's record shall be kept in such manner that the ledger value of securities pledged as collateral security for any of the accounting company's funded debt or short-term loans and the ledger value of securities unpledged may be shown separately in the annual report to the Commission.

NOTE A.—Accounts with affiliated companies which are subject to current settlements, such as traffic and car-service balances, charges for material and supplies currently furnished, charges for repairs to equipment, etc., shall be classed as current assets or current liabilities, as may be appropriate.

NOTE B.—The term *affiliated companies* includes:

1. Controlled companies, including companies solely controlled by the accounting company and also companies jointly controlled by the accounting company and others under a joint arrangement.

2. Controlling companies, including both companies solely controlling the accounting company, and companies which jointly control the accounting company under a joint arrangement.

3. Companies controlled by controlled companies.

4. Companies controlled by controlling companies.

By *control* is meant the ability to determine the action of a corporation. For the purposes of this account, the following are to be considered forms of control:

(a) Right through title to securities issued or assumed to exercise the major part of the voting power in the controlled corporation.

(b) Right through agreement of some character or through some source other than title to securities, to name the majority

of the board of directors, managers, or trustees of the controlled corporation.

(c) Right to foreclose a first lien upon all or a major part in value of the tangible property of the controlled corporation.

(d) Right to secure control in consequence of advances made for construction of the operating property of the controlled corporation.

(e) Right to control only in a specific respect the action of the controlled corporation.

A leasehold interest in the property of a corporation is not to be classed as a form of control over the lessor corporation.

Sole control is that which rests in one corporation.

Joint control is that which rests in two or more corporations and which is held under a joint arrangement.

NOTE C.—The value of securities *borrowed* by the accounting company and pledged shall not be included in this account.

NOTE D.—The value of securities pledged for purposes other than that of security for funded debt or short-term loans shall be included in account No. 703, "Sinking Funds," No. 704, "Deposits in Lieu of Mortgaged Property Sold," No. 711, "Special Deposits," or No. 721, "Insurance and Other Funds," as may be appropriate.

707. OTHER INVESTMENTS.

This account shall include the ledger value of the accounting company's investment advances to nonaffiliated companies and to individuals, and of its investment in securities issued or assumed by such companies, such securities not being held in special deposits or in special funds; also miscellaneous investments not provided for elsewhere.

This account shall be subdivided:

(a) Stocks.

(b) Bonds.

(c) Notes, including herein not only notes that run longer than one year and all notes of nonaffiliated companies and of individuals held as investments, but also notes payable on demand or within one year from date of issue when it is mutually understood and intended that the notes shall not be enforced as current assets.

- (d) Advances.
- (e) Miscellaneous.

The accounting company's records shall be kept in such manner that the ledger value of securities pledged as collateral security for any of the accounting company's funded debt or short-term loans and the ledger value of securities unpledged may be shown separately in the annual report to the Commission.

NOTE A.—Accounts with nonaffiliated companies which are subject to current settlements, such as traffic and car-service balances, charges for materials and supplies currently furnished, charges for repairs to equipment, etc., shall be classed as current assets or current liabilities, as may be appropriate.

NOTE B.—The term *nonaffiliated companies* includes all companies other than those defined as affiliated in Note B of account No. 706, "Investments in Affiliated Companies."

NOTE C.—The value of securities *borrowed* by the accounting company and pledged shall not be included in this account.

NOTE D.—The value of securities pledged for purposes other than that of security for funded debt or short-term loans shall be included in account No. 703, "Sinking Funds," No. 704, "Deposits in Lieu of Mortgaged Property Sold," No. 711, "Special Deposits," or No. 721, "Insurance and Other Funds," as may be appropriate.

708. CASH.

This account shall include money, checks, sight drafts, and sight bills of exchange in the hands of the accounting company's financial officers and agents, or in transit from its agents and conductors for which such agents and conductors have received credit. It shall also include deposits with banks and trust companies subject to check.

709. DEMAND LOANS AND DEPOSITS.

This account shall include the amount of demand loans fully secured by stocks, bonds, and other marketable collateral, and of deposits with banks and trust companies when such items are subject to collection on demand.

710. TIME DRAFTS AND DEPOSITS.

This account shall include the amount of time drafts receivable and time deposits with banks and trust companies.

711. SPECIAL DEPOSITS.

This account shall include funds specially deposited (other than in sinking funds) for the payment of dividends, interest, and other debts; also money and securities deposited to insure the performance of contracts to be performed within one year from the date of the balance sheet; and other deposits of a special nature not provided for elsewhere.

NOTE A.—Securities pledged as collateral for the accounting company's funded debt or short-term loans shall be included in accordance with the character of the securities pledged in accounts Nos. 706, 707 or 729.

NOTE B.—In stating the balance sheet in the annual reports to the Commission the total amount of the funds and the par value of securities issued or assumed by the accounting company and held in the funds shall be shown in the short columns, and the net amount of the funds (total amount less securities issued or assumed) shall be shown in the long column.

712. LOANS AND BILLS RECEIVABLE.

This account shall include the book value of all collectible obligations in the form of demand or time loans and bills receivable, or other similar evidences (except interest coupons) of money receivable within a time not exceeding one year from date of issue.

NOTE A.—This account does not include obligations which mature more than one year after date of issue, or demand or short-term notes held as investments includible in accounts Nos. 706 and 707.

NOTE B.—Demand loans fully secured by stocks, bonds, or other marketable collateral shall be included in account No. 709, "Demand Loans and Deposits."

713. TRAFFIC AND CAR-SERVICE BALANCES RECEIVABLE.

This account shall include the net amount receivable from other companies, against each of which there is a net debit bal-

ance in the total of the accounts representing interline freight, passenger, and baggage revenues, and charges for equipment interchanged on a per diem or a mileage basis.

NOTE.—The amount to be entered in this account is not the net balance between this account and account No. 759, "Traffic and Car-service Balances Payable."

714. NET BALANCE RECEIVABLE FROM AGENTS AND CONDUCTORS.

This account shall include the net balance due in current accounts from agents, from train, sleeping car, and dining car conductors, and from train collectors, train auditors, porters, and other employees and representatives charged with the collection or custody of current revenues.

NOTE.—Amounts advanced to general and special agents as working funds shall not be included in this account, but in account No. 720, "Working Fund Advances."

715. MISCELLANEOUS ACCOUNTS RECEIVABLE.

This account shall include amounts due in audited accounts considered good, such as those due from the United States or other Governments for the transportation of mails and Government property, and from express companies for express facilities furnished under contract; amounts due from other carriers on account of freight claims paid; miscellaneous bills against other railway companies, corporations, firms, and individuals, and other similar items.

NOTE.—The amount to be entered in this account is not the net balance between this account and account No. 761, "Miscellaneous Accounts Payable."

716. MATERIAL AND SUPPLIES.

This account shall include the balances representing the cost, less depreciation, if any, of all unapplied material, such as road and shop material, articles in process of manufacture by the accounting company, fuel, stationery, and dining car and other supplies. In determining the cost of material and

supplies suitable allowance shall be made for any discounts allowed in the purchase thereof.

NOTE.—Balances representing the cost of unapplied construction material and supplies located at the point of use, which have been purchased for projected new roads and extensions, are provided for in road and equipment account No. 47, "Un-applied Construction Material and Supplies."

717. INTEREST AND DIVIDENDS RECEIVABLE.

This account shall include the amount of interest accrued to the date of the balance sheet on bonds owned and on loans made, the amount of dividends declared on stocks owned, and dividends accrued on such stocks when contracts require that the dividends be paid at stated times.

NOTE A.—No amount representing interest or dividends receivable shall be included in this account unless its payment is reasonably assured by past experience, anticipated provision, or otherwise.

NOTE B.—No dividends or other returns on securities issued or assumed by the accounting company shall be included in this account.

718. RENTS RECEIVABLE.

This account shall include rents receivable accrued to the date of the balance sheet under leases and not includible in account No. 715, "Miscellaneous Accounts Receivable." It is not required that minor rents shall be accounted for upon an accrual basis.

719. OTHER CURRENT ASSETS.

This account shall include items of current assets not covered by accounts Nos. 708 to 718 inclusive.

It shall include asset items that have not yet reached the stage of audited accounts and become classable in account No. 715, and yet have been advanced beyond the stage of accounts properly classable in account No. 722.

720. WORKING FUND ADVANCES.

This account shall include amounts advanced to general and special agents, and to other officers and employees, as

working funds from which certain expenditures are to be made and accounted for. It also includes advances to fast freight lines and to demurrage and other bureaus.

721. INSURANCE AND OTHER FUNDS.

This account shall include the amount of cash and the ledger value of securities of other companies and other assets which are in the hands of trustees or managers of insurance, employees' pension, savings, relief, hospital, and other funds which have been raised and specifically set aside or invested for specific purposes not provided for elsewhere; also the par value of securities issued or assumed by the accounting company and held in such funds. A separate account shall be kept for each fund.

NOTE A.—Sinking funds and special deposits for the retirement of obligations are provided for in accounts No. 703 and No. 711, respectively.

NOTE B.—In stating the balance sheet in the annual reports to the Commission the total amount of the funds and the par value of securities issued or assumed by the accounting company and held in the funds shall be shown in the short columns, and the net amount of the funds (total amount less securities issued or assumed) shall be shown in the long column.

NOTE C.—This account shall not include funds held by the accounting company solely as trustee and in which it has no beneficial interest.

722. OTHER DEFERRED ASSETS.

This account shall include items of deferred assets not covered by accounts No. 720 and No. 721.

723. RENTS AND INSURANCE PREMIUMS PAID IN ADVANCE.

This account shall include the balances in the accounts representing prepaid rents chargeable to the appropriate rent accounts under Income as the term is consumed for which the rents are paid; also insurance premiums paid in advance of their accrual, which premiums are to be apportioned and charged, as they accrue, to appropriate accounts.

724. DISCOUNT ON CAPITAL STOCK.

This account shall include the total of the net debit balances in the discount and premium accounts for the several subclasses of capital stock.

725. DISCOUNT ON FUNDED DEBT.

This account shall include the total of the net debit balances in the discount, expense, and premium accounts for the several subclasses of funded debt.

726. PROPERTY ABANDONED CHARGEABLE TO OPERATING EXPENSES.

This account is intended as a suspense account, in which may be included amounts chargeable to Operating Expenses for fixed improvements abandoned directly in connection with improvement or betterment work which are relatively large and the inclusion of which in the carrier's accounts for a single year would seriously distort the accounts. It is to be used only after permission of the Interstate Commerce Commission has been asked and given. The carrier, in its application to the Commission, shall give full particulars concerning the property retired, the amount chargeable to Operating Expenses, and the period over which, in its judgment, the amount of such charge should be distributed.

For each item remaining at the close of the year in this account the accounting carrier shall indicate in its annual report to the Commission, with respect to each item of property abandoned, the period over which it is proposed to distribute the balance relating to the item, the date of the abandonment of the property, and the total amount originally to be charged to Operating Expenses.

727. OTHER UNADJUSTED DEBITS.

This account shall include the amount of debit balances in suspense accounts that can not be entirely cleared and disposed of until additional information is received, such as freight claims paid when found to be correct, but in advance of investigation with other carriers; interest paid in advance; debit balances in clearing accounts, such as "Shop Expenses,"

“Store Expenses,” “Operations of Gravel Pits,” and “Operations of Quarries”; items credited to Operating Revenues or Operating Expenses on an estimated basis in accordance with general instructions for the classification of operating revenues and operating expenses, section 2; unextinguished discount on short-term notes; estimated accrued depreciation on equipment leased; unadjusted debit items not provided for in accounts Nos. 724, 725, and 726, and other similar items.

728. SECURITIES ISSUED OR ASSUMED—UNPLEDGED.

This account shall include the par value of securities issued by the accounting company and the par value of securities issued by other companies and assumed by the accounting company, that are held unpledged in the company's treasury or by its agents or trustees, except trustees of sinking or other similar funds.

This account shall be divided into (a) Stocks, and (b) Bonds and other evidences of funded debt, each of which divisions shall be further so subdivided that in the company's annual report to the Commission may be shown (1) amount nominally but not actually issued, and (2) amount nominally outstanding.

NOTE A.—The term *securities*, as used in this account, includes all authorized certificates of stock and evidences of indebtedness which have been signed, sealed, and, when required, certified by the registrar or by the trustees under the mortgage or contract, and are not short-term securities. By *short-term securities* are meant those which are payable on demand or which mature not more than one year from date of issue. (See also Notes B to accounts Nos. 751 and 755.)

NOTE B.—This account shall not include securities that are merely guaranteed.

NOTE C.—This account shall not include any securities held in sinking and other reserve funds.

NOTE D.—In the general balance-sheet statement the balance in this account shall be stated in the short column only.

NOTE E.—When any securities have been actually issued to bona fide holders for value, or after issue by another company have been assumed by the accounting company, and after such issue or assumption are reacquired under circumstances which

require that they shall not be treated as canceled or retired, they shall be included in this account at par value; the difference between the par value and the amount paid in reacquiring such securities shall be debited (or credited, as the case may be) to Profit and Loss. If such securities are subsequently pledged, they shall be included in account No. 729, "Securities Issued or Assumed—Pledged."

729. SECURITIES ISSUED OR ASSUMED—PLEDGED.

This account shall include the par value of that portion of securities pledged by the accounting company as collateral security for any of its funded debt or short-term loans, which consists of securities issued by the accounting company and securities issued by other companies, the obligation for payment of which has been assumed by the accounting company. This account shall be subdivided into (a) Stocks, and (b) Bonds and other evidences of funded debt, each of which divisions shall be further so divided that in the company's annual report to the Commission may be shown (1) the amount nominally but not actually issued, and (2) the amount nominally outstanding.

NOTE A.—The term *securities* as used in this account includes all authorized certificates of stock and evidences of indebtedness which have been signed, sealed, and, when required, certified by the registrar or by the trustees under the mortgage or contract, and are not short-term securities. By *short-term securities* are meant those which are payable on demand or which mature not more than one year from date of issue. (See also Notes B to accounts Nos. 751 and 755.)

NOTE B.—This account shall not include securities that are merely guaranteed.

NOTE C.—This account shall not include securities which have been *borrowed* by the accounting company and pledged, nor any securities held in sinking and other reserve funds.

NOTE D.—In the general balance-sheet statement the balance in this account shall be stated in the short column only.

NOTE E.—The par value of securities issued or assumed and pledged for purposes other than that of security for funded debt or short-term loans shall be shown in account No. 703, "Sinking Funds"; No. 704, "Deposits in Lieu of Mortgaged Property

Sold"; No. 711, "Special Deposits"; or No. 721, "Insurance and Other Funds," as may be appropriate.

NOTE F.—When any securities have been actually issued to bona fide holders for value, or after issue by another company have been assumed by the accounting company, and after such issue or assumption are reacquired under circumstances which require that they shall not be treated as canceled or retired, they shall be included in account No. 728, "Securities Issued or Assumed—Unpledged," at par value; the difference between the par value and the amount paid in reacquiring such securities shall be debited (or credited, as the case may be) to Profit and Loss. If such securities are subsequently pledged, they shall be included in this account.

CREDITS.

751. CAPITAL STOCK.

This account shall include the total par value of certificates or receipts issued to represent permanent interests in the accounting company, or interests which, if terminable, are so only at the option of the company.

The amounts included in this account shall be divided so as to show the par value of (1) certificates (pledged or unpledged) held in the company's treasury, by its agents or trustees, or otherwise subject to its control, including both those reacquired after actual issue and those nominally but never actually issued; and (2) certificates issued and actually outstanding, being those not held by the company, its agents or trustees, or subject to its control.

The amounts included herein shall be further divided so as to show the amount of each class of stock issued, as follows:

(a) COMMON STOCK.—Stocks which have no preference in distribution of dividends.

(b) PREFERRED STOCK.—Stocks having preference in distribution of dividends.

(c) DEBENTURE STOCK.—Stocks issued under a contract to pay a specified return at specified intervals.

(d) RECEIPTS OUTSTANDING FOR INSTALLMENTS PAID.—Receipts for payments on account of subscriptions to capital stock. When certificates are issued for amounts so paid, the

par value shall be included in the account covering the class of stock for which the certificates are issued.

Each of the above classes shall also be divided into subclasses according to differences in dividend or interest rights, voting rights, or conditions under which the securities may be retired.

NOTE A.—When a general levy or assessment is made against the holders of capital stock, requiring the payment of any sum for the use of the company in addition to the consideration agreed upon at the time of sale, the amount collected upon such levy or assessment shall be credited to the discount and premium account for the subclass of stock on which the assessment is made.

NOTE B.—For the purposes of the balance-sheet statement capital stock is considered to be *nominally issued* when certificates are signed and sealed and placed with the proper officer for sale and delivery, or pledged, or otherwise placed in some special fund of the accounting company. It is considered to be *actually issued* when it has been sold to a bona fide purchaser for a valuable consideration, and such purchaser holds it free from all control by the accounting company. All capital stock actually issued and not reacquired and held by or for the accounting company is considered to be *actually outstanding*. If reacquired by or for the accounting company under such circumstances as require it to be considered as held alive and not canceled or retired, it is considered to be *nominally outstanding*.

NOTE C.—In the general balance-sheet statement the total capital stock included in the account shall be shown in the first short column. The amount nominally but not actually issued and the amount nominally outstanding shall be shown in the second short column, and in the long column shall be shown the amount actually outstanding.

752. STOCK LIABILITY FOR CONVERSION.

This account shall include the company's liability under agreements to exchange its capital stock for the outstanding securities of companies whose physical property has been acquired under such agreements, but whose securities have not yet been surrendered for exchange.

753. PREMIUM ON CAPITAL STOCK.

This account shall include the total of the net credit balances in the discount and premium accounts for the several subclasses of capital stock.

754. GRANTS IN AID OF CONSTRUCTION.

This account shall include the estimated money value at time of acquisition of land and other grants received from States, municipalities, and other public corporations as their contributions toward the construction or acquisition of property the cost of which is chargeable to investment in road and equipment.

755. FUNDED DEBT UNMATURED.

There shall be included in this account the total par value of unmatured debt, maturing more than one year from date of issue, issued by the accounting company and not retired or canceled, and the total par value of similar unmatured debt of other companies, the payment of which has been assumed by the accounting company.

The amounts included in this account shall be divided so as to show the par value of (1) certificates or other evidences of funded debt (pledged and unpledged) held in the company's treasury, by its agents or trustees, or otherwise subject to its control, including both those reacquired after actual issue and those nominally but never actually issued; and (2) certificates or other evidences of funded debt issued and actually outstanding, being those not held by the company, its agents or trustees, or subject to its control.

The amounts included herein shall be further divided so as to show the amount of each class of funded debt, as follows:

(a) **EQUIPMENT OBLIGATIONS.**—Equipment bonds, equipment notes, or car-trust notes secured only by lien on specific equipment.

(b) **MORTGAGE BONDS.**—Bonds secured by lien on physical property and not includible in the other subdivisions of this account.

(c) **COLLATERAL TRUST BONDS.**—Bonds and notes secured

by a lien on securities or other negotiable paper; and stock trust certificates that are similar in character to collateral trust bonds.

(d) **INCOME BONDS.**—Bonds which are a lien on a carrier's revenue alone, or bonds which, while being a lien on its property and franchises, can claim payment of interest only in case interest is earned.

(e) **MISCELLANEOUS OBLIGATIONS.**—All funded obligations not provided for by the other subdivisions of this account, also notes, unsecured certificates of indebtedness, debenture bonds, plain bonds, real estate mortgages executed or assumed, and other similar obligations maturing more than one year after date of issue.

(f) **RECEIPTS OUTSTANDING FOR FUNDED DEBT.**—Receipts for payments on account of funded debt. When certificates are issued for amounts so paid, the par value shall be included in the account covering the class of funded debt for which the certificates are issued.

Each of the above classes shall also be divided into subclasses according to differences in mortgage or other lien or security therefor, rate of interest, interest dates, or date of maturity. Parts of any issue agreeing in other characteristics but maturing serially may be treated as of the same subclass.

NOTE A.—Securities maturing one year or less from date of issue shall be included in account No. 757, "Nonnegotiable Debt to Affiliated Companies," or No. 758, "Loans and Bills Payable," except that where an issue of securities maturing serially over a period of years contains short-term obligations such obligations may be included as funded debt. Matured funded debt shall be included in account No. 764, "Funded Debt Matured Unpaid."

NOTE B.—For the purposes of the balance-sheet statement funded debt securities are considered to be *nominally issued* when certified by trustees and placed with the proper officer for sale and delivery, or pledged, or otherwise placed in some special fund of the accounting company. They are considered to be *actually issued* when they have been sold to a bona fide purchaser for a valuable consideration, and such purchaser holds

them free from all control by the accounting company. All funded debt securities actually issued and not reacquired and held by or for the accounting company are considered to be *actually outstanding*. If reacquired by or for the accounting company under such circumstances as require them to be considered as held alive and not canceled or retired, they are considered to be *nominally outstanding*.

NOTE C.—Nonnegotiable notes having a maturity of more than one year after date of issue, held by affiliated companies, shall be included in account No. 757, “Nonnegotiable Debt to Affiliated Companies.”

NOTE D.—In the general balance-sheet statement the total unmatured funded debt included in the account shall be shown in the first short column. The amount nominally but not actually issued and the amount nominally outstanding shall be shown in the second short column, and in the long column shall be shown the amount actually outstanding.

756. RECEIVER'S CERTIFICATES.

When any receiver acting under the orders of a court is in possession of the property of the company and under the orders of such court issues evidences of indebtedness chargeable upon such property, the par value of such evidences shall be credited to this account.

757. NONNEGOTIABLE DEBT TO AFFILIATED COMPANIES.

This account shall include the par value of nonnegotiable notes issued to affiliated companies, credit balances in open accounts with such companies other than credit balances in current accounts classable as current liabilities, and interest accrued on notes and open accounts included in this account, when such interest is not subject to current settlements.

This account shall be divided:

(a) Notes, including herein not only nonnegotiable notes that run longer than a term of one year, but also such notes payable on demand or within one year from the date of issue when it is mutually agreed that the notes shall not be enforced as current assets by the holder.

(b) Open accounts not subject to current settlement.

(c) Interest accrued on amounts included in this account when not subject to current settlements.

NOTE A.—Accounts with affiliated companies which are subject to current settlements, such as traffic and car-service balances, charges for material and supplies currently furnished, charges for repairs to equipment, etc., shall be classed as current assets or current liabilities, as may be appropriate.

NOTE B.—No item shall be included in this account which is not known to be the property of an affiliated company.

NOTE C.—The term *affiliated companies* includes:

1. Controlled companies, including companies solely controlled by the accounting company, and also companies jointly controlled by the accounting company and others under a joint arrangement.

2. Controlling companies, including both companies solely controlling the accounting company, and companies which jointly control the accounting company under a joint arrangement.

3. Companies controlled by controlled companies.

4. Companies controlled by controlling companies.

By *control* is meant the ability to determine the action of a corporation. For the purposes of this account, the following are to be considered forms of control:

(a) Right through title to securities issued or assumed to exercise the major part of the voting power in the controlled corporation.

(b) Right through agreement of some character or through some source other than title to securities, to name the majority of the board of directors, managers, or trustees of the controlled corporation.

(c) Right to foreclose a first lien upon all or a major part in value of the tangible property of the controlled corporation.

(d) Right to secure control in consequence of advances made for construction of the operating property of the controlled corporation.

(e) Right to control only in a specific respect the action of the controlled corporation.

A leasehold interest in the property of a corporation is not to be classed as a form of control over the lessor corporation.

Sole control is that which rests in one corporation.

Joint control is that which rests in two or more corporations and which is held under a joint arrangement.

758. LOANS AND BILLS PAYABLE.

This account shall include the balances representing obligations outstanding in the form of loans and bills payable or other similar evidences (except interest coupons) of indebtedness payable on demand or within a time not exceeding one year from date of issue.

This account shall be kept in such form that the amounts of notes secured by collateral, payable within one year from date of issue, may be reported separately in the corporation's annual report to the Commission.

NOTE.—This account shall not include obligations which mature more than one year after date of issue, or demand or short-term notes issued to affiliated companies and includible in account No. 757, "Nonnegotiable Debt to Affiliated Companies."

759. TRAFFIC AND CAR-SERVICE BALANCES PAYABLE.

This account shall include the net amount payable to other companies in favor of each of which there is a net credit balance in the total of the accounts representing interline freight, passenger, and baggage revenues, and charges for equipment interchanged on a per diem or a mileage basis.

NOTE.—The amount to be entered in this account is not the balance between this account and account No. 713, "Traffic and Car-service Balances Receivable."

760. AUDITED ACCOUNTS AND WAGES PAYABLE.

This account shall include the amount of audited vouchers or accounts and audited pay rolls unpaid on the date of the balance sheet. It shall include balances representing unclaimed wages and outstanding pay and time or discharge checks issued in payment of wages and all other unpaid vouchered items.

761. MISCELLANEOUS ACCOUNTS PAYABLE.

This account shall include outstanding drafts drawn by station agents, outstanding drafts drawn on the company in settlement of freight claims, conductors' refund and extra-fare checks not presented for redemption, deposits of affiliated companies subject to current settlement, unrefunded

overcharges, and other items of the nature of demand liabilities not covered by accounts Nos. 758, 759, 760, 762, 763, and 764.

NOTE.—The amount to be reported under this account is not the net balance between this account and account No. 715, “Miscellaneous Accounts Receivable.”

762. INTEREST MATURED UNPAID.

This account shall include the amount of matured and unpaid interest on loans and on funded debt and receiver's certificates, issued or assumed by the accounting company.

Interest which matures on the first day following that for which the balance sheet is made shall be included in this account.

NOTE.—Interest matured unpaid on nonnegotiable debt to affiliated companies, if not subject to current settlement, shall be included in account No. 757, “Nonnegotiable Debt to Affiliated Companies.”

763. DIVIDENDS MATURED UNPAID.

This account shall include the amount of dividends payable on capital stock but unpaid, uncalled for, or unclaimed at the date of the balance sheet.

Dividends which become payable on the first day following that for which the balance sheet is made shall be included in this account.

764. FUNDED DEBT MATURED UNPAID.

This account shall include the amount of funded debt matured and unpaid without any specific agreement for extension as to time of payment, including unrepresented bonds drawn for redemption through the operation of sinking and redemption fund agreements.

765. UNMATURED DIVIDENDS DECLARED.

This account shall include dividends declared on capital stock, but not payable until after the first day following the date of the balance sheet,

766. UNMATURED INTEREST ACCRUED.

This account shall include the amount of interest on loans and on funded debt and receiver's certificates issued or assumed, accrued to the date for which the balance sheet is made, but not payable until after the first day following that date.

767. UNMATURED RENTS ACCRUED.

This account shall include rents, under leases or other agreements, accrued to the date for which the balance sheet is made, but not payable until after the first day following that date. It shall also include the amount of accrued dividends on stock and accrued interest on the funded debt of other companies when such dividends and interest are payable by the accounting company as all or a portion of the rent under leases or other agreements with those companies.

768. OTHER CURRENT LIABILITIES.

This account shall include items of current liabilities not covered by accounts No. 758 to No. 767, inclusive.

769. LIABILITY FOR PROVIDENT FUNDS.

This account shall include the ledger balances representing the liability of the accounting carrier for the amount of the assets (whether contributed by the company, by the employees, or by others) in the hands of its treasurer or of trustees or managers acting for it in the administration of employees' pension, savings, relief, hospital, and other association funds.

NOTE A.—This account shall not include items representing funds in which the accounting company has no beneficial interest and which it holds purely as trustee.

NOTE B.—In stating the balance sheet in the annual reports to the Commission, the liability for provident funds which are carried in the current cash of the company shall be included under current liabilities, in account No. 761, "Miscellaneous Accounts Payable."

770. OTHER DEFERRED LIABILITIES.

This account shall include items of deferred liabilities not covered by account No. 769; such as retained percentages due contractors, to be paid on completion of contracts; deposits for construction of side tracks, to be refunded on the basis of an agreed percentage of the earnings from the traffic handled over the tracks; and other similar items.

771. TAX LIABILITY.

This account shall include the amount of taxes accrued and charged against income accounts No. 532, "Railway Tax Accruals"; No. 535, "Taxes on Miscellaneous Operating Property"; and No. 544, "Miscellaneous Tax Accruals," in excess of the amount paid.

If the taxes paid are in excess of the taxes accrued, the amount of the excess shall be shown in red in this account.

772. PREMIUM ON FUNDED DEBT.

This account shall include the total of the net credit balances in the discount, expense, and premium accounts for the several subclasses of funded debt.

773. INSURANCE AND CASUALTY RESERVES.

This account shall include the net credit balance in the accounts to which are credited specific appropriations of income or surplus and such insurance premiums as are concurrently charged to Operating Expenses to cover self-carried risks on fire, fidelity, boiler, casualty, burglar, and other insurance, and to which are charged losses sustained on items protected by such insurance.

774. OPERATING RESERVES.

This account shall include the ledger balances representing reserves created by charges to Operating Expenses for maintenance of road and equipment, for personal injury, loss and damage, and other claims, and for similar purposes, such charges being made currently for the purpose of equalizing charges to operating accounts for the current accounting year.

NOTE A.—Debit balances in operating reserve accounts to be cleared by future charges to operating accounts shall be shown

in red in this account in the carrier's annual report to the Commission.

NOTE B.—The credit balances in reserve accounts representing appropriations of income or surplus for sinking funds, etc., shall not be included in this account.

NOTE C.—Accrued depreciation credit balances shall be included in accounts Nos. 775, 776, or 777, as may be appropriate.

775. ACCRUED DEPRECIATION—ROAD.

This account shall be credited with amounts charged to Operating Expenses or other accounts to cover the depreciation of fixed improvements, the cost of which is included in account No. 701, "Investment in Road and Equipment," or in account No. 702, "Improvements on Leased Railway Property."

When any fixed property is destroyed, sold, or otherwise retired from service, the amount included in this account with respect to the property retired shall be charged hereto.

776. ACCRUED DEPRECIATION—EQUIPMENT.

This account shall be credited with amounts charged to Operating Expenses or other accounts to cover the depreciation of the accounting company's equipment.

When any equipment is destroyed, sold, or otherwise retired from service, the amount included in this account with respect to the property retired shall be charged hereto.

777. ACCRUED DEPRECIATION — MISCELLANEOUS PHYSICAL PROPERTY.

This account shall be credited with amounts charged to income or other accounts to cover the depreciation of property the cost of which is included in account No. 705, "Miscellaneous Physical Property."

When any miscellaneous physical property is destroyed, sold, or otherwise retired from service, the amount included in this account with respect to the property retired shall be charged hereto.

778. OTHER UNADJUSTED CREDITS.

This account shall include the amount of credit balances in suspense accounts that can not be entirely cleared and dis-

posed of until additional information is received, such as amounts realized from the sale of damaged, unclaimed, and over freight and held pending claim; switching charges of other carriers collected and held awaiting bills from such carriers; amounts received from the sale of mileage tickets, to be disposed of as mileage is honored by the accounting or other carriers; amounts received from sales of excess baggage scrip, to be disposed of as coupons are honored; interchangeable mileage credential ticket redemption funds; revenue overcharges subject to refund; credit balances in clearing accounts such as "Shop expenses," "Store expenses," "Operating gravel pits," and "Operating quarries"; items charged to Operating Revenues or Operating Expenses on an estimated basis in accordance with general instructions for the classification of operating revenues and operating expenses, section 2; estimated accrued depreciation on leased equipment and other similar items.

779. ADDITIONS TO PROPERTY THROUGH INCOME AND SURPLUS.

This account shall include such amounts of income and surplus as have been definitely appropriated or set aside, and expended since June 30, 1907, in the acquisition of property the cost of which is included in property investment accounts other than those for securities and also the amount of donations in aid of construction made by individuals and companies and not subject to distribution as dividends. Investments in road and equipment, in improvements on leased railway property, and in miscellaneous physical property shall be shown separately in the accounting company's records.

This account may also include amounts definitely appropriated or set aside, and expended prior to June 30, 1907. If such amounts are included, the account shall be kept in such form as to show separately amounts expended to June 30, 1907, and amounts expended since that date.

NOTE.—Temporary appropriations of current funds for the acquisition of property, the cost of which is intended later to

be met through an issue of securities, shall not be included in this account.

780. FUNDED DEBT RETIRED THROUGH INCOME AND SURPLUS.

This account shall include the total amount of appropriated income and surplus expended in the discharge of the principal (less the discount, if any, suffered at the time of sale) of any funded debt issued or assumed by the accounting company and retired through sinking or other funds provided from income or surplus. The account shall be kept in such form as to show separately amounts expended to June 30, 1907, and amounts expended since that date.

NOTE A.—Temporary appropriations of current funds for the payment of obligations which are intended to be replaced by new issues shall not be included in this account.

NOTE B.—Amounts of appropriated income and surplus expended in retirement of trust obligations issued for the purchase of equipment shall be included in account No. 779, "Additions to Property Through Income and Surplus."

781. SINKING FUND RESERVES.

This account shall include the net balances in accounts to which are credited definite appropriations of income and surplus whether held in general funds or specifically set aside in the hands of trustees for sinking and redemption funds. It shall also include income accretions to such funds retained therein.

782. MISCELLANEOUS FUND RESERVES.

This account shall include the net balances in accounts to which are credited definite appropriations of income and surplus specifically set aside in the hands of trustees and not provided for elsewhere. It shall also include income accretions to such funds retained therein.

783. APPROPRIATED SURPLUS NOT SPECIFICALLY INVESTED.

This account shall include the net balances in accounts to which are credited appropriations of income and surplus held

in general funds for definite purposes not provided for elsewhere, but for which no specific investment or segregation of assets has been made.

784. PROFIT AND LOSS—BALANCE.

This account shall include the balance at the close of the fiscal period as shown in the accounts provided in the classification of profit and loss accounts.

CHAPTER X

ACCOUNTING DEPARTMENT ORGANIZATION

Not all of the figures which are used by the management of the railroad in its control through statistics of the operations of the road are prepared by the accounting department. On most roads, however, the accounting department has supervision at least over all of the figures and statistics that are prepared for the Interstate Commerce Commission, and the accounting department certifies to the correctness of all figures dealing with revenues and disbursements and prepares the entries which are made in the company's general books. These entries are, of course, the sums of numerous transactions, thus the single entry Repair of Passenger-train Cars for January would be the sum of hundreds of payrolls and probably numerous vouchers. The labor involved in making the entries in the general books is as nothing compared to the labor involved in the distribution of the various expense accounts. Nevertheless, the object in describing the final uses to which the figures are put that are compiled by the accounting department, *before* describing the way in which these figures are compiled, was to attempt to give the proper importance to the different functions of the accounting department.

We have been dealing principally with the theories underlying accounting on the assumption that if these theories are thoroughly understood, the mechanism by which the object is attained, differing quite widely in de-

'tail as it does among the different accounting offices of American railroads, can more readily be understood. Furthermore, most of the discussion so far has been devoted to a consideration of expenditures and especially of expenses, while on the other hand the largest part of the auditor's office force is engaged in compiling figures showing revenue. Where, for instance, in the example cited above, the single entry Repair of Passenger-train Cars is the sum of hundreds of payrolls, the single entry Freight Revenue will be the sum of hundreds of thousands, or even millions, of waybills and other items. It is of the utmost importance that every dollar received for the company by its agents be accounted for and turned in, and it is of the utmost importance that every dollar paid out shall be accounted for and spent only for value received. It is easy, therefore, for the men engaged in the auditor's office to lose sight of the one object of their work under the pressure of the immense mass of detail involved in attaining the primary result of seeing that the company gets all of the money which its agents are taking in for its account, and that the money which is spent is spent only upon the proper authority.

Auditing, however, is not accounting. It is simply the checking-up of accounts to insure their correctness. It is important to get in mind a general picture of the work of the accounting department. To this department come accounts of station agents, conductors and ticket sellers; payrolls, and vouchers and statements of accounts due from and to other roads and individuals. All of this mass of detail must be gone over, checked against itself and with other available data added together and prepared for entry into the general books. The organization, therefore, of a department which is to handle such a mass of detail and which is to be the final censor on expenditures and disbursements, is a problem that deserves a careful study.

The organization of the accounting department of nearly all the railroads in the United States is based directly or indirectly, probably, on the organization of the Pennsylvania Railroad Company's accounting department. There has hardly been a change of any importance in the Pennsylvania's accounting department organization since 1872. Even on the Pennsylvania, however, it is not always possible to make the personnel fit the logical and theoretical form of organization, so that there have been minor changes in the form of organization to fit changes in personnel. For instance, when Mr. Rea was vice-president, the accounting department was under the supervision of the vice-president. Since Mr. Rea has been made president, the comptroller reports directly to the president.

On roads other than the Pennsylvania, changes in accounting department organization have been more frequent and more radical. The accounting department is peculiarly closely related to the "owners" of the property as represented by their board of directors, but is also so closely related to the work of the various departments, of the active management, operating, traffic, engineering, etc., that with the rapid development of railroad systems in the United States and the frequent changes in ownership and control and the personnel of the management, there have been numerous changes in the form of the accounting department's organization to fit different views of different directors, or different qualifications of different men in the management. All of these changes, however, have been departures from the logical organization as worked out on the Pennsylvania.

The accounting department is in substance the customs house of the railroad and should be entirely independent of other departments and should be under the direct supervision of the executive board of the company. It is usually divided into two parts, one dealing with the collection of

revenue and the other with the audit of disbursements and distribution of the amounts expended to their proper accounts.

On a small road the head of the accounting department (the auditor) reports to the president and has charge of all of the various activities of the auditing department, possibly having chief clerks in charge of the different branches of work, or, in the case of a very small road, he may be in direct charge of the clerical force. To understand the organization of the accounting department of American railroads it is helpful to study the organization of the Pennsylvania Railroad. In this way we get a comprehensive view of all of the functions that the accounting department of most railroads in this country performs, and the study of other organizations resolves itself largely into a study of variations of the Pennsylvania form which has been followed except for concessions made to meet special conditions.

The comptroller of the Pennsylvania Railroad has, under the direction of the president, supervision of all the accounts and statistics of the company of all lines owned or controlled in the Pennsylvania system east of Pittsburgh. The Lines West have their own separate accounting department organization. The comptroller, in addition to having the direction of the manner and method wherein all accounts shall be kept and the power to see that the system of accounts adopted by the company is enforced and maintained, has the authority to require any specific information from officers in charge of other departments in such form as he may deem best for the interests of the company. He is required to furnish to the executive officers, and through them to the board of directors, "such statements of accounts and statistics relating to the business transactions and affairs of the company as will enable them to be properly informed thereof." The comptroller is also required

to prepare a statement of all securities belonging to the company and to himself and to make a complete examination of all the securities in charge of the treasurer or trustees of the various funds at least once a year. He has the power to make such an examination whenever he may deem it best.

The general books of the company are kept in the comptroller's office and the comptroller verifies and certifies to the correctness of the treasurer's reports of daily receipts and disbursements. Vouchers which are paid by the treasury department are kept on file in the comptroller's department. At least once in every three months the comptroller makes an inventory of cash on hand and on deposit.

The comptroller approves for payment all payrolls and vouchers when these payrolls and vouchers have been approved by the officer or officers who are authorized to make such expenditures. In other words, the comptroller certifies to two things: First, that the payrolls and vouchers have been approved by a duly authorized officer, and, secondly, that the accounts are correct. Under the same provision, the comptroller approves loss and damage claims, settlement for overcharge orders, and relief fund orders. The comptroller is authorized to approve for settlement all amounts due by or to other companies or individuals on account of traffic and equipment service when properly certified.

It is the comptroller's business to see that the accounts of all officers, agents and employees are properly kept and that all money collected is promptly paid to the treasury department and that all money paid over by the treasury department is promptly accounted for. The comptroller has charge of the fidelity bonds of all the officers and employees of the company, and all defalcations are usually reported promptly to the comptroller and by him to the

president and to the vice-president in charge of the department in which they may occur.

If any irregularity in accounts or in the handling of company money is discovered, the comptroller may request the head of the department in which such irregularity occurs to remove the employee or officer at fault, and may if he thinks it necessary suspend any agent or employee and place the business temporarily in charge of an agent of the accounting department, notifying, of course, the head of the department to which such suspended employee belongs of his action. The by-laws of the Pennsylvania Railroad Company provide that accounts for payment, except principal and interest of bonds, dividends, promissory notes, and such other accounts as the board shall designate, shall be covered by payrolls or bills for vouchers prepared in the several departments and approved by the proper officer, which payrolls and bills for vouchers shall be transmitted to the comptroller to be examined and verified, preliminary to the preparation of the necessary vouchers. No payment shall be made of any bill, or account, except those contracted for the benefit or use of the company, and in all cases the comptroller shall have the power to take all steps necessary to satisfy himself of the correctness thereof, and all unsatisfactory bills or accounts shall be returned to the head of the department responsible therefor for explanation or correction, and when desirable may also be reported to the vice-president or the president. Bills for materials and supplies shall, before being passed for payment, be indorsed to show the receipt of the materials and supplies, by the head of the department to which they were consigned, or his duly authorized representative, and must be approved by the purchasing agent.

The comptroller appoints, with the approval of the president, all of the officers and employees in his department. The accompanying diagram shows the staff reporting di-

PENNSYLVANIA RAILROAD,
President

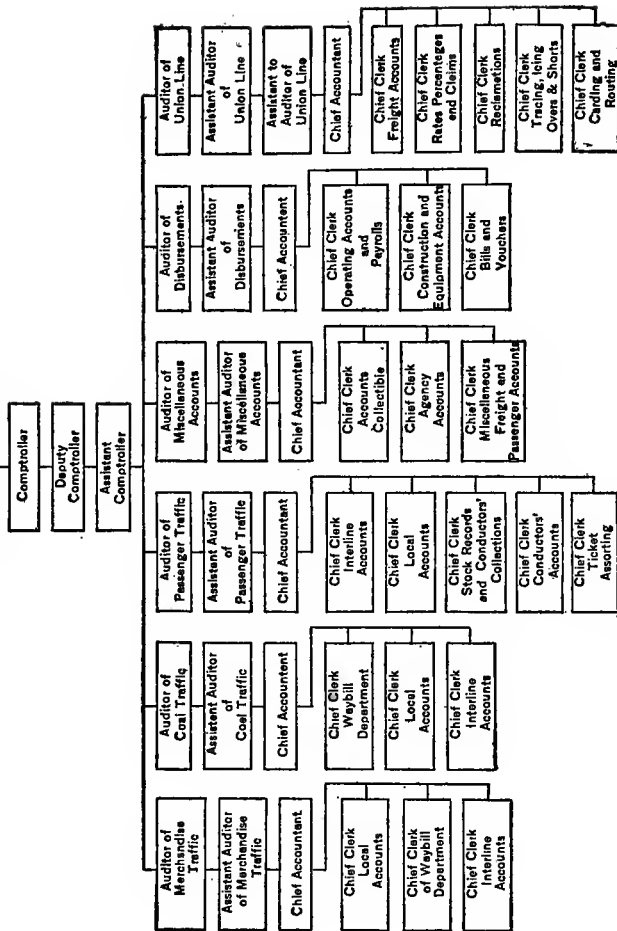


FIG. 3.—PENNSYLVANIA RAILROAD ACCOUNTING ORGANIZATION.

rectly or indirectly to the comptroller. It will be seen that there are two assistants, a deputy comptroller who acts for the comptroller in his absence and approves for payment all papers requiring the comptroller's certification or approval and an assistant comptroller who can also approve for payment papers requiring the comptroller's signature and who in the absence of the comptroller and deputy comptroller acts for the comptroller.

Under the comptroller are six auditors. What might be called the auditor of freight revenues' duties are divided between the auditor of merchandise traffic, the auditor of coal traffic and the auditor of miscellaneous accounts. The auditor of merchandise traffic has immediate charge of all accounts relating to freight traffic other than coal and coke. He sees that officers, agents and employees who have anything to do with merchandise freight traffic accounts obey the rules and it is his duty to report any violations to the comptroller. Under his supervision are prepared the statements showing all amounts due to or by agents or other companies and individuals on account of merchandise traffic. However, he does not furnish these statements directly to the comptroller, but they are sent to be assembled with other accounts to the auditor of miscellaneous accounts. The auditor of coal traffic has immediate charge of all accounts relating to coal and coke freight traffic and it is his duty to report to the comptroller violation of rules committed by officers and employees in connection with such accounts. He prepares statements showing amounts due to or by agents, other companies, etc., in connection with coal and coke traffic and like the auditor of miscellaneous traffic sends these statements to the auditor of miscellaneous accounts.

The auditor of passenger traffic has immediate charge of all accounts relating to this traffic and also is responsible for all tickets or other equivalents for transportation

after they have been issued by the proper officers to agents. He has, of course, the duty of seeing that passenger traffic reports are properly kept and of reporting violations in connection therewith to the comptroller. He furnishes a statement of all amounts due to and by agents, other companies, and individuals on account of passenger traffic, to the auditor of miscellaneous accounts.

The auditor of miscellaneous accounts has two important functions. In a way his duties on the Pennsylvania Railroad correspond more nearly to that of auditor on other roads having both an auditor and a comptroller than to the duties of the officers whose titles correspond with his own. On the Pennsylvania he has immediate charge of all accounts relating to mail, express, military transportation, rents, telegraph receipts, equipment series, demurrage and all other revenue other than strictly passenger and freight. This is the extent of the duties of the auditor of miscellaneous accounts on most other roads. On the Pennsylvania this officer has in addition the responsibility of seeing that the accounts which are furnished him by the auditor of merchandise traffic, auditor of coal traffic, auditor of passenger traffic, auditor of the Union Line and the general superintendent of transportation as between the Pennsylvania Railroad and its agents, other companies and individuals are promptly settled. It is his duty to see that the bills on account of labor performed, for all material furnished to other railroads or corporations or individuals shall be sent to him for record and by him transmitted to the Treasury for collection and he also must see that such accounts are promptly collected and paid into the Treasury. He certifies to the correctness of settlements of all overcharges and to the correctness of all orders on the company for individuals and other companies which are to be issued by the Treasurer.

The auditor of disbursements has immediate charge of

all accounts relating to disbursement. He examines bills for vouchers and the payrolls before payment is made and certifies to the correctness of the vouchers, of payrolls, and furthermore he has charge of both the vouchers and payrolls after they have been paid by the Treasurer. He certifies to the correctness of the statements sent him by the Treasury department for payrolls that have not been paid. Like the other auditors he is required to report deviations from rules by officers and employees in regard to his particular department.

The auditor of the Union Line has charge of accounts relating both to earnings and expenses of these Pennsylvania fast freight lines. He has charge of the division of revenue on all Union line traffic and prepares vouchers for overcharges, loss and damage, etc., for Union line traffic and apportions the expenses of the Union line among the different roads over which its traffic passes. He prepares monthly statements of earnings and expenses of the line for the different officers of the roads. He reports the division of revenue and other statistical information to officers to whom it is of concern and also furnishes statements of all amounts due to and by agents to the auditor of miscellaneous accounts.

The accompanying chart shows the organization of the accounting departments of the Union Pacific. The Pennsylvania's organization is not quite as simple as it appears on the chart because there are certain complicating features of the subsidiary lines, but the complications are minor ones and in general the organization is perfectly logical and simple. On the other hand, in as large an organization as this on the Pennsylvania the work of each chief clerk is confined to so small a part of the total process of compiling the figures that go to general officers and are entered in the company's general books that it is particularly difficult for an employee in this department to get

UNION PACIFIC RAILROAD
ACCOUNTING DEPARTMENT ORGANIZATION

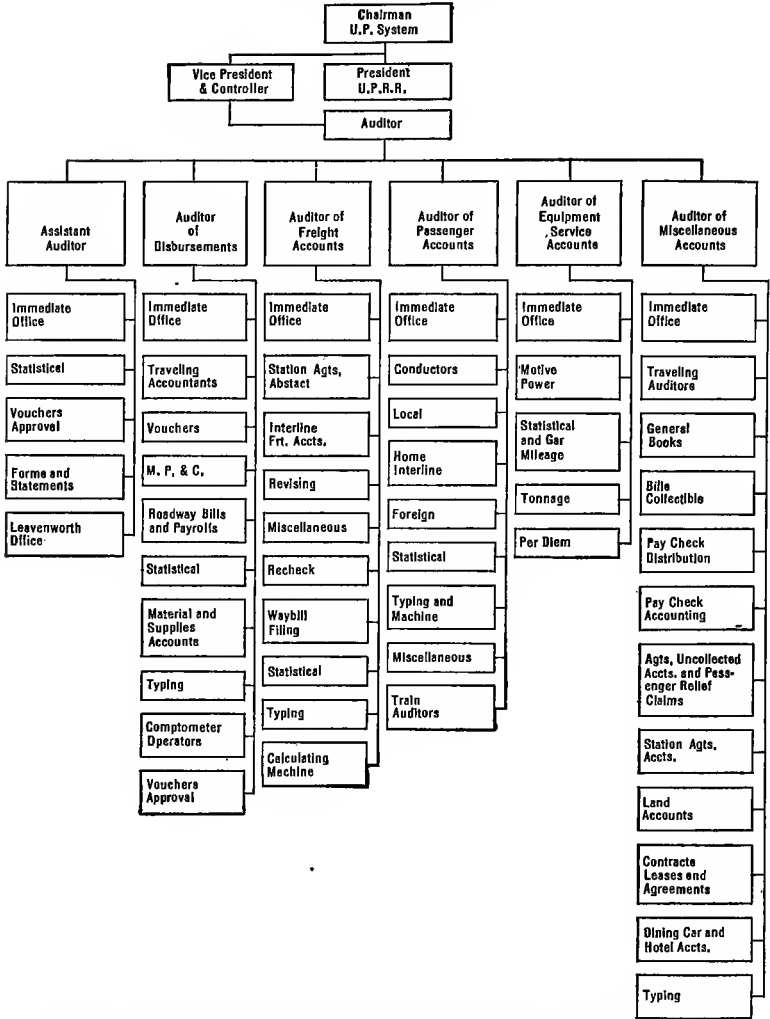


FIG. 4.—THE UNION PACIFIC ACCOUNTING DEPARTMENT ORGANIZATION.

any comprehensive view of the ultimate ends to be accomplished by his work.

The numerous subsidiaries of the Union Pacific make the organization of the accounting department of this company necessarily rather complicated, and there are a good many cases, especially in the Union Pacific organization, where officers report to more than one superior officer. The difficulty, however, with an accounting department organization lies not so much in a possible internal division of authority as in the peculiar relations of the accounting department to the other departments of the railroad. A study of the Pennsylvania's by-laws, as paraphrased earlier in this chapter, will show how much responsibility over the work of other departments is placed on the accounting department. The details of this work necessarily have to be handled in many cases by employees who are entirely unfamiliar with the work about which they are writing letters, and these letters are written to men who are naturally sensitive to criticism from any except their own immediate superiors and who are generally quite ignorant of even the first principles of the work which is being done by the accounting department.

The objection, if objection there is, to the Pennsylvania accounting organization is that it may seem cumbersome. The Pennsylvania, as mentioned elsewhere, has not gone as far in adopting labor-saving devices, such as the Hollerith machines, as has either the Southern Railway or the New York Central. Furthermore, the Pennsylvania divides its accounts as between the five grand divisions, which, as explained more fully later, occupies considerable time of the accounting force. On the other hand, the Pennsylvania has a very distinct advantage over any other road in the United States in regard to the relations between the accounting department and other departments. Its whole organization is more stable, has been more scientifically

worked out, and is more nearly a self-perpetuating machine than that of any other company in the country. It is easier, therefore, to exact respect for authority and especially for the established way of doing things on the Pennsylvania than on roads with more recently instituted organizations. This inherent regard for precedent and rule, which is distinctive of Pennsylvania employees and officers, aids materially in exacting strict obedience to instructions issued to other departments by the accounting department.

Efficient labor in the accounting department is a considerable problem. It is not considered that the work justifies any but low salaried clerks. With great numbers of such clerks it is, of course, necessary to maintain very strict discipline, and such labor is not apt to be permanent. The Southern Railway, having its accounting office in Washington, is in a peculiarly good position to get a force of low-priced clerks, mostly girls, and the auditing cost per dollar of revenue, which is the generally accepted measure of auditing cost, is unusually low on the Southern Railway.

The Southern Railway has devoted more attention than almost any other of the large companies to the adoption of the Hollerith system and of other labor-saving devices. The Southern Railway has a building especially designed for housing the auditor's forces, and this is a quite important factor in the perfecting of an effective auditing organization. Everything that will tend to eliminate confusion and possible disorder, especially when the auditor's forces are working under pressure, is of very great importance in getting the greatest efficiency out of this department. Ample room, steel tables and filing devices, ample light, etc., are details which are of a good deal of importance.

No attempt is made in the following chapters to describe

in detail anything more than the general principles which guide in the work of the auditors of revenue, disbursements and miscellaneous accounts. The forms that are shown are taken from those in use on the Pennsylvania, New York Central and Southern Railway. Forms in use on other roads differ in detail, but an attempt has been made to select those which will show the principles which underlie auditing on any road.

CHAPTER XI

AUDITING REVENUE—PASSENGER

The auditor of passenger revenue generally deals only with the receipts from the sale of transportation to passengers. The receipts from other sources of revenue attendant on running passenger trains, such as excess baggage charges, mail and express, etc., are dealt with on a large road by the auditor of miscellaneous accounts. On a smaller road there may be no auditor of miscellaneous accounts, and his duties are taken up either by the auditor of passenger revenue or the auditor of freight revenue.

There are a great number of different forms of tickets used, but for the purpose of understanding the work of the auditor of passenger revenue's office they may be divided as follows:

SOLD BY THE COMPANY'S AGENTS

Local car tickets and local tickets with printed destinations

Local tickets on which the agent fills in the destination

Interline tickets reading from a station on this company's road to one off of its road

Mileage

Commutation tickets

SOLD BY THE AGENTS OF OTHER COMPANIES

Foreign roads' tickets known as coupon tickets reading to a station on this road, or one of the coupons reads between stations on this road

The auditor's sources of information on which to audit

passenger revenue are reports of ticket agents made daily or monthly, and the reports and ticket collections made by conductors, and in addition reports made by foreign roads of tickets sold by them good over a part of the auditor's own road, which reports, however, are made after the close of the month.

The ticket agent, whether he reports to the auditor daily or only once a month, can only report his own sales. This leaves the collection of foreign roads' coupons to be checked only against foreign roads' reports, and it leaves collections of cash fares by conductors and of mileage good over the auditor's road to be checked against the conductors' reports.

The station agent at a small station may handle both freight business and ticket sales, but reports in regard to passenger business to the general passenger agent and returns his accounts in regard to the sale of tickets to the auditor of passenger receipts. The agent receives his stock of tickets from the general passenger agent on requisitions. This stock, which includes tickets with printed destinations and blank destination, as well as forms for special tickets of various kinds, is only large enough for current use, and the agent fills out a requisition as needs be for additional ticket stock. The general passenger agent's office does not generally keep a large stock of tickets on hand, preferring to have them printed from time to time as necessary. A requisition from a large ticket office is usually sent direct to the printers to be filled. All tickets are numbered consecutively. For instance, on the New York Central & Hudson River, local tickets, that is, tickets between points on the lines east of Buffalo, are numbered from 1 to 100,000 for each ticket agency. Interline tickets, however, are numbered consecutively, and different numbers of the same series are sent to different ticket offices on requisition. The system of numbering tickets differs somewhat on different roads but the principle is or should be the same on all—

namely that no two tickets of the same form or reading from the same station shall have the same number. An account is kept with each agent in which he is charged and held responsible for each ticket sent him and credited with each ticket sold or returned by him.

When the general passenger agent's office sends the tickets to the agent they send him in triplicate a list of the tickets showing the opening and closing numbers of the tickets and on receipt of these tickets the agent files one of these lists, signs a receipt on the second one and returns it to the general passenger agent where it is kept for his record, and signs the third and sends it to the auditor of passenger receipts. The general passenger agent, in addition to sending the ticket agent a list in triplicate of stock shipped him, sends direct to the auditor of passenger receipts an additional copy of this list. The auditor's office, therefore, has a check against the list sent by the agent and at the same time a check on the accuracy of the list sent by the general passenger agent.

Some roads require a daily report of ticket sales from their agents while others require only a monthly report, but under whichever system is in use the agent is required to make a daily deposit or remittance of cash as late in the afternoon as possible. On the New York Central he sends by express as much of that day's cash receipts as is possible to the nearest depository bank of the company, sending at the same time directly to the treasurer's office a statement showing the amount of cash which he has deposited. On the Pennsylvania he deposits his cash with the local bank designated by the company, making out a deposit slip in triplicate and the bank sends to the railroad company's treasurer one of those deposit slips; in other words whether a daily or monthly system of agents' accounts is in use the treasury is kept informed each day of the cash taken in on the entire road. On the New York Central

and on the Southern Railway, reports to the auditor of passenger revenue are made up by the agent once a month, and at this time an inventory of tickets on hand is also made. The form for the statement of interline ticket sales used on the New York Central is shown herewith as is also the form used by the Southern Railway for through ticket


Form
A. P. A. 970

A.R.P.—222—7-10-17—222

New York Central & Hudson River Railroad Co.

ACCOUNTING DEPARTMENT.

GRAND CENTRAL TERMINAL, NEW YORK CITY.



J. L. FERRIS,
Auditor of Passenger Accounts.
J. L. BROW,
Assistant Auditor of Passenger Accounts.

REPORT OF INTERLINE TICKET SALES.

For Account of _____ Railroad

During Month of _____ 191

Address all communications concerning this report, including those referring to rates and divisions, to Auditor of Passenger Accounts.

	FROM	OFFICE NUMBER	TO	FORM	Consecutive Nos.		Rt. Used and Class				Through Rate	Proportion	AMOUNT
					Con.	Dis.	1st U.L.	1st L.	2nd	Mixed			
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

FIG. 5A.—FRONT OF AGENT'S MONTHLY REPORT OF TICKET SALES.

reports. The Southern local form has columns for passenger mileage by divisions which is considered as saving considerable time. On most other roads this information is compiled separately.

The number of tickets to each destination is shown separately and the amount received is also shown separately. As a check against the total reported received by the agent



N. Y. C. & H. R. R. R.
Report of Interline Ticket Sales.

191

\$

MONTHLY SETTLEMENT OF TICKET BALANCES,
as per reports rendered and received, is requested.

Drafts made for balances due by this Company
should be addressed to Treasurer, N. Y. C. & H. R.
R.R. Co., Grand Central Terminal, New York City.

For balances due to this Company drafts will be
made EACH MONTH unless otherwise requested.

Reports of Ticket Sales for account of this Com-
pany should be addressed to J. L. Ferris, Auditor
Passenger Accounts, Grand Central Terminal, New
York City.

FIG. 5B.—REVERSE SIDE OF AGENT'S MONTHLY REPORT OF TICKET SALES.

from the sale of tickets, the auditor receives at the end of the month directly from the depository banks of the company a statement of the cash deposited during the month by each of the various agents.

On the Pennsylvania the ticket agent makes a daily report of both local and interline tickets sold. This report, however, is not cumulative and an additional report is made at the end of the month. It is the monthly report which is regularly audited although the daily reports are always available for a test audit. At the end of each week the agent makes a summary of his week's business on the back of his daily report and it is from this summary that estimates of weekly earnings are made up.

The process of auditing the ticket agents' monthly statements of local tickets sold is as follows: The statement is first checked to see that the agent's arithmetic is correct, that is, that his rates are correct, that his multiplication of the rate by the number of tickets to each destination is correct and that his footings are accurate. This is done, of course, by clerks using in the case of additions and multiplications the comptometer, or some other mechanical device. The statement and the inventory of tickets on hand are then checked against the tickets which the agent has receipted for. After this check has been completed the agent's statement is checked against the tickets turned in by conductors. The department dealing with tickets turned in by conductors is usually, on a large road, a separate department in charge of a chief clerk. To this department come all tickets, mileage coupons, cash fare slips and conductors' reports.

These tickets, collected by conductors, are turned in by the conductors either to the auditor's office direct or to ticket receivers at the end of each run and are sent by the ticket receivers to the auditor of passenger accounts. They are there sorted into various classes. Of course, the

only concern of the auditor of passenger accounts in regard to local tickets is to see that the tickets turned in by the conductors are in accord with the report of ticket sales. Interline but not local tickets which are reported sold by the agents, but which have not been turned in by conductors, are carried on a separate account, so that if they turn up later they can be checked off. It is no particular concern, however, of the company whether or not they are ever used so long as they are accounted for by the agent selling them.

Cash fares collected by conductors are accounted for at the end of each run to the ticket receivers in cases where ticket receivers are employed. The ticket receivers deposit the cash and send a statement of such deposit to the treasury department and also to the accounting department. This statement is checked against the cash fare receipts which the conductor turns in and against the triplicate receipt issued to passengers which the passenger presents for redemption to agents.

On either the daily or monthly system of agents' reports a separate report is made for local tickets and interline tickets, the local ticket report differing only from the report for interline tickets in having no additional columns in which is shown the division of the rate between the accounting company and other companies over whose lines the ticket reads. It is necessary to audit interline ticket reports both by checking them against the stock of tickets on hand and the coupons returned by the accounting companies' own conductors, and also against the reports sent in by foreign companies showing amounts due these foreign companies on tickets sold by the accounting company and picked up by the foreign lines' conductors. The interline ticket department of the auditor of passenger revenue is often divided into two sub-departments. From the ticket agents' reports of the accounting company, when checked,

is made out the statement of what the accounting company owes other companies for tickets sold by the accounting company and reading over other companies' lines. The second department receives the reports of foreign companies showing sales of tickets good in part over the accounting company's lines. These reports are checked against the collection of foreign lines' ticket coupons made by the accounting company's conductors; are corrected, if necessary, and a statement of the amount due from other companies is thus compiled and audited. Thus on the New York Central these two statements, showing amounts due by the New York Central to other companies and amounts due from other companies to the New York Central, are sent by the auditor of passenger accounts to the auditor of revenue, who certifies as to their correctness and either draws drafts on foreign roads or notifies foreign roads that drafts against the accounting company will be honored for the difference.¹

In auditing both interline ticket reports of agents and reports of foreign roads of tickets sold over the accounting company's lines, much time and care is necessarily spent on making sure that the rate is right and that each road gets its proper division of that rate. The most expert clerks are usually assigned to this branch of the auditor of passenger revenue's department.

The system in use on the Pennsylvania is worth describing. An agent reports the sale of a round trip ticket from Philadelphia to San Francisco. He has charged, say, \$160 for this ticket, which reads over five other lines. The work of making the proper division of such rates is done by a set of clerks who devote all their time to this kind of work. After they have figured out the divisions of this

¹ The actual settlement of balances between companies is the work of the treasury department and is described in the chapter dealing with that subject.

particular ticket a card is made out showing these divisions for this *form* of ticket. These cards are kept on file and the next time a sale is reported for the same form of ticket between the same points it is only necessary to refer to this card to get the divisions belonging to the different roads. The same card system is in use for foreign roads' reports of tickets sold over the Pennsylvania. Since, however, rates and routes are continually changing, the work of making new cards goes on indefinitely. On many roads, the Southern Railway for example, the division of rates is made by the passenger department and not by the accounting department and a set of tariffs applying on each form of ticket is kept on file in the auditor's office as guide for the accounting department clerks.

In addition to auditing the ticket accounts of the agents, the passenger revenue accounting department compiles certain statistics for the use of both the transportation and traffic department and for the general officers. The basis of all the passenger statistics in this country is the passenger mile. In Germany passenger business is computed on a ton mileage basis as well and for certain purposes such a basis is very useful.

In compiling passenger miles a passenger, whether he be an adult or travels on half fare, is considered one passenger, and the mileage covered by the ticket which he buys is the mileage taken, regardless of whether or not the passenger actually uses the ticket, so long, of course, as he does not get a refund on the ticket. Thus, when a commutation book, which contains coupons for 60 rides of, say, 20 miles each, is reported as sold, the auditor adds to the passenger mileage 1,200 passenger miles, although in practice there are comparatively few times that a commuter uses all of the coupons in his book or all of the number of rides that he is entitled to each month on a card commutation ticket. In other words passenger miles means, not

miles traveled by passengers, but miles for which passengers have paid.

Besides computing the passenger mileage, the receipts from each station are shown separately and the fluctuation from year to year is shown.

Some railroads pay little attention to the fluctuations in business from week to week, trusting entirely to monthly statements made to the general offices. Others try to make an estimate of both earnings and expenses each week. The New York Central makes, for the use of its general offices, an estimate of the gross revenue. Each week the local ticket agent fills out a postcard showing the total amount received from both local and interline tickets and mails this postcard to the auditor of passenger revenues. Of course, the auditor receives no such information from foreign lines which have sold tickets reading in part over the New York Central. The auditor of passenger accounts compiles a statement showing the total receipts from tickets sold by New York Central agents, and on the basis of the business in the previous periods, estimates the probable sales of tickets by foreign lines reading over the New York Central. Such estimates are generally close, not varying much over 5 per cent. from the figures which eventually are received from foreign lines. On the Southern Railway the estimate of what proportion of the revenue from tickets sold on the Southern good in part over other roads is supplemented by an estimate of earnings due from other roads from tickets sold by them and good in part over the Southern based on conductors' collections of foreign roads' coupons. It is from the conductors' collections also that the monthly earnings on the foreign tickets on the Southern are made up. In this way the Southern gets into each month a close approximation of the actual earnings earned in that month. The form on which this monthly estimate is made is shown herewith (Form 2163).

On the Pennsylvania, weekly estimates of passenger earnings are arrived at as follows: It has already been mentioned that on the back of the agents' reports of local ticket sales is a form, which the agent is expected to fill in once

7-29-12 6 M. C. 22746

FOREIGN TICKET LISTINGS—PASSENGERS AND REVENUE

Received via _____ Month of _____

To _____					To _____				
R. R.					R. R.				
Week	Straight	R. T.	Special	AMOUNT	Straight	R. T.	Special	AMOUNT	
1									
2									
3									
4									
Total									
Week									
1									
2									
3									
4									
Total									
Week									

FIG. 7.—MONTHLY ESTIMATE (FORM 2163 OF SOUTHERN RAILWAY).

in every seven days, showing the total sales of interline and local tickets from his station for the week. The total of the local sales is credited to that week's earnings; the total of the interline sales is apportioned between the Pennsylvania and all foreign lines on a certain basis. This basis differs for different stations and has been worked out from numer-

ous tests extending over a number of years. Other roads report sales to the Pennsylvania of tickets reading over the Pennsylvania once a month. These reports are for sales occurring *two months previously*; thus, foreign roads report to the Pennsylvania for sales made in January on a report which reaches the Pennsylvania in March. Between 80 and 90 per cent. of all of the reports which the Pennsylvania is to receive in March (January's sales) are received in the first seven days of the month. It is not a difficult matter to find out what reports are missing. An estimate based on the previous year for the same month is made of the probable amount of the missing reports. In this way a very close approximation of the total earnings for the month on tickets sold by foreign roads is made, and this is divided by four to get the week's estimated earnings. To the actual local ticket sales, the Pennsylvania's estimated portion of interline ticket sales and the Pennsylvania's portion of ticket sales by foreign roads estimated, are added cash collections and collections of mileage coupons by conductors, which gives the total passenger revenue for the week. On the Pennsylvania it is customary to make an estimate of these weekly passenger earnings well within 1 per cent. of actual earnings. Monthly earnings on the Pennsylvania are based on the reports of foreign roads for two months previously. The monthly passenger revenue is, therefore, the earnings *accounted* for in that month although possibly earned in a previous month.

The description of the methods used to compile figures in the auditor of passenger revenue's office can, of course, only be general. There are numerous details which differ as between different roads but which are details. The results to be arrived at are the same on all roads and methods described here are the basic methods which are in use on most all roads.

After the audit is complete a statement is sent to the

agent showing him the state of his accounts with the company. Entry is prepared covering total passenger earnings. This journal entry is of course made in the general books of the company.

The entry in use on the Southern Railway is based on the form, the first sheet of which is shown on page 319, and which covers all of the stations on the road. These stations are then summarized to make one entry.

The work of the auditor of passenger accounts may be summarized as follows: He keeps an account with each agent of the company selling passenger transportation, he collects and totals the debits to agents and their credits, thus preparing a statement for passenger earnings for each month for entry in the general books of the company; he also draws off from the reports of agents certain statistics (passenger mile figures, etc.) for the use of the operating and traffic departments.

CHAPTER XII

AUDITING REVENUE—FREIGHT

The auditor of freight revenue has immediate charge of all accounts relating to freight traffic. To better understand how the audit of freight revenue accounts is made it is necessary to describe briefly some of the work of the freight and transportation department. Whether freight is shipped in less than carload or carload lots a waybill covering each individual shipment is made out by the railroad agent who accepts the freight, and this waybill, which is a memorandum giving complete information in regard to the shipment, accompanies the freight to destination. All or part of the charges for freight may be paid in advance, or all or part of the charges may be paid on delivery of the freight. This information is shown on the waybill which never goes out of the possession of the railroad companies' agents, and when the receiving agent delivers the freight to the consignee he retains the waybill and sends a copy to his own auditor's office or makes a copy and sends on the original. The shipper's memorandum of the shipment is a bill of lading with which the accounting department of the railroad has nothing to do.

There are a good many details of the handling of reports and waybills that differ widely on different roads, but on all roads the agent who makes out the waybill and who forwards the freight makes a report periodically to his own auditor's office, and, under all systems, the agent who

receives the freight and takes up from the shipper the bill of lading, etc., makes a periodical report to his auditor's office. Both of these reports are usually made daily.

It is at once apparent that a railroad's earnings up to a certain date may be considered either as the total amount for which waybills have been issued or as the total amount for which waybills have been collected. In the same way the audit of freight revenue may be made on a forwarded basis or on a received basis. The agent who accepts the freight shipment from the consignor and forwards it over the railroad, that is, starts it on its journey, is called the "forwarding agent" and the report he makes daily of freight thus accepted and forwarded is called the "Forwarded Report." The agent who delivers the freight to consignee and who, of course, receives this freight from the train at the end of its journey is called the "receiving agent" and his report of such freight the "Received Report." Each agent makes out both a Forwarded Report and a Received Report.

It will simplify matters if we deal first only with local freight, that is, freight shipped from one point on a railroad to another point on the same road. Of course, either on a forwarded or received basis of auditing, if the waybills themselves are used, they must come in from the receiving stations. On some roads a carbon copy of the waybill is sent by the forwarding agent to the auditor's office, as well as a report of freight forwarded. On other roads, as, for instance, on the Pennsylvania, no carbon copy of waybills for local freight is sent by the forwarding agent to the auditor's office. On the Pennsylvania the system of audit is based on the waybills themselves and the receiving agent's report. Although daily reports are made by agents, as shown herewith, the *audit* is made from the monthly report of the received freight. The practice of this com-

pany well illustrates the principles of the audit based on the received report.

When the agent's monthly report, which is in form like the daily report, first comes into the auditor's office it is entered (listed) and then a set of clerks check it to see that the rate quoted is the proper rate applying on that shipment and that the agent's calculation of the total charges is correct.

A copy is then made of the information on the report and waybill, and it is from this copy that all other calculations in the auditor's office are made. The sum of the daily reports should check with the monthly report made by the agent. On one division on the Pennsylvania a cumulative daily report is being made by agents which does away with the necessity for a monthly report. This saves the agent a good deal of work, but on the other hand it adds very much indeed to the work of the auditor's office because the work of checking the received reports against the waybills and against the forwarded reports must be done each day instead of once a month. In any case, once a week the agent is required to make a summary in the form shown on the back of the report for the week's business. This summary is used in making an estimate of weekly earnings.

The received waybill report contains the following information: The date, that is, the date on which the agent received the freight; the name of the station at which the freight was received; the waybill number; the date of the waybill, which is, of course, the day on which the waybill was made out and the freight was started on its journey; the name of the station from which the freight came—in other words, the forwarding station; the route number; the number of the commodity, that is, a number which the Pennsylvania has arbitrarily assigned to each class of commodities (on many roads now this number corresponds to the number assigned to each class of commodities by the

NUMBER AND NAME OF STATION _____ DATE _____ 191 _____

	RECEIVED		FORWARDED	
	FREIGHT CHARGES	ADVANCES	FREIGHT CHARGES	ADVANCES
Local				
Interline				
B. C. & A.				
M., D. & V.				
N. Y., P. & N., etc.				
C. Y.				
Anchor Lines				
TOTALS				

As reported
in nature
of these
lines

SUMMARY

	DEBIT	CREDIT
1 Freight Charges Received.		
2 Advances Received.		
3 Prepaid Forwarded.		
4 Advances Forwarded.		
5 Prepaid Received.		
TOTALS		
NET AMOUNT CHARGEABLE		

NET AMOUNT CHARGEABLE FOR THE MONTH
(To be shown on the last day of the month only)

FIG. 9B.—REVERSE SIDE OF DAILY REPORT OF WAYBILLS RECEIVED.

Interstate Commerce Commission) ; the weight ; the freight charges ; the advances ; the prepaid ; whether the freight is local on that division or from some other division (the column headed L or F), and the freight bill number. All of this information is self-explanatory, with the exception possibly of the distinction between freight charges, advances and prepaid. Freight charges are the total amount which is due on the shipment ; advances are any amounts which the forwarding agent of the Pennsylvania may have paid to a connecting carrier ; prepaid is any amount which the consignor may have paid to the forwarding agent. For auditing purposes only, that is, to see that the company has collected the amount of money which belongs to it ; that the agent has properly accounted for the total of this money, and to see that proper delivery of the freight has been made, the auditor's office needs, in addition to what has already been described as the audit of received reports and waybills, only to check these received reports against the reports of freight forwarded. It is possible to do this by picking out from the received reports each shipment on a basis of forwarding station and compare this with the report made by the agent at the forwarding point.

The mere making sure, however, that charges have been properly made and collected, although it is the primary object of the audit, is only part of the information that the auditor's office compiles from these reports. The total tonnage of each class of commodity carried, the total tonnage received by any one station, the total tonnage forwarded from any one station, the total receipts and the total mileage per ton of freight is all information that it is highly important to place at the disposal of the management. To draw up a separate report by going through all of the daily or monthly reports of agents as many times as there are different classes of figures to be compiled is an enormous task.

The information shown on the card which has been punched is as follows:

April 8, Receiving Station No. 1772, waybill No. 539, forwarded February 27 from Station No. 300 via route 295. Commodity No. 6, weight 834.2 cwt., freight charges \$834.20 with no advances and \$22.10 prepaid. The shipment was foreign and interstate.

After the card has been punched it can be fed through selecting machines, which will take out of a pile of cards all of those having certain like information. The cards can also be fed through a machine which totals any desired column. By the use of the selecting machine it is easy to get all of the cards together from a certain forwarding station, and by then putting them through the totaling machine, get total freight charges or the total tons sent from that forwarding station. The machine which selects cards and which totals them consists of two sets of needles which set up an electric current where they come in contact with each other. They can, of course, only come in contact with each other through the holes punched in the card. This Hollerith system is simply a labor-saving device which abstracts or summarizes information which could, of course, be obtained without its use.

On the Pennsylvania Railroad the Hollerith system is used only for getting information from local freight reports. On the other hand, on the Southern, the Erie, the New York Central, the New York, New Haven & Hartford and a good many other roads the Hollerith system is used both for local and for interline freight reports.

It will be seen that there are no particular accounting difficulties about the calculation of earnings on local freight. The Pennsylvania adopts the received basis on which to figure their earnings; the New York Central the forwarded basis. As long, however, as the same basis is used on the

same road from month to month and from year to year, it makes comparatively little difference which is used. Logically a freight rate is not earned until the freight is delivered and therefore the received basis is logically the proper one on which to make an estimate of earnings. An estimate is made each week on most large roads and an exact statement of earnings is made for the month. This is for local freight.

The auditing of interline freight accounts is considerably more complicated than that of the local freight audit. If freight charges are prepaid, the line which receives the freight from the shipper and forwards it has to account to the other lines over which the shipment moves for their proportion of the total freight rate. On the other hand, if the total freight charges are paid by the consignee on receipt of the freight (which is the case with the great majority of shipments), the line receiving the freight and delivering it to the consignee gets all of the money and must account to the line on which the freight originated and any other lines over which it may have passed for their proportion of the total rate. Furthermore, if a through waybill is made out by the originating road, the originating road, and any other roads over which the shipment may pass before it gets on to the lines of the road on which is its station or destination, do not get waybills, since the original waybill is taken up by the agent at destination and sent to his own auditor.

There are three systems of interline shipments of freight. These are known as local billing with junction point settlement, through billing with junction point settlement, and through billing with audit office settlement. The names suggest the procedure that is gone through with. On local billing a waybill is made out for a through shipment by the originating line only to the junction point at which the shipment is delivered to a foreign line. On delivery of

the shipment to the foreign line the waybill is collected by the agent of the originating road, and the agent of the road which now takes the freight shipment settles with the originating road's agent for the freight charges which are due him and makes out a new waybill for his own road's portion of the haul.

Where a through bill of lading with junction point settlements is the method of procedure, the agent of the originating road at the junction point where the freight shipment passes off of the originating line collects from the agent of the line which takes the freight his own (the originating road's) share of the total freight rate.

Where the through billing with audit office settlement method is in use, the road which receives the payment for the freight, or which collects the waybill upon delivery of the freight to the consignee, makes a report to the auditors of the other roads who have participated in the movement of the shipment as to what is due them, and balances are settled in this way monthly.

The junction point settlement, as it is called, has numerous advantages from an accounting point of view. The objections to it are chiefly objections made by the traffic department on the theory that each agent of a foreign road is in a sense a soliciting agent for every other road with which that road has through routes and rates. If an agent has the choice of routing freight over two or more different foreign lines, he will, it is argued, route the freight over the line which gives him least trouble. With junction point settlement it is necessary for him to show the divisions of the rates as between the different railroads participating in the movement, while on the audit office settlement system he needs to show only the total freight charge without divisions as between the different roads participating in the movement, since these divisions are made in the auditor's office. If a road has the junction point settlement system,

the traffic department argues, agents of all other roads will discriminate against this road in favor of roads having the audit office settlement.

There is a real difference of opinion among railroad men as to the weight of this argument. Under the present laws the shipper has the right to route his freight in any way that he pleases, and while it is a fact that small shippers and occasional shippers do not generally bother to route their own freight, simply making sure that they get the lowest rate between point of origin and point of destination, large shippers and frequent shippers often have a preference which takes the matter out of the hands of the railroad company's agent. Furthermore, the traffic departments watch so closely the interchange of freight at junction points, and this interchange is so much a matter of policy of the higher officers of the traffic department, that the danger of being discriminated against by agents of foreign roads is claimed by the advocates of the junction point settlement system to be a theoretical danger rather than an actual danger. There are comparatively few roads that use the junction point settlement system. The New York Central is one, however.

The system is so well worked out on the New York Central—although even on this road there are exceptions, and some settlements are made through the audit office—that the work of the New York Central auditor of freight accounts' office is worth describing, even at the risk of having some repetition of what has already been described.

The New York Central has a through waybill, but the original waybill never goes to the auditor's office; and the settlement between the New York Central and other lines, both for freight which the New York Central delivers to other lines and which other lines deliver to the New York Central, is made by the agents at the junction point. New York Central agents make daily reports, such as are shown

N. Y. C. & H. R. R. R. CO.

DAILY REPORT OF WAY-BILLS RECEIVED

At _____ Station,

On _____ day of _____ 191

1. This report must be sent daily to the Auditor of Freight Accounts, and should cover all way-bills received during the day, except way-bills dated in the previous month received on and after the first day of each month.

2. Way-bills dated in the previous month, received on and after the first of each month to the 5th inclusive, must be included in one report marked "Extra," which should be forwarded to the Auditor of Freight Accounts on the 6th of each month. All way-bills dated in the previous month, received subsequent to the 6th, must be reported on the day received on reports headed "Supplementary Extra," and numbered consecutively, beginning with number one for the first report.

3. A recapitulation must be made on the last sheet, showing the total weight, freight charges, advanced charges and prepaid of each sheet in numerical order. The total charges should be carried to the Monthly Freight Report, Form A. F. A-64.

4. Agents must make the following notations in the "Remarks" column: I. S. (Interstate) opposite all way-bills covering freight originating at or destined to points outside the State in which their station is located, F. (Foreign) opposite all way-bills covering freight received from foreign roads or steamship lines, F. I. S. (Foreign and Interstate) opposite all way-bills covering freight received from connecting roads or steamship lines and which originated at or is destined to points outside of the State in which their station is located.

5. In the "Kind of Freight" column specify the various commodities, such as Lumber, Grain, Merchandise, Manufactures, Anthracite Coal, Bituminous Coal, etc.

6. When there are no way-bills to report send a report, so endorsed.

FIG. 12B.—REVERSE SIDE OF FORM A. F. A. 27.

N. Y. C. & H. R. R. CO.

DAILY REPORT

OF

WAY-BILLS FORWARDED

From Station,

On day of 191

1. This report must be sent daily to the Auditor of Freight Accounts, and should cover all way-bills made during the day. Agents must report on a separate sheet all Milk way-bills, and on a separate sheet way-bills reading to stations on or via the New York & Ottawa Ry. and Ottawa & New York Ry. when routed via Tupper Lake Junction.

2. The way-bills must be reported in numerical order; copies of way-bills, arranged in the same order as reported, must accompany the report.

3. A recapitulation must be made on the last sheet, showing the total weight, freight charges, advanced charges and prepaid of each sheet in numerical order. Totalize the footings of the sheets, exclusive of the one covering Milk way-bills. To this total add the footings of the sheet covering Milk way-bills, and carry the grand total to Monthly Freight Report, Form A. F. A. 64.

4. A summary must be made on the last sheet, showing the weight and freight charges totalized in accordance with instructions in Circular No. 76.

5. In the "Via" column show the name of the junction station for Through and Line way-bills.

6. In the "Kind of Freight" column specify the various commodities, such as Lumber, Grain, Merchandise, Manufactures, Anthracite Coal, Bituminous Coal, etc.

7. When there are no way-bills to report send a report so endorsed.

FIG. 13B.—REVERSE SIDE OF FORM A. F. A. 20.

FORM A. F. A. 90. **FREIGHT BILL.** TO BE USED ONLY FOR COMPANY'S MATERIAL. S. L. 11a. (750 1887)

Station, 191

CONSIGNEE NEW YORK CENTRAL & HUDSON RIVER RAILROAD CO.

Care,

For all charges including advances paid to, S. R. Co. at Station,

Rebilled from, Station, Rail of Aired on A. F. A. 91 for, 191

Way-Billed from, Way-Bill No., Date, Initial and No. of Car

Original Point of Shipment, Jnt. Stamped Date and Pre. No., Via, Original Car

Connecting Line W. B. No. and Pre., Consignor

NO. OF PACKAGES	ARTICLES	WEIGHT	RATE	FREIGHT CHARGES	ADVANCES	TOTAL

FOR USE OF CONSIGNEE (SEE BELOW).

The above described material shipped by, under Purchasing Agent's Order No., Requisition No., (or Contract of, 191.)

Record taken under Dept. No., Div., Month of, Charge.

FOR USE OF PURCHASING AGENT.

Those charges to be borne by the Railroad Company, \$, For Use of ACCOUNTING DEPT. Acct. No.,

These charges have been deducted by me on Invoice, \$, Div.,

These charges to be billed against shipper, \$, Amt., \$,

INSTRUCTIONS.

This bill (including duplicate for shipper) is to be delivered by the Agent to the consignee with the material which it covers, and not to be mailed or held until called for. Consignee will fill in full information in the two spaces provided, and attach both parts of the bill to the invoice on which it applies. If for any reason it cannot be so attached, both portions of the freight bill, with explanation, should be forwarded to the Auditor of Disbursements, Grand Central Terminal, New York City.

FIG. 14A.—FREIGHT BILL WITH CARBON DUPLICATES.

FORM A. F. A. 90. **DUPLICATE FOR SHIPPER.** S. L. 11a. (750 1887)

Station, 191

CONSIGNEE NEW YORK CENTRAL & HUDSON RIVER RAILROAD CO.

Care,

For all charges including advances paid to, R. R. Co. at Station,

Rebilled from, Station,

Way-Billed from, Way-Bill No., Date, Initial and No. of Car

Original Point of Shipment, Jnt. Stamped Date and Pre. No., Via, Original Car

Connecting Line W. B. No. and Pre., Consignor

NO. OF PACKAGES	ARTICLES	WEIGHT	RATE	FREIGHT CHARGES	ADVANCES	TOTAL

The above described material received from, under Purchasing Agent's Order No., Requisition No., (or Contract of, 191.)

FIG. 14B.—FREIGHT BILL WITH CARBON DUPLICATES. DUPLICATE FOR SHIPPERS.

FORM
27727

J. E. McLaughlin, 1914-15-16

MONTHLY FREIGHT REPORT

For the month of _____ 1914 at _____ Port

Days of Month	CHARGES ON FREIGHT RECEIVED			CHARGES ON FREIGHT FORWARDED			DEBITS	AGENTS FIGURES	AS SHOWN IN AUDITOR'S REPORT ACCOUNTS
	FREIGHT CHARGES	ADVANCED CHARGES	PREPAID	FREIGHT CHARGES	ADVANCED CHARGES	PREPAID			
1							Prepaid Charges on Freight Forwarded		
2							Advanced Charges on Freight Received		
3							Loss Charges on Freight Received		
4							Undercharges		
5							Miscellaneous Freight Earnings		
6							Switching Charges		
7							Charges on Company's Freight Received		
8									
9									

10

27									
28									
29									
30									
31									
Total									
Extra Report									
Supplementary									
Agent's Report									
Made by A. F. A.									
Grand Total							Amount Chargeable to A. B.-1	Total	
									Agent's

FIG. 15A.—FORM A. F. A. 8.

Western Transit Co.

MONTHLY FREIGHT REPORT

From.....*Port*

For.....*191*

This report must be sent to the Auditor of Freight Accounts on the eighth day of each month.

Agents must enter in the proper columns, and in the order of dates, the total footings of the recapitulations of the Daily Reports of Waybills Received and the Daily Reports of Waybills Forwarded.

Agents must enter under "Debits" and "Credits" the total charges for the month, in accordance with the printed requirements.

If there are any errors in this Report it will be corrected and returned to the Agent, who must correct his station records and return promptly to the Auditor of Freight Accounts, the report accepted as corrected.

Any exceptions taken to the corrections made in this Report as originally rendered must be submitted in writing to the Auditor of Freight Accounts.

Corrections noted and accepted

.....
Freight Agent.

FIG. 15B.—REVERSE SIDE OF FORM A. F. A. 8.

exactly as an additional received report card would be. A detailed complete record is kept of the differences between

FORM
A. F. A. 61.

N. Y. C. & H. R. R. R. CO

**MONTHLY REPORT
FOR
RELIEF OF CHARGES ON
COMPANY'S FREIGHT**

At **Station**

For **191**.....

This report, with a carbon copy, must be sent to the Auditor of Freight Accounts on the 8th day of each month.

Agents in rendering this report must attach thereto freight bills, Form A. F. A. 60, in duplicate, for charges paid foreign roads on trucks returned, and for prepaid charges paid foreign roads for movement of company's freight. For all other company's freight, in lieu of the freight bill, show on this report, in the space provided for that purpose, the name of the shipper and, exclusive of coal and coke, the Purchasing Agent's order number or contract number and date.

FIG. 17B.—REVERSE SIDE OF AGENT'S APPLICATION FOR RELIEF FROM FREIGHT CHARGES.

forwarded and received reports. A difference, of course, is followed up and corrected in case the forwarded report should have been wrong. When the agent sends in his

monthly report summarizing both freight received and freight forwarded, his figures are checked against the totals taken from the cards made from the daily reports, and his figures are corrected to correspond to the auditor's figures, as shown in the last column on form A. F. A. 8.

The important point about the New York Central's system is that the information received daily is gotten directly on to the Hollerith system cards. After it is once on the cards it is easily handled. Corrections can be made by adding new cards. Any kind of information which is on the cards can be comparatively easily drawn off with a minimum of labor, and the full saving of time through the use of the machines is gained.

There are a few roads that the New York Central has agreements with by which it has audit office settlements, and, of course, reports of interchange with these roads cannot be taken care of by the machines. All business, however, which is handled with junction point settlements can be audited by use of the cards.

From the received report a daily record of freight earnings is easily obtainable, and although it differs slightly from the final actual earnings which are gotten at the end of the month because of errors discovered in checking forwarded reports against received reports, it is in the main a very accurate index of daily earnings, and from this is estimated the weekly earnings, which estimate, of course, contains the same proportionate margin of error as does the estimate of daily earnings.

The information and statistics that may be compiled from the cards are large and varied. A few of the forms used by the New York Central are shown herewith and in most cases are self-explanatory. Form A. F. A. 206 is the form which is checked against the forwarded reports. It is the summary of the information on the Hollerith cards which was obtained from the received reports. Form

4-10-18

New York Central & Hudson River Railroad Co.

's. 10000

Machine No. _____

Run by _____

day, Month of _____ 191__

Weight, Freight, Advanced and Prepaid Charges from Card Readings for _____

STATION	Time	Weight	Freight	Advanced Charge	Prepaid	STATION	Time	Weight	Freight	Advanced Charge	Prepaid	STATION	Time	Weight	Freight	Advanced Charge	Prepaid
North River	107					Amsterdam	118					Delhi	134				
North River	108					Arden Hill	119					Delhi	135				
North River	109					Arden Hill	120					Delhi	136				
North River	110					Arden Hill	121					Delhi	137				
North River	111					Arden Hill	122					Delhi	138				
North River	112					Arden Hill	123					Delhi	139				
North River	113					Arden Hill	124					Delhi	140				
North River	114					Arden Hill	125					Delhi	141				
North River	115					Arden Hill	126					Delhi	142				
North River	116					Arden Hill	127					Delhi	143				
North River	117					Arden Hill	128					Delhi	144				
North River	118					Arden Hill	129					Delhi	145				
North River	119					Arden Hill	130					Delhi	146				
North River	120					Arden Hill	131					Delhi	147				
North River	121					Arden Hill	132					Delhi	148				
North River	122					Arden Hill	133					Delhi	149				
North River	123					Arden Hill	134					Delhi	150				
North River	124					Arden Hill	135					Delhi	151				
North River	125					Arden Hill	136					Delhi	152				
North River	126					Arden Hill	137					Delhi	153				
North River	127					Arden Hill	138					Delhi	154				
North River	128					Arden Hill	139					Delhi	155				
North River	129					Arden Hill	140					Delhi	156				
North River	130					Arden Hill	141					Delhi	157				
North River	131					Arden Hill	142					Delhi	158				
North River	132					Arden Hill	143					Delhi	159				
North River	133					Arden Hill	144					Delhi	160				
North River	134					Arden Hill	145					Delhi	161				
North River	135					Arden Hill	146					Delhi	162				
North River	136					Arden Hill	147					Delhi	163				
North River	137					Arden Hill	148					Delhi	164				
North River	138					Arden Hill	149					Delhi	165				
North River	139					Arden Hill	150					Delhi	166				
North River	140					Arden Hill	151					Delhi	167				
North River	141					Arden Hill	152					Delhi	168				
North River	142					Arden Hill	153					Delhi	169				
North River	143					Arden Hill	154					Delhi	170				
North River	144					Arden Hill	155					Delhi	171				
North River	145					Arden Hill	156					Delhi	172				
North River	146					Arden Hill	157					Delhi	173				
North River	147					Arden Hill	158					Delhi	174				
North River	148					Arden Hill	159					Delhi	175				
North River	149					Arden Hill	160					Delhi	176				
North River	150					Arden Hill	161					Delhi	177				
North River	151					Arden Hill	162					Delhi	178				
North River	152					Arden Hill	163					Delhi	179				
North River	153					Arden Hill	164					Delhi	180				
North River	154					Arden Hill	165					Delhi	181				
North River	155					Arden Hill	166					Delhi	182				
North River	156					Arden Hill	167					Delhi	183				
North River	157					Arden Hill	168					Delhi	184				
North River	158					Arden Hill	169					Delhi	185				
North River	159					Arden Hill	170					Delhi	186				
North River	160					Arden Hill	171					Delhi	187				
North River	161					Arden Hill	172					Delhi	188				
North River	162					Arden Hill	173					Delhi	189				
North River	163					Arden Hill	174					Delhi	190				
North River	164					Arden Hill	175					Delhi	191				
North River	165					Arden Hill	176					Delhi	192				
North River	166					Arden Hill	177					Delhi	193				
North River	167					Arden Hill	178					Delhi	194				
North River	168					Arden Hill	179					Delhi	195				
North River	169					Arden Hill	180					Delhi	196				
North River	170					Arden Hill	181					Delhi	197				
North River	171					Arden Hill	182					Delhi	198				
North River	172					Arden Hill	183					Delhi	199				
North River	173					Arden Hill	184					Delhi	200				
North River	174					Arden Hill	185					Delhi	201				
North River	175					Arden Hill	186					Delhi	202				
North River	176					Arden Hill	187					Delhi	203				
North River	177					Arden Hill	188					Delhi	204				
North River	178					Arden Hill	189					Delhi	205				
North River	179					Arden Hill	190					Delhi	206				
North River	180					Arden Hill	191					Delhi	207				
North River	181					Arden Hill	192					Delhi	208				
North River	182					Arden Hill	193					Delhi	209				
North River	183					Arden Hill	194					Delhi	210				
North River	184					Arden Hill	195					Delhi	211				
North River	185					Arden Hill	196					Delhi	212				
North River	186					Arden Hill	197					Delhi	213				
North River	187					Arden Hill	198					Delhi	214				
North River	188					Arden Hill	199					Delhi	215				
North River	189					Arden Hill	200					Delhi	216				
North River	190					Arden Hill	201					Delhi	217				
North River	191					Arden Hill	202					Delhi	218				
North River	192					Arden Hill	203					Delhi	219				
North River	193					Arden Hill	204					Delhi	220				
North River	194					Arden Hill	205					Delhi	221				
North River	195					Arden Hill	206					Delhi	222				
North River	196					Arden Hill	207					Delhi	223				
North River	197					Arden Hill	208					Delhi	224				
North River	198					Arden Hill	209					Delhi	225				
North River	199					Arden Hill	210					Delhi	226				
North River	200					Arden Hill	211					Delhi	227				
North River	201					Arden Hill	212					Delhi	228				
North River	202					Arden Hill	213					Delhi	229				
North River	203					Arden Hill	214					Delhi	230				
North River	204					Arden Hill	215					Delhi	231				
North River	205					Arden Hill	216					Delhi	232				
North River	206					Arden Hill	217					Delhi	233				
North River	207					Arden Hill	218					Delhi	234				
North River	208					Arden Hill	219					Delhi	235				
North River	209					Arden Hill	220					Delhi	236				
North River	210					Arden Hill	221					Delhi	237				
North River	211					Arden Hill	222					Delhi	238				
North River	212					Arden Hill	223					Delhi	239				
North River	213					Arden Hill	224					Delhi	240				
North River	214					Arden Hill	225					Delhi	241				
North River	215					Arden Hill	226					Delhi	242				
North River	216					Arden Hill	227					Delhi	243				
North River	217					Arden Hill	228					Delhi	244				
North River	218					Arden Hill	229					Delhi	245				
North River	219					Arden Hill	230					Delhi	246				
North River	220					Arden Hill	231					Delhi	247				
North River	221					Arden Hill	232					Delhi	248				
North River	222					Arden Hill	233					Delhi	249				
North River	223					Arden Hill	234					Delhi	250				
North River	224					Arden Hill	235					Delhi	251				
North River	225					Arden Hill	236					Delhi	252				
North River	226					Arden Hill											

CSA 614-100

FORM
ST. A. 213

New York Central & Hudson River Railroad Co.

R. W. & O. DIVISION.

Summary of Tonnage, Mileage and Earnings Received at all Stations, for the Month of 190

STATIONS	TONNAGE			MILEAGE			EARNINGS			TOTAL TONS FORWARDED
	EAST	WEST	TOTAL	EAST	WEST	TOTAL	EAST	WEST	TOTAL	
Randall										
Lewisden										
Mont City										
Ransomville										
Wilson										
Newfane										
Appleton										
Burder										
Milaca										
Franklinville										
Dayville										
Total										

Fig. 19.—FORM A. F. A. 213.

A. F. A. 213 is the monthly summary, which is prepared for use of the general offices, showing through mileage on a received station basis. Form A. F. A. 203 is a summary of ton mileage and earnings statistics of freight forwarded to each station from every other station.

A general balance sheet of all of the information gathered from both forwarded and received reports is monthly sent to the auditor of revenue.

On a small road the accounts with passenger and freight agents of the railroad company are kept in the auditor's office. On a large road like the New York Central & Hudson River or the Pennsylvania Railroad there is an intermediary between the auditor and the auditor of freight accounts and auditor of passenger accounts. This is the auditor of revenue. His books deal only with revenue. The statistics which the auditor of freight accounts and auditor of passenger accounts have compiled from agents' reports go directly to the auditor's office, but the accounts dealing with money, that is, with revenue derived from the transportation of freight and passengers, are brought through the auditor of revenues' office. In this office are kept a set of ledgers which contain an individual account with each agent of the railroad company. The figures compiled by the auditor of freight accounts and the auditor of passenger accounts and certified to as correct by these offices are now brought in to a station agent's balance sheet, such as is shown in form A. R. 1, on pages 348 and 349. The auditor's figures are put in the column headed "Auditor's Figures," and alongside of these are the agent's figures, which ought to be the same as the auditor's, but in practice seldom are. As will be seen, the station agent is debited with a balance left over from last month, the balance against him as shown by the auditor of freight accounts, auditor of passenger accounts, auditor of miscellaneous accounts and, in the case of the New York Central, of the

NEW YORK CENTRAL & HUDSON RIVER R. R. CO.
 OFFICE OF AUDITOR OF FREIGHT ACCOUNTS.

WEST SHORE.
 STATION SUMMARY OF WEIGHT AND EARNINGS FORWARDED TO

STATION MONTH OF
 19

Machine No.
 Run-by

STATION	TONS	N. Y. C. PROPORTION		STATION	TONS	N. Y. C. PROPORTION		STATION	TONS	N. Y. C. PROPORTION	
		WEIGHT	MILEAGE			WEIGHT	MILEAGE			WEIGHT	MILEAGE
Franklin St. 101				So. Ferrisburgh 111				W. V.			
Jerry City 102				Zenith 112				Kilgus 113			
Atlanta 103				Conkling 113				Whisper 114			
Atlanta 104				Conkling 114				Whisper 115			
Wichita 105				Conkling 115				Whisper 116			
Wichita 106				Conkling 116				Whisper 117			
Wichita 107				Conkling 117				Whisper 118			
Wichita 108				Conkling 118				Whisper 119			
Wichita 109				Conkling 119				Whisper 120			
Wichita 110				Conkling 120				Whisper 121			
Wichita 111				Conkling 121				Whisper 122			
Wichita 112				Conkling 122				Whisper 123			
Wichita 113				Conkling 123				Whisper 124			
Wichita 114				Conkling 124				Whisper 125			
Wichita 115				Conkling 125				Whisper 126			
Wichita 116				Conkling 126				Whisper 127			
Wichita 117				Conkling 127				Whisper 128			
Wichita 118				Conkling 128				Whisper 129			
Wichita 119				Conkling 129				Whisper 130			
Wichita 120				Conkling 130				Whisper 131			
Wichita 121				Conkling 131				Whisper 132			
Wichita 122				Conkling 132				Whisper 133			
Wichita 123				Conkling 133				Whisper 134			
Wichita 124				Conkling 134				Whisper 135			
Wichita 125				Conkling 135				Whisper 136			
Wichita 126				Conkling 136				Whisper 137			
Wichita 127				Conkling 137				Whisper 138			
Wichita 128				Conkling 138				Whisper 139			
Wichita 129				Conkling 139				Whisper 140			
Wichita 130				Conkling 140				Whisper 141			
Wichita 131				Conkling 141				Whisper 142			
Wichita 132				Conkling 142				Whisper 143			
Wichita 133				Conkling 143				Whisper 144			
Wichita 134				Conkling 144				Whisper 145			
Wichita 135				Conkling 145				Whisper 146			
Wichita 136				Conkling 146				Whisper 147			
Wichita 137				Conkling 147				Whisper 148			
Wichita 138				Conkling 148				Whisper 149			
Wichita 139				Conkling 149				Whisper 150			
Wichita 140				Conkling 150				Whisper 151			
Wichita 141				Conkling 151				Whisper 152			
Wichita 142				Conkling 152				Whisper 153			
Wichita 143				Conkling 153				Whisper 154			
Wichita 144				Conkling 154				Whisper 155			
Wichita 145				Conkling 155				Whisper 156			
Wichita 146				Conkling 156				Whisper 157			
Wichita 147				Conkling 157				Whisper 158			
Wichita 148				Conkling 158				Whisper 159			
Wichita 149				Conkling 159				Whisper 160			
Wichita 150				Conkling 160				Whisper 161			
Wichita 151				Conkling 161				Whisper 162			
Wichita 152				Conkling 162				Whisper 163			
Wichita 153				Conkling 163				Whisper 164			
Wichita 154				Conkling 164				Whisper 165			
Wichita 155				Conkling 165				Whisper 166			
Wichita 156				Conkling 166				Whisper 167			
Wichita 157				Conkling 167				Whisper 168			
Wichita 158				Conkling 168				Whisper 169			
Wichita 159				Conkling 169				Whisper 170			
Wichita 160				Conkling 170				Whisper 171			
Wichita 161				Conkling 171				Whisper 172			
Wichita 162				Conkling 172				Whisper 173			
Wichita 163				Conkling 173				Whisper 174			
Wichita 164				Conkling 174				Whisper 175			
Wichita 165				Conkling 175				Whisper 176			
Wichita 166				Conkling 176				Whisper 177			
Wichita 167				Conkling 177				Whisper 178			
Wichita 168				Conkling 178				Whisper 179			
Wichita 169				Conkling 179				Whisper 180			
Wichita 170				Conkling 180				Whisper 181			
Wichita 171				Conkling 181				Whisper 182			
Wichita 172				Conkling 182				Whisper 183			
Wichita 173				Conkling 183				Whisper 184			
Wichita 174				Conkling 184				Whisper 185			
Wichita 175				Conkling 185				Whisper 186			
Wichita 176				Conkling 186				Whisper 187			
Wichita 177				Conkling 187				Whisper 188			
Wichita 178				Conkling 188				Whisper 189			
Wichita 179				Conkling 189				Whisper 190			
Wichita 180				Conkling 190				Whisper 191			
Wichita 181				Conkling 191				Whisper 192			
Wichita 182				Conkling 192				Whisper 193			
Wichita 183				Conkling 193				Whisper 194			
Wichita 184				Conkling 194				Whisper 195			
Wichita 185				Conkling 195				Whisper 196			
Wichita 186				Conkling 196				Whisper 197			
Wichita 187				Conkling 197				Whisper 198			
Wichita 188				Conkling 198				Whisper 199			
Wichita 189				Conkling 199				Whisper 200			
Wichita 190				Conkling 200				Whisper 201			
Wichita 191				Conkling 201				Whisper 202			
Wichita 192				Conkling 202				Whisper 203			
Wichita 193				Conkling 203				Whisper 204			
Wichita 194				Conkling 204				Whisper 205			
Wichita 195				Conkling 205				Whisper 206			
Wichita 196				Conkling 206				Whisper 207			
Wichita 197				Conkling 207				Whisper 208			
Wichita 198				Conkling 208				Whisper 209			
Wichita 199				Conkling 209				Whisper 210			
Wichita 200				Conkling 210				Whisper 211			
Wichita 201				Conkling 211				Whisper 212			
Wichita 202				Conkling 212				Whisper 213			
Wichita 203				Conkling 213				Whisper 214			
Wichita 204				Conkling 214				Whisper 215			
Wichita 205				Conkling 215				Whisper 216			
Wichita 206				Conkling 216				Whisper 217			
Wichita 207				Conkling 217				Whisper 218			
Wichita 208				Conkling 218				Whisper 219			
Wichita 209				Conkling 219				Whisper 220			
Wichita 210				Conkling 220				Whisper 221			
Wichita 211				Conkling 221				Whisper 222			
Wichita 212				Conkling 222				Whisper 223			
Wichita 213				Conkling 223				Whisper 224			
Wichita 214				Conkling 224				Whisper 225			
Wichita 215				Conkling 225				Whisper 226			
Wichita 216				Conkling 226				Whisper 227			
Wichita 217				Conkling 227				Whisper 228			
Wichita 218				Conkling 228				Whisper 229			
Wichita 219				Conkling 229				Whisper 230			
Wichita 220				Conkling 230				Whisper 231			
Wichita 221				Conkling 231				Whisper 232			
Wichita 222				Conkling 232				Whisper 233			
Wichita 223				Conkling 233				Whisper 234			
Wichita 224				Conkling 234				Whisper 235			
Wichita 225				Conkling 235				Whisper 236			
Wichita 226				Conkling 236				Whisper 237			
Wichita 227				Conkling 237				Whisper 238			
Wichita 228				Conkling 238				Whisper 239			
Wichita 229				Conkling 239				Whisper 240			
Wichita 230				Conkling 240				Whisper 241			
Wichita 231				Conkling 241				Whisper 242			
Wichita 232				Conkling 242				Whisper 243			
Wichita 233				Conkling 243							

No.	Description	Amount
1	DEBITS	
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18	Total to Balance Sheet	
19	CREDITS	
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
Total	Total to Balance Sheet	

DEBITS	CREDITS
To Balance from last month, per A. R. 1 Auditors Freight Accounts, Form A. R. 4 " Passenger " " A. R. 3 " Miscellaneous " " A. R. 1 Central Dy. Cleaning House, " C. H. 200 Miscellaneous Debits, A. R. 1 Balance to be carried to next Report, Form A. R. 1, as analyzed below	By Balance from last month, per A. R. 1 " Remittances " Relief Claims, Notice No. " Miscellaneous Credits, per A. R. 1 " Central Dy. Cleaning House, C. H. 200 " Balance A. R. 4, A. R. 1, per A. R. 1 Balance to be carried to next Report, Form A. R. 1, as analyzed below

ANALYSIS OF BALANCE DUE COMPANY	
Net Unpaid Bill Report, Freight, Form A. R. 2	
" " " " Car Demurrage, " " 4	
Cash on hand	
Unadjusted Debit Corrections, Passenger, Form A. R. 4	
" " " " Miscellaneous, " " 5	
DEDUCT AS SPECIFIED BELOW	
Unadjusted Credit Corrections, Passenger, Form A. R. 4	
" " " " Miscellaneous, " " 5	
Net Balance as per Form A. R. 1.	

FIG. 21A.—FORM A. R. 1.

clearing house,¹ and miscellaneous debits. The agent is credited with cash remittances, as shown by the treasurer's

FORM Carbon Copy
A. R. 1.

N. Y. C. & H. R. R. R. CO.

MONTHLY BALANCE SHEET

From _____ Station

For _____ 19__

INSTRUCTIONS

This Monthly Balance Sheet must be forwarded to the Auditor of Revenue not later than the 10th day of each month. It must be prepared in duplicate (ink), the duplicate to be retained on file for office record.

Agents must enter under the heading of "Miscellaneous" Balances due to or from Connecting Lines, as shown on Weekly Certificate of Settlement with Connecting Lines, Form A. R. 11, and all bills sent to the Auditor of Revenue for collection, reported on Forms A. R. 12, 13, 14 and 19.

Agents in rendering this Monthly Balance Sheet must in all cases show as the "Balance from last month" the Balance as corrected by the Auditor of Revenue.

Exceptions taken to corrections made in the net amounts chargeable as per Monthly Reports to the Auditors of:— Freight accounts, Passenger accounts, Miscellaneous accounts, or Manager Central Railway Clearing House must be referred direct to the Auditor of Freight Accounts, Auditor of Passenger Accounts, Auditor of Miscellaneous Accounts or Manager Central Railway Clearing House as it may appear. All other changes made in the Monthly Balance Sheet, A. R. 1, must be taken up direct with the Auditor of Revenue.

REMARKS

Agent

FIG. 21B.—REVERSE SIDE OF FORM A. R. 1.

¹The central clearing house has charge of accounts on the New York Central Lines of the fast freight lines. The Pennsylvania also has a separate auditor for their fast freight lines' accounts,

statement, or, as is the practice on the New York Central, the statements sent directly by the banks to the auditor of revenues' office. The balance is then brought down, and the sum of these balances of all agents' accounts is brought in to the general balance sheet as prescribed by the Interstate Commerce Commission under "Amounts due from agents and others."

With the junction point system of settlements in use on the New York Central there are certain other debits and credits to agents which are given him directly by the auditor of revenue, but which do not go through the auditor of freight accounts' office at all. For instance, a shipment is sent from Buffalo to Philadelphia. The total charges on this shipment are \$50, and we will assume that these charges are prepaid at Buffalo. The agent at Buffalo is debited with the total \$50. The New York Central agent at the junction point where the shipment is turned over to the Pennsylvania is credited with a total of \$50, but is debited only with the \$25, which is the New York Central's share of the freight rate. He requests his auditor of revenue to make out a voucher for the Pennsylvania for \$25, which is their share of the total freight rate. He is therefore debited with this \$25 directly by the auditor of revenue. This makes his total debits and credits on this particular shipment balance. In exactly a similar way he gets credits in the office of the auditor of revenue from shipments moving from the Pennsylvania to the New York Central, etc.

The ledgers showing accounts with agents are really auxiliary ledgers of the general books of the company and are balanced once a month and a total statement is drawn off from them for entry in the general books in the auditor's office.

CHAPTER XIII

AUDITING DISBURSEMENTS

The auditor of disbursements has immediate charge of all accounts relating to disbursements, and it is his duty to examine bills, for which vouchers are to be drawn, and payrolls, and to certify to the auditor that such bills and payrolls are correct. In many railroad companies he is also the custodian of the payrolls after payment has been made on them, and of all vouchers which have been indorsed by the payee and paid by the treasury department. It is also the auditor of disbursements' duty to allocate each item of expense to its proper account, and at the end of each month to prepare a statement showing the amount chargeable for that month to each one of the primary expense accounts, as prescribed by the Interstate Commerce Commission, but in such cases the service is treated as if it were material, and a voucher for service is not different in form and its process of auditing is no different than a voucher for material.

Perhaps the best way to give some adequate idea of the way in which the auditor of disbursements fulfills his duties is to describe in some little detail the work of auditing disbursements on one of the larger railroads. It is not meant to suggest that there are any general rules for performing the details of this work. Practice varies quite widely as between different roads, and where one system may be better than another in that it is more nicely adjusted to conditions on one road than on some other, each


FORM A. D. 89 C. & CO. 20124-2-14-10M		REVISED 2-12	
		The New York Central and Hudson River Railroad Company.	
FILE NO. _____		OFFICE OF THE AUDITOR OF DISBURSEMENTS.	
		New York, _____ 191__	
Mr. _____			
<p>DEAR SIR:—Please examine the enclosures carefully, comply with the requests or note advice indicated by "V" marks below, and return enclosures with your reply.</p> <p style="text-align: right;">M. R. CONNELL, Auditor of Disbursements.</p>			
SUBJECT:			
1	Replying to your letter of..... file.....	17	Note the attached letter from.....
2	Note on freight bills— (a) Shipper's name, P. A. order number. (b) Proper distribution.	18	Sent in accordance with your letter. (a) Duplicate freight bills. (b) Duplicate collection bills.
3	Secure from the consignor, bill of lading.	19	Should collection bill be cancelled?
4	Should freight deduction stand? If not, prepare refund voucher.	20	Instruct agent how to handle freight bills.
5	Cannot comply with your request..... in correcting form AFA-61. Item covered by J. R.	21	Attach a regular freight bill to invoice?
6	Did agent pay the charges? If so, how did he get credit?	22	How are charges made up?
7	Have examined invoice and find no deduction thereon for freight.	23	Neither freight bill or invoice has reached this office, why?
8	Shippers have prepaid freight bill. Can you secure a refund from connecting line?	24	If freight bills apply on contract, give shipper's name, contract reference, also show distribution on bills if R. R. Co. pays.
9	Advise definitely why refunding.	25	Show supplementary reference on the freight bill.
10	Has freight bill been correctly applied?	26	Invoice covered by P. A. No..... is in favor of..... Have you given the agent correct information.....
11	Who signed the delivery receipt?	27	Should local charges be { cancelled? / assessed? }
12	Show car number, original point of shipment and consignor's name.	28	Adjust your distribution in accordance with corrections made by A. F. A.
13	Advise why you did not attach freight bill to the invoice.	29	Should voucher be charged to freight revenue?
14	Approve voucher.	30	Debit the voucher to your accounts.
15	Cancel your distribution.	31	Does freight bill apply on more than one invoice?
16	Freight bill reads..... } Which is Statement "....." } correct	32	Send coal reports.

FIG. 22.—FORM USED AS LETTER OF INQUIRY BY AUDITOR OF DISBURSEMENTS.

road has its own particular problems. While, therefore, it would not be accurate to speak of a typical auditor's office, a general description of the work in one large office will

illustrate the principles which guide the auditor of disbursements in his work.

The New York Central divides its internal organization into five distinct departments. These are maintenance of way department, car department, locomotive department, engineering department and transportation department. Each department receives a certain appropriation covering varying periods. In addition to expenditures which are termed ordinary expenditures, each department will get authority to make certain additional expenditures. These expenditures may be for one of the five classes of operating expenses, or they may be for additions and betterments or for some other accounts chargeable directly to income account; but in any case, each department has its own payrolls and any change in rate of pay or in number of men on these payrolls must be authorized by the head of the department. In the auditing department there is a complete list of the number of men and rate of pay for which each department is authorized to send in payrolls.

A payroll report such as is shown, Fig. 23, is made up in the superintendent's office, master mechanic's office, division engineer's office, or whatever department the payroll may be for, and is sent to the auditing department, together with a statement (Fig. 24) showing a distribution of the payroll among the primary ledger accounts as prescribed by the Interstate Commerce Commission. It is also accompanied by a change sheet (Fig. 25). Whether or not any changes have taken place, this change sheet must accompany the payroll. The change sheet is made in duplicate, certified to by the superintendent or master mechanic, etc., and is divided into five parts. Under A are reported changes which do not affect the number of the working force; under B, actual increases in force; under C, actual decreases in force; under D, all overtime; and under E, a comparison with the previous month. Since a division su-

(Leave Blank For Binding)

Form A. D. 129

GENERAL EXPENSES.

Copying tab. 14-8-11.

Mem. No. _____

Acc'g Dept. No. _____

Note: Payrolls must state at what place labor or services are performed; if it be a gang of men, must state on what branch of road or section the work is done. The wage of monthly men to be computed by the calendar days in the month.

NEW YORK CENTRAL & HUDSON RIVER R. R.

To **SUNDRY PERSONS Dr.**

For Services Rendered

PAYMASTER'S NO. _____

In _____ half of _____ 191_____

No.	NAME	EMPLOYMENT	Months	Days	Hours	RATE	AMOUNT	DEDUCTION	PAYABLE
1									
2									
30									
Average No. of Men _____									30

Received of the N. Y. C. & H. R. R. Co. \$_____ in full for the _____ of _____ 191_____. The amount is subject to the order of the Comptroller of the City of New York. The amount is subject to the order of the Comptroller of the City of New York. The amount is subject to the order of the Comptroller of the City of New York.

AUDITOR OF DISBURSEMENTS' OFFICE

I HEREBY CERTIFY that the persons above specified were employed in the service of the NEW YORK CENTRAL & HUDSON RIVER RAILROAD CO., and that the time, rates and amounts returned therefor are correct.

Correct _____
Registered by _____
Force recorded by _____
Roll checked by _____
Roll footed by _____

Correct, _____
Approved, _____

Disburser and Registered, _____
Auditor of Disbursements, _____

OPERATING EXPENSES—ORDINARY—Continued.

TOTALS BROUGHT FORWARD

Maintenance of Way	TOTAL	Div.	Div.	Div.	Div.	Div.
1 Superintendence						
13 Signals and Interlocking Plants						
14 Telegraph and Telephone Lines						
16a Elec. Traction Power Houses, Etc.						
16b Station and Terminal Bldgs. Trans.						
16c Equipment Buildings						
16d Other, Roadway, Bldgs., Offices, Etc						
19 Injuries to Persons						
TOTAL M. W. & S. EXPENSES						
Maintenance of Equipment						
48 Injuries to Persons						
TOTAL M. E. EXPENSES						
TOTAL OPERATING EXPENSES						
Fuel and Supplies						
TOTAL FUEL AND SUPPLIES						
Open Accounts						
Ind. and Co.'s (per detail on 4th page)						
Work Train Service						
Grand Central Terminal Expenses						
Sub. Account No.						
" " "						
" " "						
" " "						
Closing Account						
Shop Expenses						
TOTAL OPEN ACCOUNTS						
Outside Operations						
Acct. No. Title of Acct. Nature of Service						
TOTAL OUTSIDE OPERATIONS						
(Other General Accounts)						
TOTAL OTHER GENERAL ACCOUNTS						
TOTAL CHARGES, OTHER THAN THOSE COVERED BY A. 1 AUTHORITY						

FIG. 24B.—DISTRIBUTION OF

perintendent or master mechanic cannot make increases in rates of pay or in number of his force without authority, he must have previously made out an application form

N. Y. C. & H. R. R. R.

INSTRUCTIONS.

..... *Division,*

No.

CHANGES IN PAY ROLL.

AT

.....

..... *half of* *191*

Correct,

Correct,

Approved,

Correct,

Correct,

Approved,

Correct,

Approved,

Correct,

Approved,

SEE INSTRUCTIONS ON OTHER SIDE.

This blank is required to present the fluctuations that take place in the force employed each period; and all changes made in Pay Rolls should be properly reported on this form, made in duplicate, and certified by the Division Superintendent, Master Mechanic, Master Car Builder, or Supervisor of Track, Buildings or Bridges, and forwarded with the Pay Rolls to the official next in charge. When no changes are made, report should be forwarded, signed, containing the amount of the Pay Rolls for the current period compared with the previous period.

A change sheet should be rendered for each group of stations, etc., etc., as reported on the "Summary."

Under head of "A" report only changes which do not affect the numbers of the working force as authorized, viz: where employees receive an increase in salary, promotions, etc., etc., stating the date in all cases.

"B." Show actual increase of force by classes, giving separately for each rate the number of men added in any class. Names need not be given in any case.

"C." Show actual decrease of force by classes, giving separately for each rate the number of men decreased in any class. Names need not be given in any case.

"D." The names and excess amount paid all employees working more than the customary number of hours per period in any branch of work, must be entered in the "Overtime Column" stating the reasons for allowing the same.

"E." Give comparison of the amount of the Pay Rolls for the current period with previous period, noting reason for increase or decrease, e. g.: "Increase due to yardmen working more time on account of excessive grain shipments," or "one or more working days than previous period."

This blank must be fully and accurately compiled to prevent delay in auditing and forwarding the Pay Rolls for payment, which is liable to occur if it becomes necessary to return the change sheets on account of inaccuracy or omission.

Change sheets should be numbered consecutively by each department throughout the calendar year.

THIS REPORT MUST ACCOMPANY PAY ROLLS IN ALL CASES.

FIG. 25B.—REVERSE SIDE OF PAYROLL CHANGE SHEET.

(Fig. 26), which he forwarded to the general office, where, after having been approved and signed by the head of the department, it is sent to the auditing department. The auditor's office, upon receipt of the payroll and change sheet, enters the payroll as a matter of convenience, then

FORM A. D. 197.		U. S. CO. 5-27-45-002				
Pay-Rolls Audited for the _____ of _____ 191_____						
LOCATION	Men	TOTAL PAY-ROLLS		Deduction	TOTAL EXCLUDING DEDUCTION	
General Expense—Eastern						
Dining Cars—Eastern						
Restaurants—						
Electric Div.						
Harlem Div.						
Hudson Div.						
Mohawk Div.						
Marine Dept.—Eastern						
Grand Central Terminal						
Adirondack Div.						
New York & Putnam						
N. Y. & Ottawa Div.						
Little Falls & Delgerville Div.						
TOTAL OF SYSTEM						
St. L. & A. R. R.						
Ottawa & N. Y. Ry. Co.						
Ragette Lake Ry.						
Ragette Lake Transportation Co.						
Fulton Chela Ry.						
Fulton Navigation Co.						
TOTAL—Eastern District						
General Expense—Western						
Dining Cars—Western						
Restaurants— “						
Western Div.						
N. Y. C. Stock Yards						
Marine Dept.—Western						
River Div.						
R. W. & O. R. R.						
Pennsylvania Div.						
TOTAL OF SYSTEM						
Terminal Ry. of Buffalo						
TOTAL—Western District						
GRAND TOTAL						

FIG. 27.—SUMMARY OF PAYROLLS.

compares it with the book showing the number of employees which this section of the department has authority to employ. Where changes have occurred they will, unless

some mistake has been made, be shown on the change sheet. The auditor's clerk compares the change sheet with the authorities for changes which he has received from the general offices. If he finds that the payroll corresponds with the book showing the force that the superintendent, master mechanic, etc., should have, together with the changes covered by the authority, one part of the work is done. An independent check has been placed on the department authorizing the expenditure showing that this department had authority to call for the payment of the wages covered in this particular payroll. The payroll and the distribution of expenses as between the primary accounts are then sent to the statistical clerks—girls, in the case of the New York Central—who go through all of the arithmetic involved in making the extensions and footings. An error in the footing of a payroll is changed and the department originating the payroll is notified. An error, however, in the extension is changed if the amount of the extension is too great. If it is too small it is not changed, but the department originating the payroll is notified, and can include on the next month's payroll or, in the case of the New York Central, where payrolls are made up semi-monthly, on the next semi-monthly payroll the difference due the employee through the mistake in carrying out the extension.

The payroll, after it has been found correct, is checked up with the distribution of the amounts of the payroll, and from these two statements are made up the payroll report's proof sheet (Fig. 28). From this proof sheet are made up the final journal entries, which are sent to the auditor of disbursements, and which are sent by him to the auditor to be entered on the general books of the company.

The payrolls themselves, after they have been audited, are signed by the auditor of disbursements, and are sent to the treasury department for payment. In the case of

SOUTHERN RAILWAY COMPANY.		Form 1606
To _____ Dr.		Number _____ Month _____ Year _____
Department No. _____	Address _____	
Classification No. _____	PLACE ENDORSEMENTS ON OTHER SIDE IF YOU CARE.	
THIS SPACE FOR TREASURER'S USE	Date of Acct	For
Approved for Payment: _____		Comptroller.
RECEIVED _____ 191____ of the Treasurer of the SOUTHERN RAILWAY COMPANY.		
in full for above account. _____ DOLLARS		
<small>Note.—The above receipt must be dated and signed by the Payee of this Voucher; or if signed by another, the authority for so doing must in all cases accompany the Voucher. The signature must be technically correct; changes or erasures will invalidate the Voucher.</small>		

FIG. 29A.—VOUCHER ON WHICH PAYMENT IS MADE.

SOUTHERN RAILWAY COMPANY.		Form 1607
To _____ Dr.		Number _____ Month _____ Year _____
Department No. _____	Address _____	
<small>Attach all papers securely to the back of this part of the Voucher.</small>		
DISTRIBUTION	Date of Acct	For
Correct		Approved: _____
Approved: _____		Approved: _____ Vice-President.
Approved: _____		Audited: _____ Vice-Prest and Gen'l Man'gr.
Approved: _____		Auditor of Disbursements.
		Auditor.
DATE MADE.	DATE VOUCHER CERTIFIED OR APPROVED AND FORWARDED.	

FIG. 29B.—SECOND SHEET OF VOUCHER.

INSTRUCTIONS

This distribution slip, properly filled in and distributed in accordance with the Interstate Commerce Commission Classification, Third Revised issue, should accompany and be attached to all Accounts Payable Vouchers, and it will be necessary to divide all distributions between "ordinary expenses" and those covered by "A-1 authorities". The designation of "ordinary" is used to cover all expenditures made except those which are covered by "A-1 authorities". Expenditures made and covered, or to be covered by "A-1 authorities", and expenditures made for "ordinary expenditures" must be separately shown in the place provided and separate totals given. The expenditures under "A-1 authorities" must be separated into the various columns under Addition-Betterments, Operating Expenses, Open Accounts, Outside Operations, etc., as indicated. It is very important that all expenditures made in accordance with "A-1 authorities", regardless of the account to which the item may be charged, shall be included in the grouping calling for such expenditures and not included in the grouping for "ordinary expenditures".

"Ordinary Expenses"

Operating Expenses. In the first column enter the number of the account in consecutive order; the amounts to be placed in the proper column as indicated by the division headings. If space permits leave a blank line between each general class of operating expenses.

Fuel and Supplies. To be shown as heretofore (no charges to F. & S. under "A-1 authorities").

General Accounts. The "General Accounts" should be included under this head, specifying the title of the particular account to be charged. All "Revenue" and other income accounts are classified as "General Accounts".

Outside Operations. All charges to Outside Operations should show the Title, Account and Sub Account number. It should also show if the item is a charge against Revenue or to Expenses.

"A-1 Authorities"

All items other than Addition-Betterments covered or to be covered by "A-1 Authorizations" should be shown in the space headed "Expenditures covered by A-1 Authorities", and should show full detail as to Account, Location, Division, Road to be charged, E. A. Number, Title of Authority, and placed in the proper column as to Expenses, I. & C., Outside Operations and abolition of Grade Crossings.

Addition-Betterments. All Addition-Betterment charges are to be shown in space provided, giving full detail together with the R. & E. numbers in columns provided.

NOTE. All Accounts, Account Numbers, Titles and Amounts, should be entered legibly and always in black ink. The total of the distribution slip must equal the amount of invoice or voucher which it is intended to cover.

FIG. 30B.—REVERSE SIDE OF VOUCHER DISTRIBUTION SHEET.

by the general offices to the auditing department. All extensions and footings, etc., are gone over by the statistical department, as is also the distribution sheet, and finally the distribution sheet and audited voucher are used to make up the final journal entries, which are sent to the auditor for entry in the company's general books. The forms shown herewith are self-explanatory.

CHAPTER XIV

THE TREASURER'S OFFICE

The only one of the general books of the company with which the treasurer's office has to do is the cash book. The treasurer is the custodian of the company's cash, stock, bonds, and other securities wherever deposited to his credit. Theoretically, all payments made by the public, either for tickets or freight, to a railroad company are in cash or its equivalent. It is the duty of the accounting department to see that these receipts are accounted for by the agents, and it is the duty of the treasury department to take charge of such receipts and to provide funds ready to meet the proper certified obligations of the company, including approved drafts. Payments to its creditors are made by a railroad on payroll, either in cash or by pay checks, and by checking on the various depositories of the company's finances, and these checks are usually countersigned by the comptroller or by a person authorized to sign for him. Payment in current funds is limited to the smallest possible amount, and is generally made for what is termed in office parlance petty cash.

Practice differs as between different companies in regard to the preparation of vouchers and checks. On some roads the checks and vouchers are actually made out in the treasurer's office from data furnished by the accounting department. On other roads vouchers and checks are made and certified to in the accounting department and sent to the treasury department for counter-signature. Many vouch-

ers have printed on them the statement that "when duly indorsed this voucher becomes a sight draft on the company," payable by a designated depository of the company.

The important functions of the treasury department are the collection or disbursement of cash, the custody of the

2-14-12. 25M. W.	SOUTHERN RAILWAY COMPANY.		Form 1839
To _____	Dr. _____	Claimant's No. _____	Number C. _____ Month _____ 191 Claim No. _____ File No. _____
Address _____		PLACE ENDORSEMENTS ON OTHER SIDE OF VOUCHER	
THIS SPACE FOR TREASURER'S USE	For _____ as shipment of _____ From _____ To _____ Shipper _____ Consignee _____ Way-Bill Date; _____ Way-Bill No., _____ Way-billed from _____		DUPLICATE RECEIPTS REQUIRED
		Approved for payment: _____ Comptroller.	
RECEIVED, _____ of _____ of the Treasurer of the SOUTHERN RAILWAY COMPANY,		_____ Dollars,	
In full for above account.		_____	
Note.—The above receipt must be dated and signed by the Payee of this Voucher; or if signed by another, the authority for so doing must in all cases accompany the Voucher. The signature must be technically correct; change of name will invalidate the Voucher.			

FIG. 34A.—VOUCHER FOR CLAIMS.

cash, and the regulation of the supply on hand. Agents and conductors who collect cash for a railroad company deposit it daily or weekly with a designated bank in their locality, or send it by express to the nearest designated bank, and the treasury department receives, both from the agent making the deposit and from the bank receiving the deposit, notification of the amount of such deposit. Dealing first with the disbursement of cash, we will take up the

Summary of Salary Vouchers, General Office, Transportation, Maintenance of Way and Equipment Department Rolls

Form A. R. 169
 3313 Co. 53-58

	I. GENERAL OFFICES		I. M. W. SUPERVISION		I. EQUIPMENT SUPERVISION		I. TRAFFIC SUPERVISION	
	Men	Amount	Men	Amount	Men	Amount	Men	Amount
Vouchers								
Gen'l Offices								
Miscellaneous								
Electric Div.								
Herkon "								
Hudson "								
Mohawk "								
Rochester "								
Buffalo "								
Western "								
River "								
R. W. & O. "								
Adirondack "								
N. Y. & P. "								
Pass. "								
TOTALS								
	II. STATION AGENTS		II. STATION LABORERS		II. OTHER STATION FORCE		II. PASSENGER ENGINEERS	
	Men	Amount	Men	Amount	Men	Amount	Men	Amount
Vouchers								
Gen'l Offices								
Miscellaneous								
Electric Div.								
Herkon "								
Hudson "								
Mohawk "								
Rochester "								
Buffalo "								
Western "								
River "								
R. W. & O. "								
Adirondack "								
N. Y. & P. "								
Pass. "								

FIG. 35.—SUMMARY OF SALARY VOUCHERS.

New York Central & Hudson River Railroad Co.

CLASSIFICATION STATEMENT OF ^{CAR} LOCOMOTIVE DEPARTMENT PAY ROLLS.

Division _____ Month of _____ 191

KIND OF SERVICE	Average Number of Employees	AMOUNT
SUPERVISION		
7. Minor equipment officers		
11. Equipment Department clerks		
TOTAL		
SHOP SERVICE		
21. Wipers		
30. Mechanics and helpers		
32. Carpenters		
33. Shop laborers		
34. Other shopmen		
42. Shop watchmen		
TOTAL		
17. Freight Engineers		
19. Freight Firemen		
TOTAL		
GRAND TOTAL		

FIG. 36A.—CLASSIFICATION OF CAR DEPARTMENT PAYROLLS.

INSTRUCTIONS

This statement must be made monthly as soon as possible after completion of the pay rolls, signed by the proper official, and forwarded through the Superintendent of Motive Power or Rolling Stock to the Auditor of Disbursements.

The various titles shown on the reverse side include the following classes of labor :—

- 7.—MINOR EQUIPMENT OFFICERS.**
Asst. Supt. M. P., Supt. R. S., Supt. of Shops, Dist. Supt. M. P. Master Mechanics, Master Car Builders.
- 11.—EQUIPMENT DEPT. CLERKS.**
Clerks to Supt. M. P. or R. S., Asst. and Dist. Supt.'s M. P. and Supt. of Shops, Office Patternmen, Office Inspector, Office Draughtsman.
- 21.—WIPERS.**
Wipers, Hostlers.
- 30.—MECHANICS AND HELPERS.**
Bolt Cutters, Bolt Makers, Boilermakers, Blacksmiths, Brass Moulders, Coopersmiths, Core Makers, Cushion Repairers, Car Repairers, Drillers, Flangers, Flue Cutters, Testers, Calkers, Setters, Welders and Cleaners, Flask Makers, Gasmen, Gas-fitters, Hammermen, Jacketmen, Lathemen, Locksmiths, Machinists, Mechanics, Machine Runners, Moulders, Nut tappers, Jacketmen, Lathemen, Pressmen, Pattern Makers, Plumbers, Pipe Fitters, Rivetmen, Roofers, Shearsmen, Spring Makers, Steam-Fitters, Stove Repairers, Turners, Tinsmiths, Trimmers, Truck Repairers, Wheel Borers, Wheel Grinders, their apprentices and helpers.
- 32.—CARPENTERS.**
Carpenters, Cab Builders, Cabinet-makers, Joiners, their apprentices and helpers.
- 33.—SHOP LABORERS.**
Ashpit Men, Cinder Men, Callers, Coal Handlers, Dumpers, Heaters, Lamp Fillers, Laborers at shops, coaling plants or pumping stations, Sweepers, Turntable Men, Truckmen, Utility Men.
- 34.—OTHER SHOPMEN.**
Air Brake Inspector, Boiler Washer, Car Cleaners, Clerks at shops, Dopers, Drop-table Men, Draughtsmen, Engineers and Firemen on stationary engines for heating or lighting shops, coal plants or pumping stations, Electricians, Engine Dispatchers, Furnace Men, Foremen, Gas House force, Inspectors, Messengers, Oilers, Oil-house Men, Painters, Paint Cleaners, Pumpers, Sand House Dryers, Troughmen, Timekeepers, Testers, Upholsterers, Weighers.
- 42.—SHOP WATCHMEN.**
Shop Doormen, Shop Watchmen.
- 17.—TRAVELING ENGINEERS.**
- 19.—TRAVELING FIREMEN.**

Correct,

.....
Master.....

Approved,

Approved,

FIG. 36B.—REVERSE SIDE OF CLASSIFICATION OF CAR DEPARTMENT
PAYROLLS.

The New York Central and Hudson River Railroad Company

191		DEPARTMENT	191		191	
MEM	AMOUNT		MEM	AMOUNT	MEM	AMOUNT
		SUMMARY				
		EXECUTIVE				
		SECRETARIAL				
		TREASURY				
		ACCOUNTING, ETC.				
		LAW, ETC				
		TRAFFIC				
		OPERATING				
		MISCELLANEOUS				
		OPERATED ROADS				
		Grand Total				
		EXECUTIVE				
		Chairman of Board				
		Clerical Force				
		President				
		Assistant to President				
		Secy. to Committee on Expend.				
		Statisticians				
		Clerical Force—Pres't, Statist., etc.				
		Clerical Force—Asst. to Pres't				
		Total				
		SECRETARIAL				
		Supervision				
		Clerical Force				
		Total				
		TREASURY				
		Supervision				
		Clerical Force				
		Paymaster				
		Clerical Force				
		Total				
		ACCOUNTING				
		Supervision				
		Clerical Force				
		Registrar of Contracts				
		Clerical Force				
		Secretary of Pension Bureau, etc.				
		Insurance				
		Pensions				
		Service Record Bureau				
		Total				
		LAW				
		Supervision				
		Clerical Force				
		Land and Tax Dept.—Supervision				
		Clerical Force				
		Local and Field Forces				
		Claims Dept.—Supervision				
		Clerical Force				
		Adjusters, etc.				
		Total				
		TRAFFIC				
		General Supervision				
		Clerical Force				
		Supervision—Freight Department				
		Clerical Force—Freight Department				
		Outside Freight Agencies				
		Outside Fast Freight Agencies				
		Supervision—Passenger Department				
		Clerical Force—Passenger Dept.				
		Outside Passenger Agencies				
		Total				
		OPERATING				
		General Supervision				
		General Supervision—Clerical Force				
		Maintenance of Way Department				
		Car Department				
		Locomotive Department				
		Transportation Department				
		Purchasing Department				
		Dining Service Department				
		N. Y. & O. Division				
		L. E. & D. Division				
		Miscellaneous				
		Total Operating Department				

FIG. 37.—COMPARATIVE STATEMENT OF PAYROLLS.

The New York Central and Hudson River Railroad Company

1911		DEPARTMENT	1910		1911	
MEM	AMOUNT		MEM	AMOUNT	MEM	AMOUNT
		Maintenance of Way Department:				
		Supervision				
		Bridge Department				
		Building Department				
		Regular Section Forces				
		Other Trunk Forces				
		Special Construction Forces				
		Miscellaneous				
		Total				
		Car Department:				
		Supervision				
		Inspection and Lubricating Forces				
		Repair Forces—Outside Shops				
		Car Cleaners				
		Shop Forces—Freight				
		Shop Forces—Passenger				
		Miscellaneous				
		Total				
		Locomotive Department:				
		Supervision				
		Roundhouse—Mechanical Forces				
		Roadhousemen				
		Coolers				
		Shop Forces				
		Miscellaneous				
		Total				
		Transportation Department:				
		Supervision				
		Passenger Station Forces				
		Freight Station Forces				
		Yard Engine Crews				
		Other Yard Forces				
		Passenger Train Crews				
		Freight Train Crews				
		Signal—Operating				
		Signal—Maintenance				
		Miscellaneous				
		Total				
		Pushcart Department:				
		Supervision				
		Cooled Forces				
		Total				
		Dining Service Department:				
		Supervision				
		Miscellaneous				
		Total				
		Miscellaneous:				
		Telegraph Department				
		Car Service Department				
		Stockmen's Department				
		Marine Department				
		Grand Central Terminal				
		N. Y. Central Stock Yards				
		Engineering and Const. Equip.				
		Electrical Equip. & Power Stations				
		Misc. Car & Loco. Genl. Office				
		Total				
		MISCELLANEOUS				
		Demonstration Forces				
		Constr. Engr., Equip., Tools & S. E.				
		Wall Weight Check				
		Supt. of Building				
		Total				
		OPERATED ROADS				
		St. Lawrence & Adirondack Ry.				
		Terminal Ry. of Buffalo				
		Essex Lake Ry.				
		Fulton Chain Ry.				
		Fulton Navigation Co.				
		Sagette Lake Transportation Co.				
		Ottawa & N. Y. Ry. Co.				
		Total				

COMPARATIVE STATEMENT OF PAYROLLS (Continued)

INSTRUCTIONS

This report is intended to be a recapitulation of payrolls and salary vouchers grouped in a manner to show the total which each general official may be responsible for. The details of the various groups may vary according to circumstances as long as the final total of each group conforms to the idea expressed above.

This report should include all amounts paid by salary vouchers as well as those carried on payrolls.

The total should include the gross amounts shown by the payrolls and salary vouchers, not deducting amounts collectible from other lines.

the same way may be delivered directly to the employees by the treasury department. This necessitates running a pay-car. The third method is to have the treasury department pay directly in cash to each employee. This also necessitates the running of a pay-car. The following is a list of some of the roads that now have one or other of the two check systems in use and those paying in cash:

CASH AND PAY-CAR

Birmingham Southern
Central of New Jersey
Hocking Valley
New York Central & Hudson River
Pennsylvania Company, Lines West
Pennsylvania Railroad
Vandalia

CHECK AND PAY-CAR

Chicago, Burlington & Quincy
Grand Trunk
Illinois Central
Intercolonial Railway

CHECK AND NO PAY-CAR

Atchison, Topeka & Santa Fe
Baltimore & Ohio
Buffalo & Susquehanna
Central of Georgia
Chicago, Rock Island & Pacific
Chicago & Western Indiana
Evansville & Terre Haute
Lake Shore & Michigan Southern

Michigan Central
Missouri, Kansas & Texas
Norfolk Southern
St. Louis & San Francisco
Seaboard Air Line
Southern Railway
Gulf, Colorado & Santa Fé
Kansas City Southern
Lehigh & New England
San Pedro, Los Angeles & Salt Lake
Union Pacific
Wheeling & Lake Erie

On the Pennsylvania Lines West the cash system of payment of employees has been in use for some years, and a description of this system illustrates admirably the cash system under the most favorable circumstances. Every officer and employee, from the president to the switchmen and crossing men, are paid in cash monthly; payments are made between the fourth business day and the twentieth of each month. It is not of much moment to the president whether he receives his salary in cash or by check, but it is of a great deal of importance to the switchmen.

On the Pennsylvania Lines West there are five pay-cars, three starting from Pittsburgh, one from Columbus, and one from Terre Haute. These five cars, between the fourth and the twentieth of each month, distribute about \$4,800,000 in cash. Each car is in charge of a paymaster, who has a clerk and in addition there are three or more guards on the pay-car. In point of complication, the Pennsylvania Lines West present as difficult a problem for the routing of pay-cars as any system of lines in the country. The lines, of course, lie in territory east of the Mississippi River, so that there is not, possibly, the same danger of an organized attack on the pay-car as would be the case on

some lines in the West; on the other hand, the problem of paying employees, and especially train crews, without unduly delaying traffic, is far more difficult on these lines than would be the case on western lines where traffic density is much less.

FORM A. D. 20.		N. Y. Co. 124-12-12.	
New York Central & Hudson River Railroad Co.			
CLASSIFIED STATEMENT OF ROAD DEPARTMENT PAY ROLLS.			
Division.		Month of	
		19	
KIND OF SERVICE	Average Number of Employees	AMOUNT	
SUPERVISION			
0. Minor Road Officers			
10. Road department clerks			
TOTAL			
TRACK SERVICE			
35. Roadmasters			
36. Section foremen			
37. Track laborers			
38. Section men			
39. Other trackmen			
41. Road watchmen			
TOTAL			
MISCELLANEOUS			
29. Mechanics and helpers			
31. Carpenters			
48a. Signal repairmen			
49. Bridge tenders			
TOTAL			
33. Shop laborers			
34. Other shopmen			
TOTAL			
33a. Power house laborers			
34a. Power house force			
TOTAL			
GRAND TOTAL			

FIG. 38A.—CLASSIFICATION OF PAYROLLS FORM FOR ROAD DEPARTMENT.

Of the three cars running from Pittsburgh, one goes over the Eastern division, Western division and the Fort Wayne side of the Chicago Terminal division. The second car pays over the Erie & Pittsburgh division; the Cleveland & Pittsburgh and the Marietta division. The third car pays over the Pittsburgh division of the Panhandle; the Cincinnati & Toledo division of the Panhandle, and

over the Akron and Zanesville divisions. The car leaving Columbus runs over the Indianapolis division, the Indianapolis Terminal division, the Louisville division, the Richmond division and the Logansport division. The car leaving Terre Haute runs over all of the divisions of the Vandalia and the Panhandle side of the Chicago Terminal.

There are two forms of payrolls used: the one shown on page 382 as No. 1 is for agents and their forces, operators and employees of the transportation department, working by the month or day, and for all employees in the maintenance of way department and in shops. No. 2 is for all transportation employees in train service; the object in having the second form for trainmen is to provide space for different rates paid, so that a full thirty names may be shown on each roll. The rolls are made up on a typewriter, two carbons and an original being made. One carbon is sent to the pension department and one is retained in the superintendent's office, while the original roll on stiff paper is sent to the auditor's office, after having been signed by the superintendent and approved by the general manager. It is there audited and approved for payment, and is sent to the treasury department on the third business day of the month, and on the same day the paymaster receives the treasurer's check for the cash that he will need the next day. He begins paying at 6:30 in the morning on the fourth day. Where the employee is known to the paymaster no witness's signature is required; where the paymaster does not know the employee, and in all cases where the employee must sign his name by mark, a witness's signature is required.

A diagram of the arrangement of pay-car is shown on page 384. The paymaster's clerk stands at "A" with the rolls arranged in a clip at his left hand; this clip is provided with an ink well and space for a pen on the right hand side. It will be seen that the paymaster's clerk has

PAYROLL No. _____ C. T. No. _____ M. of W. No. _____ Slip No. _____ DIVISION _____
EAST & WEST RAILROAD COMPANY ACCOUNTS PAYABLE **To SUNDBY PERSONS, DR.**
 For Personal Services Rendered at _____ During the Month of _____, 19____

No.	NAME	OCCUPATION	TIME			Rate	Amount Paid	DEDUCTIONS	AMOUNT PAID	No.
			Hours	Days	Week					
1										
2										
3										
4										
5										
30										
36										
TOTALS										30

1 Each line of this payroll must be checked by the Auditor of the Company, and filed in the file and paid in full.
 Estimated and Approved, _____ Auditor and Approved for _____
 Estimated and Approved, _____ Auditor and Approved for _____
 _____ Auditor and Approved for _____
 _____ Auditor and Approved for _____

FIG. 39.—PAYROLL No. 1.

ACCOUNTS PAYABLE

EAST & WEST RAILROAD COMPANY

To **SUNDY PERSONS, DR.**

No. 2 PAY ROLL No. _____ G. T. No. _____ DWISON _____

For Personal Services Rendered at _____ During the Month of _____ 19____

No.	NAME	OCCUPATION	TIME AND RATE OF PAY						AMOUNT PAID	DEDUCTIONS	AMOUNT PAID	REMARKS
			Type	Rate	Type	Rate	Hours	Rate				
1												
2												
3												
4												
5												
30												
TOTALS												

1. This roll has been made under the authority of the Board of Directors of the Company and that the same is true and correct.
 Examined and Approved: _____
 Estimated and Approved: _____

2. This roll has been made under the authority of the Board of Directors of the Company and that the same is true and correct.
 Examined and Approved for S: _____
 Estimated and Approved: _____

General Manager _____
 Cashier _____

FIG. 40.—PAYROLL No. 2.

the rolls directly under his hands, and, at the same time, the employee has the portion of the roll to which he puts his signature directly in front of him. The paymaster stands behind the 53-inch counter and faces the rear doors of the car. He has an unobstructed view of the entire car back of the counter. Employees enter the car at the rear door at the left. There is a guard stationed between the two doors at the rear, and one or two guards are placed where seats are shown outside of the pay counter. The employee steps up to the paymaster's clerk, gives his name, and signs his name on the line opposite the amount due him; the clerk calls off the amount due; this is repeated by the paymaster, who counts out the money from the drawer under the counter, the amount is again repeated by the clerk, is verified by the paymaster, and is pushed across to the employee, who steps to one side, counts his money, and passes out by the rear door at the right. When gangs of men are being paid, the foreman enters first, signs his name, receives his pay, and steps inside the curved railing shown on diagram; the members of the gang follow in the order in which their names appear on the roll; after each one of the gang has been paid the foreman signs each roll once, as witness for the men in that gang. As the clerk calls each man's name, the foreman answers present for him. It is almost impossible for the wrong man to be paid under this system, if the rules are carefully followed. The foreman has the man that he is identifying directly in front of him and only a foot or two away.

In paying officers, instead of calling out the amount due, the clerk writes the amount on a slip of paper and hands it to the paymaster, who counts out the cash and lays the slip of paper on top of the amount and passes it across the counter.

Train crews have precedence over all other employees; there is room so that a line of trackmen can step to one

side and let road enginemen and trainmen pass directly to the clerk and paymaster with no delay. It is a fact that, on the Pennsylvania Lines West, from 300 to 350 employees are paid in an hour. There is not the least hurry or confusion, and almost never does a question arise that cannot be answered almost instantly and satisfactorily by the paymaster. It will be noticed that there is room for three men to stand across the counter; one is signing his name, one is receiving his money, and one counting his money. Where the lower class of employees sign their names and receive from \$50 to \$75, the paymaster is a little ahead all of the time of the employee, who finds his money waiting for him by the time he is finished with the pen; where the employee is of the higher grade, and makes less of hard labor in signing his name and receives from \$100 to \$200, the paymaster is usually a fraction of a second behind the man in getting the cash across the counter.

The underlying objection that railroad men generally have had to the payment by cash is that the treasury department has not been broad enough, or shown common-sense enough to coöperate with the operating department. It would seem that it would not take a high order of intelligence to realize that in making payments of wages the treasury department is not conferring a favor on the operating department, or on the individual employee. It has been a spirit of coöperation in the running of the pay-car that has made payment in cash on the Lines West a success. The system is by no means capable of running itself; the paymaster must be a high-class man, who can be trusted with large sums of money; but, fully as important, he must be a man who can enter into the spirit that lies back of the use of the cash system; this spirit is somewhat intangible, but it may be suggested by saying that the burden of seeing that the employee gets his wages easily and quickly rests, not on the employee, but on the paymaster.

In running the car, the operating department is consulted, and every effort is made to put the employee to as little trouble as possible. The car stops at each crossing, at each point where it is most convenient for men to reach it, and is handled at all times with the sole object of affording every possible facility to the men. At terminals and shops an old coach is attached to the rear of the pay-car, so that men waiting to be paid may be protected from the weather.

The object in having a treasury department is to have money paid by a different department than the one which authorizes the payment; where pay checks are sent to agents for distribution, in actual practice the same department, namely, the operating department, delivers the check to the same employee that the operating department hires, and also, in a great number of cases, cashes the check for the employee. This leaves the chance open for padding the payrolls. Of course, where a pay-car distributes pay checks directly to employees, this danger is done away with; the operation of a pay-car in this case is a little less costly than under the cash system, but, on the other hand, the convenience to the employee is very greatly less. The company receives a valid receipt in either case, and the expense of preparing the checks from the rolls is considerable.

The most fruitful source of danger of fraud, on the one hand, or of inconvenience to the employee, on the other hand, is in cases where a man leaves the service, or, for some other reason, must be paid before the rolls are made up, and before the pay-car makes its trip. Under the cash system on the Pennsylvania Lines West, Form No. 7 is used in such cases. This form is issued by the superintendent, requires the signature of superintendent, and the counter-signature of someone designated by him, and is sent in a sealed envelope to the paying agent, who is authorized to

EAST & WEST RAILROAD COMPANY

DIVISION _____
No. _____

Memorandum of amount due _____ at _____, 19____
for Services as _____

I certify that the accompanying statement is correct and that the amount will appear on the proper roll for the Month of _____

TIME	RATE	EARNED	DEDUCTIONS	PAYABLE
	\$			
		\$		
			\$	
				\$

Approved for _____ Dollars

To be issued only to persons leaving the service or to correct an error on the Pay Roll, and not to be delivered to the Payee, but sent in sealed envelope by R. R. S. Mail or Messenger to the Paying Agent.

Superintendent

RECEIVED, _____, 19____, of the EAST & WEST RAILROAD COMPANY
in full for services as above stated. _____ Dollars (\$ _____)

WITNESS:

RECEIPT SIGNED BY MARK MUST BE WITNESSED BY THE PAYING AGENT AND ONE OTHER PERSON

FIG. 42.—FORM 7 FOR PAYMENT OF WAGES OF EMPLOYEE LEAVING THE SERVICE.

NOT TRANSMITTED

No. 14

EAST & WEST RAILROAD COMPANY

TREASURY DEPARTMENT

_____ , 19____

Dear Sir:— _____

Please give below the information requested, and return this promptly

Respectfully,

_____ Paymaster

Name _____

Occupation _____

Amount payable from _____ to _____ inc., \$ _____

Amount payable from _____ to _____ inc., \$ _____

Residence _____

Married or Unmarried _____

Yours truly,

_____ , 19____

FIG. 44.—REQUEST FOR INFORMATION IN REGARD TO AN EMPLOYEE.

give cash to the employee on proper identification, and is then permitted to remit the signed receipt as cash with his other cash. Where an employee has been unable to meet the pay-car, and it is found necessary to pay him before

the pay-car makes its next trip, a check (Form 6) is sent directly to the employee.

A very important use of this check on the Pennsylvania Lines West is in cases where employees are, because of sickness, or from some other unavoidable cause, in urgent need of money. In such cases a check may be sent before the end of the month, and the relief granted is often of very

Pay Roll No. _____		No. _____		
Memorandum of Amount Due _____				
at _____		on _____ Division		
For Services as _____ in Month of _____, 19 _____				
TIME	RATE	EARNED	DEDUCTIONS	PAYABLE
	\$			
		\$	\$	\$
Issued _____, 19 _____				
By _____				

FIG. 45.—MEMORANDUM OF WAGES UNPAID.

great importance, while the loyalty gained from such treatment is a matter that can hardly be measured in dollars and cents.

In a case where employees miss the pay-car one month, a copy of the names of such employees is made from the payroll and is sent out each month on the car for two years, or until the pay has been received and receipted for by the man who has earned it. The man signs this duplicate in the same way as he would the payroll, and it is then attached to the payroll to which it belongs.

The forms used in connection with the attachment of

N. Y. C. & H. R. R. R.

..... Div.

..... half of 191

**DEDUCTIONS FROM
PAY ROLLS.**

In favor of

For

INSTRUCTIONS

Deductions from pay of Employees for Uniforms, Caps, Board, Rent, etc., must be transcribed in detail each one half month on this form.

A separate list must be made for each kind of deduction, and where board is payable to different parties, a list must be made for each party.

As soon as list is complete, forward it properly certified, together with the pay rolls, to Auditor of Disbursements.

I CERTIFY that the amounts hereon specified have been deducted on the pay rolls, and are due the party in whose favor this list is drawn.

.....
Approved,

.....
Approved,

.....
Approved,

FIG. 46B.—REVERSE SIDE OF FORM FOR PAYROLL DEDUCTIONS.

FORM 912.

No. _____

STATE OF _____ }
COUNTY OF _____ } S. S. ACTION IN COURT OF _____

_____ }
_____ }
_____ } VS. _____ }
_____ }

PENNSYLVANIA COMPANY, GARNISHEE. FOR SETTLEMENT OF JUDGMENT, INCLUDING COSTS, IN ABOVE ENTITLED ACTION, FROM WAGES DUE DEFENDANT AS RETURNED ON PAYROLL No. _____ MONTH OF _____ 19 _____

_____ PITTSBURGH, PA. _____

PAY TO THE ORDER OF _____
ADDRESS _____ DOLLARS (\$ _____)
Pittsburgh Pennsylvania Company.

NOT GOOD FOR MORE THAN \$ 150. ASSISTANT TREASURER.

CORRECT

FIG. 47.—CHECK FOR THE SETTLEMENT OF JUDGMENTS AGAINST EMPLOYEES.

town which the paymaster will reach on the day he needs to cash the check, and the paymaster keeps the bank informed ahead of time of the denominations of bills which he wants. A consistent effort is made to get clean bills. By paying in no higher denomination than a twenty-dollar bill, although it takes a little more of the paymaster's time, the employee is given his wages in a form that is most con-

STATE OF _____	} s s.	No. _____
COUNTY OF _____		
_____	}	CASE No. _____
vs.		

PENNSYLVANIA COMPANY, GARNISHEE.		
ACTION IN COURT OF _____		

IN SETTLEMENT OF JUDGMENT, INCLUDING COSTS, IN THE ABOVE ENTITLED ACTION, FROM WAGES DUE DEFENDANT AS RETURNED ON PAYROLL No. _____ MONTH OF _____ 19____, AMOUNTING TO \$ _____ PAID INTO COURT _____ 19____.		
ISSUED BY _____		
<small>FORM 513. 16-8-10.</small>		

FIG. 48.—RECEIPT FROM THE COURT.

venient for him. He does not have to wait to go to a bank to have a fifty-dollar bill changed; he has some large and some small bills, and, most important of all, he is not dependent on the saloonkeeper for favors, as is the case where checks are used. Neither does he have to ask a favor of the railroad company's agent, as is the case where checks are used and companies' agents are authorized to cash these checks.

The success of such a system as that used on the Pennsylvania Lines West for the payment of employees de-

throw the entire machine out of order. A system of paying by cash, where such large quantities of cash are handled,

No. 13

EAST & WEST RAILROAD COMPANY

TREASURY DEPARTMENT

Chicago, Ill., _____, 19____

Dear Sir:—

Please take notice that a suit has been instituted before _____ at _____ wherein _____ is plaintiff, and you are defendant, and that this Company has been made Garnishee therein.

Claim and probable costs, \$ _____

This proceeding is for answer on the _____ day of _____, 19____, at _____ M., and notice is hereby given that you must make such defense as you desire against this suit, set up any exemption you may claim, or offer objections as to the jurisdiction of the Court.

_____ Treasurer

FIG. 50.—NOTICE SENT TO EMPLOYEE.

requires a machine that is as delicately and truly adjusted as a watch. Every detail and every measurement of a pay-car must be studied and adjusted and readjusted until it

No. 11

EAST & WEST RAILROAD COMPANY

_____ DIVISION

ATTACHMENT

Case No. _____

_____ Plaintiff

vs.

_____ Defendant

Occupation _____

_____ J. P.

Claim, \$ _____ Costs, \$ _____ Total, \$ _____

Writ served at _____ M. _____, 19 _____

Answerable at _____ M. _____, 19 _____

Employing Officer asked to state Amount Due Defendant _____, 19 _____

AMOUNT DUE DEFENDANT AT DATE OF SERVICE			Writ sent to Solicitor _____, 19 _____
Pay Roll No.	Month	Amount	
			Reported to Solicitor _____, 19 _____
			\$ _____ due

Case compromised for \$ _____

Order of Court to pay \$ _____ received and forwarded to Solicitor _____, 19 _____

Received _____, 19 _____ Approved Order for \$ _____

Date of Remittance to Court _____, 19 _____

Fee Collected, \$ _____

Court Receipt attached to _____

Case Disposed of in Month of _____, 19 _____

_____, 19 _____

In the above action please pay into Court, out of money due me, the sum of \$ _____

FIG. 51.—ENVELOPE FOR PAPERS IN AN ATTACHMENT SUIT.

exactly fits and meets its requirements. A delay of a fraction of a second in turning over the rolls in the clip will add up to a strikingly large figure when multiplied by the number of times that the rolls have to be handled in 16 days by the paymaster's clerk. The paymaster has no way of checking up the amount of money which he pays out until the end of the 16 days. It is, therefore, absolutely essential that each transaction, that is, each payment, shall be perfectly made. To do this at the rate of 300 payments an hour without confusion and without hurry requires a high class of man for paymaster, as well as a minutely worked out system.

While, as will be noted, the two largest railroad companies in the East pay their employees in cash, most of the railroad companies in the West and a great many in the Middle West and East pay by check. The principal advantages of the check system, as summarized by a report of the executive committee of the Society of Railway Financial Officers, are as follows: The payment by check avoids the risk of handling large sums of currency which might be dangerous in a country through which some lines run; it makes it possible to reduce the number of high-priced and responsible paymasters; the checks being made to order, as they should always be, furnish additional proof of payment should the question be raised, and remove all danger of dispute as to the amount actually received by the employee, and in case of the collection of the check by unauthorized persons, the amount can be recovered from the banks through which collection was made. The necessity of taking receipts is also obviated. The principal objections to the payment by checks, as embodied in the same report, are the possible delay and difficulty experienced by the men in getting the checks cashed, the time lost that way often coming out of the company's time when men are paid by the day; the possible expense to the men in cashing

the checks and the demoralization of employees in getting checks cashed at saloons; inconvenience and delay in handling attachments or assignments served after the rolls have been made up, as the paymaster has no other course but to hold the checks for the whole amount of the wages until a new check can be drawn and forwarded; difficulty and delay in adjusting errors in time discovered after the checks have been drawn; time taken by clerks in drawing large numbers of pay checks at the same time work is re-

REASON FOR ISSUE	MUST BE SIGNED BY EMPLOYEE IN CHARGE	No. 9	TO BE USED ONLY IN CASE OF SICKNESS OR UNAVOIDABLE ABSENCE
		EAST & WEST RAILROAD COMPANY	
			Division _____
			_____, 19____
		Pay to _____	the amount due me for services rendered
		in the month of _____, 19____, as _____	under the direction
		of _____	and his receipt shall be a full release and discharge
		for the same.	
		WITNESS _____	

FIG. 52.—FORM USED WHEN PAYMENT IS MADE TO SOMEONE OTHER THAN THE EMPLOYEE TO WHOM THE WAGES BELONG.

quired on the rolls; the possible necessity of providing at different points for the cashing of checks by some expedient more dangerous and less easy to guard than a regular pay-car.

Pay checks are made out from the payrolls, either by the accounting department or by the treasurer's department, but are always countersigned by the treasury department and are then sent to an agent of the railroad company for delivery to the employees, or are sent to the paymaster in charge of the pay-car.

The skillful treasurer, as distinguished from the unskillful treasurer, has at all times sufficient cash on hand to meet current requirements; has it at the points where it is

needed; has to pay as little as is feasible in charges for transfer of money, and has as much of his money as possible drawing interest.

In addition to the payment of wages and salaries and of bill for materials and supplies there are certain settlements that are made periodically between railroad companies. There are four inter-railroad accounts that are now almost universally settled monthly by draft. These are charges for per diem, interline freight charges, interline passenger charges and loss and damage charges. Charges for car repairs are generally, although not always, settled by vouchers. The payments for trackage rights are usually covered by some special arrangement. The amount of money involved in these intercompany accounts is large. On December 31, 1911, the total amount due from other companies, exclusive of advances and loans and rentals covered by lease, to the Pennsylvania Railroad was \$6,641,577, and the corresponding total due by the P. R. R. to other companies was \$3,933,946.

It is estimated in a study of the subject that W. H. Williams, of the Delaware & Hudson, has made, that the monthly settlements of balances between all roads for interline freight is about \$54,390,000, for interline passenger about \$9,445,000, for per diem \$19,326,000, and for freight claims \$586,000.

In addition to the labor involved in determining separately the amount that a company owes each other railroad company with which it has dealings, for per diem, freight charges, passenger charges and loss and damage charges and the amount that each other company owes it on each one of these accounts, there is under present arrangements the necessity for an individual settlement each month on each of these accounts between roads having dealings with each other. Each one of these settlements is made by draft. The work of determining the amount of the inter-

railroad charges and the work of preparing the drafts for amounts due is done by the accounting department. The collection of drafts drawn by a railroad company, and the acceptance and payment of drafts drawn on that company is the work of the treasurer's department.

Under this method there are at least seven entries in the books made between any two roads even if they settle only *balances* on each one of the four accounts mentioned. In case they do not settle balances, but draw drafts as soon as they have figured out what is due them, the number of entries involved may be as many as fourteen. Moreover this involves paying a draft drawn by a road which possibly, at the very time that it is drawing the draft, owes the road on which the draft is drawn more money than it is owed. This sort of thing in time of money stringency, such as was experienced in 1907, makes a situation that is intolerable. At that time there were probably millions of dollars tied up and lying idle for months at a time, at the very time that each road and each banking community most needed to have available all of the funds that were owed to it.

The expense under this method of settling accounts is impossible to estimate accurately; there are, besides the clerical labor involved, all expenses of collection. It has cost a road as much as \$1.25 to collect \$14 per diem charge owed to it. Each company is under the necessity of keeping on hand large working balances ready to meet drafts that may be drawn against it. There is no way of determining when these drafts will be presented, since they come in day by day.

The names of the different railroads with which any one railroad has dealings do not appear on the general ledger of that company; but there is, generally, an auxiliary ledger in which an account is kept with each one of the roads for each one of the four accounts; and, in case of

many railroads, there is in addition a balance book compiled from the auxiliary ledger to be used in checking up drafts presented against the company or drafts drawn by the company against other roads.

In England much of the elaborate machinery for determining railroad charges and for the settlement of inter-railroad accounts is done away with by having these charges cleared through a central association. This association has charge of the settlement of accounts for inter-line tickets and interline freight charges, and has charge of the distribution of equipment, as well as the settlement of accounts for the charges for the use of equipment. The work of such a central clearing house in a country where distances are so great as in the United States would be vastly more complicated than in a small country like England. The Committee on Car Efficiency, now the Committee on Relations Between Railroads of the American Railway Association, inaugurated a plan for a clearing house for the settlement of car hire balances as between railroads some years ago. Since July, 1912, however, the plan has been abandoned, but its existence proved at least that a clearing house is practicable.

The maximum number of roads belonging to this clearing house was about 100. The clearing house, however, cleared their accounts with nearly 1,500 railroads and private car lines which were debtors and creditors of the member roads. In 1911, when the clearing house was doing its largest business, there was cleared in one month a total of \$4,214,488. This clearing house did not have a large reserve fund, the practice followed being to make drafts on all debtor roads immediately after the first of the month, at the same time forwarding statements of amounts due creditor roads with authority for the draft. The expenses for operation for this clearing house in 1911 averaged about \$1,100 per month.

Memo. No. _____

Date of Bill _____

To New York Central & Hudson River R. R. Co., Dr.

Date of Series	NATURE		
191			
	For FREIGHT CHARGES paid		
	on shipment of		
	from _____ to _____		
	Consigned _____		
	Order No. _____ Car No. _____		
	Amt. of invoice \$ _____ Date of invoice _____		
	Vo. No. _____ Sta. No. _____		
	For FREIGHT CHARGES paid		
	on shipment of		
	from _____ to _____		
	Consigned _____		
	Order No. _____ Car No. _____		
	Amt. of invoice \$ _____ Date of invoice _____		
	Vo. No. _____ Sta. No. _____		
	For FREIGHT CHARGES paid		
	on shipment of		
	from _____ to _____		
	Consigned _____		
	Order No. _____ Car No. _____		
	Amt. of invoice \$ _____ Date of invoice _____		
	Vo. No. _____ Sta. No. _____		
	For FREIGHT CHARGES paid		
	on shipment of		
	from _____ to _____		
	Consigned _____		
	Order No. _____ Car No. _____		
	Amt. of invoice \$ _____ Date of invoice _____		
	Vo. No. _____ Sta. No. _____		
	For FREIGHT CHARGES paid		
	on shipment of		
	from _____ to _____		
	Consigned _____		
	Order No. _____ Car No. _____		
	Amt. of invoice \$ _____ Date of invoice _____		
	Vo. No. _____ Sta. No. _____		

REMITTANCE SHOULD BE MADE IN NEW YORK FUNDS TO THE TREASURER, GRAND CENTRAL TERMINAL, NEW YORK, N. Y. CHECKS SHOULD BE
 DRAWN TO THE ORDER OF THE NEW YORK CENTRAL & HUDSON RIVER R. R. CO.
 IF FURTHER INFORMATION IS REQUIRED, REFER THIS BILL TO THE AUDITOR, GRAND CENTRAL TERMINAL, NEW YORK, N. Y.

RECEIVED AND REGISTERED:

Received payment _____

_____ Dollars

 Treasurer

FIG. 55.—AUDITOR OF MISCELLANEOUS ACCOUNTS BILL AGAINST FOREIGN ROADS.

It was in 1907 that the Society of Railway Financial Officers was formed, and later a committee was appointed to consider the question (which had been referred to this society by the railroad presidents) of a general railroad clearing house for the settlement of all balances between companies now settled by draft, and also all other indebtedness as might be agreed on between the roads.

In 1912 this committee made its report to the society, and suggested a plan of organization for a clearing house, which plan was approved by the executive committee of the society and a committee of thirteen was appointed to consider this plan and any others that might be presented and to put a plan in operation.

Since the work of the clearing house would involve the coöperation of both the accounting department and the treasurer's department of each member road, the question has been considered by the Association of American Railway Accounting Officers and a sub-committee of the Committee of Twenty-five has been appointed to work with the Clearing House Committee of Financial Officers to formulate plans for a clearing house. The plan that has already been considered and approved by the executive committee of the Financial Officers provides for a single general clearing house, and was the work largely of T. H. B. McKnight, treasurer of the Pennsylvania Lines West. In addition to this plan there has been up for consideration before the joint committee an alternate plan providing for district clearing houses. Neither plan has as yet been put into effect, but the following is an outline of the main features of both plans.

Under the first plan the board of directors of the clearing house is to be made up of six accounting officers, six financial officers, and a chairman who is to be *ex-officio*, the president of the Society of Railway Financial Officers. The vice-chairman of the board is to be chosen by the board.

The management of the clearing house is to be in the hands of this board of directors. The clearing house is to have a paid secretary, a paid manager and an assistant manager. The manager, assistant manager, whose work will be that of a chief clerk, and certain other clerical help will devote all their time to the work of the clearing house.

The general clearing house would be located at Chicago, and it would be necessary to hire offices there. The American Railway Clearing House paid but \$450 a year rent, but the rent was low because the A. R. A. furnished the offices. If the entire 813 roads reporting to the Interstate Commerce Commission were to join the clearing house, a suite of offices would be required that would cost possibly \$5,000 a year.

Under the district clearing house plan there would be 12 separate clearing houses located at New York, Atlanta, Chicago, Cleveland, Denver, Houston, Montreal, New Orleans, Philadelphia, St. Louis, St. Paul, and San Francisco. Each local clearing house would have a local committee of four members each, two financial officers and two accounting officers. There would be a clearing house committee of twenty-four; two from each local clearing house committee, one a financial officer and one an accounting officer. From this clearing house committee there would be elected by letter ballot, each member road having a vote, an executive committee of three, of which one would be president. The members of all committees would serve without pay, and each member of the local committee would in turn act as manager or chairman *pro tem.* of the district clearing house and should draw checks payable to members or the district clearing houses, these checks to be countersigned by one other member of the committee. It is suggested that it might be possible to have a clerk loaned by member roads to each local clearing house. Rents for district clearing houses would not be, of course, anywhere near twelve times

THE TREASURER'S OFFICE

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as much as the rent for a single central clearing house, but would amount to possibly twice as much, or between \$9,000 and \$10,000.

Form A1.

No.....

.....191

THE RAILWAY CLEARING HOUSE:

I report the following debit and credit consolidated adjusted balances on our books at close of.....191...., which are to be settled at next clearing.

Comptroller.

Name of Company.	No.	Net Balance.	
		Debit.	Credit.
Atchison, Topeka & Santa Fe Railway Company.....	1		
Baltimore & Ohio Railroad Company.....	2		
Cleveland, Cincinnati, Chicago & St. Louis Ry. Co.....	3		
Chesapeake & Ohio Railway Company.....	4		
Chicago & Alton Railroad Company.....	5		
Chicago, Rock Island & Pacific Railway Company.....	6		
Elgin, Joliet & Eastern Railway Company.....	7		
Louisville & Nashville Railroad Company.....	8		
New York Central & Hudson River Railroad Company.....	9		
Norfolk & Western Railway Company.....	10		
Pennsylvania Company.....	11		
St. Louis & San Francisco Railroad Company.....	12		
Southern Railway Company.....	13		
Wabash Railroad Company.....	14		
Total.....			
Balance due this Company.....			

EXPLANATION—This form, in full cap size, to be used by the Accounting Department of each member road (unless Form A2 is adopted instead) to advise the Clearing House of the adjusted balances on its books at the agreed date which are to be settled in the next clearing. To be made on typewriter, and one or more carbons to be retained by the Accounting Department and in connection with Form A2 to form the basis of entries, charging and crediting the Clearing House.

The work of the clearing house or district clearing houses is to be confined entirely to the settlement of balances among member roads. The clearing house will have nothing whatsoever to do with the adjustment of these bal-

Form A2.

No.....

Statement of Adjusted Balances at..... 191....., Consolidated for The Railway Clearing House.

Name of Company.	Freight.		Passenger.		Per Diem.		Overcharge, Etc.		Consol. Bal. Reported to Clearing House.	
	DR.	CR.	DR.	CR.	DR.	CR.	DR.	CR.	DR.	CR.
A. T. & S. F. Ry. Co....	1									
Balt. & O. R. R. Co....	2									
C. C. & St. L. Ry. Co....	3									
Chesapeake & O. Ry. Co.	4									
Chic. & Alton R. R. Co.	5									
C. R. I. & P. Ry. Co....	6									
Edin, J. & F't'n Ry Co.	7									
L'v'le & Nash. R.R. Co.	8									
N.Y. C. & H.R. R.R. Co.	9									
Norfolk & West. Ry. Co.	10									
Pennsylvania Co.....	11									
St. L. & San F. Ry. Co.	12									
Southern Ry. Co.....	13									
Wabash Railroad Co....	14									
Totals.....										
Balances.....										

EXPLANATION—This form—full length—to be used in the Accounting Department to consolidate into one balance for reporting to the Clearing House the balances in the various accounts named. It may be found best to use this form for the report to the Clearing House, thus saving one blank and giving the Clearing House a little more information to assist it in checking up any discrepancies between the reports of two companies. To be made in typewriting with one or more carbon copies, from one of which, when advice of corrections or correctness has been received from the Clearing House, journal entries may be made charging and crediting the Clearing House as per suggestion above.

ances. The accounting department of a member road will arrive at the debit and credit balances for per diem, freight, and passenger accounts, and loss and damage claims, in exactly the same way that it now arrives at these figures. The accounting department of a road will then draw up a statement under the general clearing house plan showing what is owed by each member road to its road on consolidated balance for all four accounts, and what the accounting road owes each member road on consolidated balances for all accounts. The form from which this statement is made up in the general clearing house plan is shown herewith as Form A2, and statement itself for this report such as has been suggested, is shown as Form A1. It should be noted that the debit or credit on Form A1 against each other road is a net figure, and is a net for the aggregate of all the accounts which are to be cleared through the clearing house. At the end of the month or at some agreed date this statement is to be sent by each one of the member roads to the clearing house. From this statement the clearing house manager and his assistant will make up a clearing house sheet; such a sheet for 14 roads is shown herewith. On a certain date, say the twenty-fifth of the month following that for which the accounting has been done, the clearing house will collect or deposit in banks drafts against roads which show a debit balance and will a few days later send out checks to roads having a credit balance.

In this way the clearing house will accept no responsibility for the correctness of the adjustment as between different roads, that being handled as it now is by the accounting officers of the roads. The clearing house will act as a great automatic machine, which will clear just what has been put into it, no more and no less. In this way each individual member of the clearing house can clear through this institution as much or as little as it desires.

It will not be necessary to confine the accounts to be settled through the clearing house to the four mentioned, nor will it be necessary to include all other member roads in the statement sent to the clearing house.

Instead of having an auxiliary ledger with at least four separate accounts with each other road, each member road will have an account only with the clearing house, and for such accounts as it does not wish to settle through the clearing house. The saving in labor cost in the treasurer's office is obvious, as is the saving in collection charges, and the fact that two entries a month will be necessary in the accounting department where in many cases four hundred or more were necessary before, would indicate a very considerable saving in this department.

Journal entries may be made up from the totals of the figures on Form A2 as follows:

Other Companies in Current Freight Accounts. Other Companies in Current Passenger Traffic Accounts. Other Companies in Current Car Service Accounts. Sundry Individuals and Companies in Settlement of Freight Claims. General Expenses (for one month's proportion of clearing house expenses).	}	To Railway Clearing House.
--	---	-------------------------------

Railway Clearing House to	{	Other Companies in Current Freight Accounts. Other Companies in Current Passenger Traffic Accounts. Other Companies in Current Car Service Accounts. Sundry Individuals and Companies in Settlement of Freight Claims.
------------------------------	---	---

Under the district clearing house plan each road would forward each month to the district clearing house of which the road is a member a statement covering balances due to and from members of that clearing house, separate statements being shown for each class of settlement made during the month, as, for example, interline freight, interline passenger, per diem, etc. Each road will also send each month to each district clearing house of which it is not a member a statement covering the balance due on the reporting road's interline freight, etc., to members of each of the clearing houses of which it is not a member, separate statements being shown for each class of settlement. In addition, each road will send to each district clearing house of which the road is a member a statement covering balances due to and from members of each of the clearing houses of which it is not a member, separate statements being shown for each class of settlement. District clearing houses are to clear between their member roads first and then with each other, a statement being made up by each district clearing house showing balances due to or from each member, separate statements being made for each class of settlement. Each district clearing house is to make a statement showing balances due to or from each member in account with a foreign clearing house, each class of settlement being covered by a separate report.

As soon as a district clearing house receives all of its members' reports for any one class of settlement, it will clear among its own members for this class of settlement. It will clear with other clearing houses as it receives their reports. By clearing first with the local members and for each class of statement as it comes in, the object aimed at is to save time.

Under the general clearing house plan it will be necessary to wait until the statements from all the member roads which are to be included in that particular month's clear-

ings have been received. On the other hand, there will be but one large clearing house sheet, while if district clearing houses are adopted there will be a large number of clearing house sheets made out each month by each clearing house. District clearing house sheets would not be large. Since, however, the size of the sheet increases by the square of the number of members, the sheet for a general clearing house would be very large.

Form B.

THE RAILWAY CLEARING HOUSE.

CHICAGO,191

.....Comptroller,
Company,

Dear Sir:

An error has been found in the footing of your statement to the Clearing House of balances due to and from your Company at.....191 . The debit footing should be \$....., the credit footing \$ and the balance due.....your Company to be settled through the Clearing House \$..... Please correct your copy of your statement to correspond.

Respectfully,

.....

Manager.

The sheet shown herewith is for 14 roads only. A large room would be necessary with a long desk running entirely around the room, permitting a complete longitudinal section of the sheet to be exposed on this desk. It would be a simple matter to cut the clearing sheet into ten sections, showing at one time only ten rows vertically, fastening the ten sections one below the other. We will say now that the Atchison, Topeka & Santa Fe's report came in showing the balances due by the Atchison and to the Atchison in

account with each other member road. This report is arranged vertically in two columns as is shown on Form A1. Two clerks could take this report and enter *across* the clearing sheet each credit under the name of each one of the member roads. This would complete line No. 1 all the way across the 150 feet or so of the clearing sheet. In the meantime other clerks could be at work entering the reports of other roads, three or four men each with an assistant could thus be at work simultaneously in making up the clearing sheet. When the reports from all of the roads had been entered the horizontal lines and the vertical columns could then be footed on an adding machine. If this total made up in the case of the Atchison from all the debits and credits shown by each one of the *other* roads in account with the Atchison checked with the total debit and total credit, shown by the Atchison on its own record, the work would prove itself automatically. A clerical force of eight or ten men would be necessary only for a few days each month and could be hired for night work only. The regular force of the clearing house ought not to exceed seven, including the manager and his assistant.

There are three sorts of mistakes that the general clearing house manager might find in the reports. There might be a mistake in the footing or in entering the net credit or debit balance. This kind of a mistake could be corrected by sending the road Form B shown herewith. The second type of mistake would be a difference between the figures shown by one road and those shown by another road for the same balance. For instance the Atchison might show on its report that the Lake Shore & Michigan Southern owed it \$250,000, while the Lake Shore's report might show that this company owed the Atchison \$200,000. In this case the clearing house would pay the smaller balance on which both reports agree, namely the \$200,000, and would notify both roads of the differences in their report

(Form C) and this difference could be carried over and adjusted in the next month's clearings. There might also be errors due to the omission of amounts. This would be corrected through the use of Form D.

The general clearing house or the district clearing houses would need some working capital; the amount, however,

Form C.

THE RAILWAY CLEARING HOUSE.

CHICAGO,191
Comptroller,
Company,

Dear Sir:

Your statement of, showing balances due to and by your Company at close of shows Company as \$. That Company reports your Company as\$.

Under Rule No. we clear on the smaller amount and have therefore changed the report of your Company to read to of that Company \$. and will settle on that amount. Please make corresponding change in your copy of your report.

Respectfully,

.....

Manager.

would be small when compared with the aggregate amounts that are now carried by roads, because of the fact that they do not know when drafts will be presented against them, or from what quarter. It is estimated that if one hundred roads join the clearing house, a working fund of \$25,000 would probably be ample for the clearing house needs. Each road on joining the clearing house will be required

to subscribe its share of the working fund, the amount to be based on the road's earnings in the previous year. In addition to the expense of carrying this sum without in-

Form D.

THE RAILWAY CLEARING HOUSE.

CHICAGO,191

.....Comptroller,

.....Company,

.....

Dear Sir:

Your statement of balances due to and by your Company at close of business on191., reports due Company \$ That Company's statement has no corresponding to your Company. Under Rule No., therefore, we cut out of your statement the amount you show to of that Company, to be adjusted between your companies before next clearing day. Please correct your copy of your statement to correspond.

Respectfully,

.....

Manager.

EXPLANATION—Notice of correction to be sent by the Clearing House to the Accounting Department of a member road when its report on Form A1 or A2 contains a charge or credit against another Company, and the report of the other Company on the same form contains no corresponding credit or charge, and the Clearing House is unable to reconcile the difference up to the time for closing the Clearing Sheet.

terest there will be the expenses already mentioned which in the case of the general clearing house will include the salary of the manager, and his assistant and the clerical help necessary in the clearing house. This expense would not be very large, probably \$1,000 a month (\$10 a month

per road) would be an outside figure for a clearing house with a hundred members.

The risks that each road would have to take of other roads defaulting or refusing to honor drafts would not be as large as under the present system. The clearing house can in all probability make an arrangement with one of the large surety companies for a blanket bond which would cover any amount defaulted up to say \$400,000; such a blanket bond would be very much cheaper than if each road joining the clearing house were required to give a bond for itself. If a road failed to meet a draft drawn against it by the clearing house, the worst that could happen would be a default of one month only, the road could be at once suspended from the clearing house and other member roads notified that they should omit it from future monthly statements. The amount of the default in excess of the amount of that road's deposit for the working fund could then be at once recovered on the bond.

Now as to the matter of distribution of the working fund of the general clearing house and of its banking arrangements, banks could be selected in ten or fifteen financial centers over the country and accounts opened by the clearing house in these banks. It would only be necessary for the clearing house manager to use ordinary forethought and judgment in keeping track of what funds he would be required to pay from each one of his banks and to deposit drafts in these banks accordingly. Of course, if necessary, he can transfer in advance to any one of these banks a part of the working funds of the clearing house in case the checks to be drawn on that bank are heavier than can conveniently be met by the deposit of drafts on roads in that territory. For instance, during the cotton season roads in the cotton belt are heavy creditors, and it might be necessary in that case not only to deposit drafts against all roads having debit balances in Houston and New Orleans

territory with Houston and New Orleans banks, but also to deposit a part of the clearing house working funds and pos-

Form E.

THE RAILWAY CLEARING HOUSE.

CHICAGO,191

.....Comptroller,

.....Company,

.....

Dear Sir:

I enclose herewith statement of operations of the Clearing House for the month of191., showing the total expenses, less interest received, to have been \$..... Of this, your Company's proportion, based on the ratio the total of your debit and credit clearings bears to the total debit and credit clearings for that month is.....(Fraction)..... or \$....., which amount has been added to the balance against your Company in the current settlement as shown by your statement, making the total amount due by you \$....., for which draft will be made and collected through bank.

Respectfully,

.....

Manager.

Enc.

EXPLANATION—Advice of the Clearing House to the Accounting Department of a debtor road that its report on Form A1 or A2 is correct, giving the amount added to its debit balance for its proportion of expenses of Clearing House for the previous month and the amount of the settled balance for which draft will be made. On receipt of this notice the Accounting Department can make its journal entries and advise Treasurer exactly how much he will have to pay Clearing House.

sibly, also drafts on roads in other territories. The expense of collection in this latter case would be part of the general expenses of the clearing house. In case roads in one sec-

tion of the country were most of the time in the debtor class it would be necessary to withdraw all of the working fund

Form F.

THE RAILWAY CLEARING HOUSE.

CHICAGO,191

.....Comptroller,
Company,

Dear Sir:

I enclose herewith statement of operations of the Clearing House for the month of191., showing the total expenses, less interest received, to have been \$..... Of this, your Company's proportion, based on the ratio the total of your debit and its credit clearings bears to the total debit and credit clearings for that month, is(Fraction).....or \$....., which amount has been deducted from the credit balance due your Company, in the current settlement, leaving the amount to be paid to it \$....., for which check will be sent in a few days.

Respectfully,

.....

Manager.

Enc.

EXPLANATION—Advice of Clearing House to the Accounting Department of a creditor road that its report on Form A1 or A2 is correct, giving the amount deducted from its credit balance for its proportion of expenses of Clearing House for the previous month and the amount of the settled balance for which check will be sent. On receipt of this notice the Accounting Department can make its journal entries and advise the Treasurer exactly how much he will receive from the Clearing House.

from the bank in that section and transfer from time to time money from that bank to other depositories.

The general expenses of the clearing house would be

charged each month to the member roads on the basis that the total of their debits and credits bore, that month, to the total debits and credits of all roads for that month. Forms E and F show method of advising member roads of the amount of these expenses.

All employees and officers of the general clearing house would be bonded. Banks acting as depositories of clearing house general funds would be instructed to honor clearing house checks drawn in favor of railroad companies only. The drafts drawn by the clearing house manager would, of course, be paid by the company on which they were drawn, only in case they were correct, and were drawn to clearing house depositories for account of the clearing house. The amount of expenses could be transferred to the credit of the manager by the board of directors each month for the expenses of the clearing house, and this sum the manager could check out, as required; it would be comparatively small, of course.

There is one objection that was raised by accounting officers, as soon as this general clearing house plan was proposed. Many of the larger roads have certain connections with which they have very large traffic balances each month, and it is a great advantage to have these balances settled very promptly. The objection to the central clearing house was that such balances which are now settled within a comparatively few days after the close of the month could not be settled through the clearing house quite so promptly. The answer to this objection is that there is no reason why companies should put such balances through the central clearing house at all.

If the Erie and the Delaware & Hudson find it of advantage to settle their traffic balances between each other, these balances can simply be left out both by the Erie and by the D. & H. in the statement sent to the clearing house. If half a dozen roads centering at New York desire to have their

own clearing houses as between themselves, for certain accounts they can perfectly well do so, leaving out these accounts in the statement sent to the general clearing house. The central clearing house will deal, however, only with member roads and not with other clearing houses.

CHAPTER XV

ALLOCATION OF REVENUES AND EXPENSES AS BETWEEN FREIGHT AND PASSENGER SERVICE

Since cost accounting is so clearly aimed at in the present Interstate Commerce Commission's classification of revenues and expenses the next obvious step is a separation of freight and passenger service expenses. The chief objection to attempting to divide railroad operating expenses as between freight and passenger service is that such a division must of necessity be on some arbitrary basis. This is true, although not equally true, of cost accounting in factories and mills. Overhead charges, such as the salary of the manager, lighting, heating, etc., must be divided on some basis, which, although possibly essentially a fair basis, is nevertheless arbitrary. This consideration, however, has not deterred factory owners and accountants employed by them from spending both time and money to devise a system of cost accounting which shall be applicable to their business. Neither does this consideration detract materially from the value of such cost accounting. It is generally conceded that one of the important steps in the development of modern industrial plants has been this approximately accurate determination of the cost of conducting each department of the business and of the cost of manufacturing each different class of product.

It is probable that the opposition of railroad managers to a system of allocation of expenses based on arbitrary methods, and the ready acceptance of similar accounting

methods by factory owners is due to the fact that the results of such accounting are the private concern of the factory owner and are not generally available to those who might misinterpret or misuse such figures, while figures compiled by railroads would be open to such misinterpretation or misuse by those not familiar with the details of the management of the roads. It is a fact that notwithstanding the general opposition of railroad accounting officers to any compulsory methods of dividing expenses as between passenger and freight service, railroad accountants are very frequently attempting to do this for the information of their own executive officers, and it is probably true that the majority of the larger railroad companies in the United States make some attempt to thus divide operating expenses. Before describing the methods that are most commonly in use, it is possibly interesting to examine a little more carefully the reasons for the objections of railroad men to any attempt to impose on them a rigid requirement for cost accounting.

It has already been pointed out, the ground on which railroad counsel have most often based their appeals from decisions of the Interstate Commerce Commissions and state commissions reducing rates, has been that such a reduction would cause a loss to the railroad company and would amount to taking property without due process of law. A system of arriving at the cost of passenger service as distinct from freight service, useful as it might be to the manager of a railroad, would, if it were based on an arbitrary method and the same method were applied to all railroads, be unfair to some.

As an illustration of the difficulty of making any fair allocation of costs, we will take the case of a single track road 500 miles long, which has passing tracks spaced about 15 miles apart. We will say that enginemen's wages and the cost of fuel are divided as between freight and passen-

gers on the basis of the actual time of the men in each class of service and the amount of fuel consumed. If the road is being worked to the full economical capacity and additional passenger trains are put in service, it will mean a delay presumably to freight trains. Freight trains will have to wait on side tracks for passenger trains. The wages of freight enginemen and the cost of the fuel burned while these trains are standing on passing tracks would be charged to freight service, but any general manager would know that the real cause of these particular additional expenses was the increase in passenger train service.

When the first attempts were made some years ago by the Interstate Commerce Commission to make an allocation of operating expenses, they arbitrarily fixed on the train mile as the unit on which to divide all operating expenses. It is true that the train is the unit on which many expenses are figured, but it is a very unreliable unit. The number of trainmen to a train is not necessarily the same in freight and passenger service. A freight train may have two, or even three or four locomotives, while a passenger train run over the same road may only have one locomotive. The fuel consumed per train mile may vary between wide limits, so that even for transportation expenses the train mile is not a universally good basis of division.

The absurdity in certain cases of using the train mile as a basis on which to divide maintenance of way expenses and general expenses is well illustrated by the case of a road such as the Carolina, Clinchfield & Ohio. On this road the earnings from freight service amounted to \$2,103,990 in 1912 and the passenger service train revenue to \$203,173. Revenue freight-train miles, however, amounted to 368,905, while revenue passenger-train miles amounted to 371,771. To say that more than half of the general expenses, such as the salary of the president, accounting expenses, and legal expenses, should be charged to passenger

service, and that more than half of the total cost of maintenance of way and structures should be charged to passenger service is on the face of it wrong. Any officer of the road would know that the total cost of maintenance of way and structures would be about the same even if no passenger trains were run over the road. If the company had no more revenue to depend on from freight service than from passenger service, it couldn't afford to have general officers. On a train mileage basis the passenger service would have cost on the Carolina, Clinchfield & Ohio in 1912 \$531,633, and this service would have been performed at a loss of \$328,460.

Taking the other extreme, if we argue that the Carolina, Clinchfield & Ohio was built to handle freight,—that all of the overhead charges would go on, whether or not any passenger business was done, and that the total cost of maintenance of way would be approximately as great if no passenger business were carried, then we would allocate to the cost of passenger service only the actual wages of passenger-train crews, fuel of passenger locomotives and such other direct expenses of moving passenger trains as the repairs of passenger locomotives and passenger cars and the wages of men engaged exclusively in passenger service. On this basis anything that was earned over and above the bare cost of actually moving the business would be shown as profit for passenger service. Here again the officer of the road would know that he was not making a division of expenses based on fact.

The method used by John G. Drew, Comptroller of the Great Northern, in his affidavit in a case before the Circuit Court of the United States in which the Great Northern had appealed from an order of the Interstate Commerce Commission, uses locomotive miles rather than train miles as the determining factor in the division of expenses which he considers common to both freight and passenger service.

Under maintenance of way and structures he divides everything except maintenance of joint track, yards and other facilities on a basis of revenue service locomotive miles and divides the debtor side of maintenance of joint tracks, yards and other facilities on the basis of original transfer entries and the credit side on the basis of the proportion charged to each service of debtor accounts.

Under maintenance of equipment, superintendence is charged on a basis of revenue locomotive mileage; repairs of locomotives on individual locomotive mileage, while renewals and depreciation are charged on a revenue service locomotive mileage. Repairs to cars and renewal and depreciation to cars are charged directly to the service to which the cars belong; repairs, renewals and depreciation of floating equipment on a revenue train mileage basis and repairs, renewals and depreciation of work equipment on a revenue locomotive mileage basis, while shop machinery and tools, injuries to persons, and stationery and printing, other expenses and maintaining joint equipment on a revenue train mileage basis.

All traffic expenses are divided on a revenue train mileage basis.

Under transportation expenses yard expenses, which include wages of yard masters, yard conductors, enginemen, and cost of fuel and water for yard locomotives, etc., are divided on a basis of switching locomotive mileage in each yard representing work performed for each class of service. Superintendence, dispatching trains, station employees, weighing and car service associations, station supplies and expenses, train expenses, interlocking and block signal operation, crossing flagmen, drawbridge operation, floating equipment operation, stationery and printing, other expenses, damage to property, damage to stock and injuries to persons are all divided on a revenue train mileage basis. The wages of the enginemen are charged directly to one

service or the other and fuel for the locomotives is charged on an individual locomotive mileage basis, while the engine house expenses and water for the locomotives are charged on a revenue locomotive mileage basis. Lubricants and other supplies for the locomotives are charged on an individual locomotive mileage basis and wages of the trainmen are charged direct to one service or the other.

Under general expenses, salaries, the expenses of general officers, salaries of clerks, joint office supplies and all other expenses except insurance are charged on a revenue train mileage basis. Insurance is charged as follows: Locomotives on a basis of revenue service locomotive miles. Floating equipment on a basis of revenue train miles. Other equipment direct to one service or the other. Station buildings, etc., according to revenue train mileage.

An approximately correct division of expenses between freight and passenger service can only be made as the result of a study of each individual case, after careful analysis of the conditions of the operation on that individual property, and such a system is uniform only in that it attempts to approximate as closely as possible the facts in all cases. Furthermore, it is well to bear clearly in mind that this is a division of expenses and not of costs. The actual cost of one service or the other cannot be accurately arrived at. The expenses of one service or the other can be approximated.

Under such a system each one of the primary accounts of the Interstate Commerce Commission would be separately analyzed and a division of such account would be made between passenger and freight service that would be arrived at from an observation of operating conditions extending over some little time.

Maintenance of way expenses on some roads are determined within certain limits by the weight of locomotives and trains in freight service; on other roads by the speed

FORM A. D. 112
 N. Y. C. & H. R. R. CO.
 LEASED AND OPERATED LINES

MATERIAL REPORT

DEPARTMENT _____

DIVISION _____

FOR THE MONTH OF _____ 191__

CORRECT: _____

APPROVED: _____

APPROVED: _____

APPROVED: _____

Maint. of Way Accountant.

Approved for Entry. _____

Chief Clerk.

DETAIL OF CHARGES TO OPEN ACCOUNTS
 GRAND CENTRAL TERMINAL

DETAIL OF CHARGES TO CLOSING ACCOUNTS

Equipment Dept.
 Shop
 Material

Division of Accounts
 Shop
 Material

Total

NEW YORK CENTRAL & HUDSON RIVER RAILROAD COMPANY
 LEASED AND OPERATED LINES

Department _____ Division, Month of _____ 191__

MAINTENANCE OF WAY AND STRUCTURES	ORDINARY												EXPENDITURES COVERED BY A I AUTHORITIES							
	TOTAL		DIVN		INVT		DIVN		DIVN		DIVN		TOTAL		DIVN		DIVN			
	DEBITS	CREDITS	DEBITS	CREDITS	DEBITS	CREDITS	DEBITS	CREDITS	DEBITS	CREDITS	DEBITS	CREDITS	DEBITS	CREDITS	DEBITS	CREDITS	DEBITS	CREDITS		
1 Superintendence																				
2 Ballast																				
3a Pile																				
3b Pile																				
4 Other Track Material																				
5a Track Labor																				
5b Roadway																				
7 Removal of Snow, Sand and Ice																				
8 Fences																				
9 Bridges, Trestles and Culverts																				
10 Over and Under Grade Crossings																				
11 Gravel, Gravel, Fences, Cattle Guards & Signs																				
12 Snow and Sand Fences and Snow Sheds																				
13 Signals and Interlocking Plants																				
14 Telegraph and Telephone Lines																				
15 Electric Power Transmission																				
16a Elec. Traction Power Houses and Sub Stations																				
16b Station and Terminal Building - Traction																				
17a Equipment Buildings																				
17b Other Roadway Buildings, Office, etc																				
18 Trucks and Wagons																				
19 Roadway Tools and Supplies																				
20 Stationery and Printing																				
21 Other Expenses																				
Total of M.W. & S.																				
MAINTENANCE OF EQUIPMENT																				
22 Electric Locomotives - Repairs																				
23 Work Equipment - Repairs																				
24 Shop Machinery and Tools - Other Dept.																				
Total of M.E.																				
Total Carried Forward																				

FIG. 57B.—REVERSE SIDE OF MONTHLY SUMMARY AND ANALYSIS OF EXPENSES.

and frequency of passenger trains. "Superintendence" under maintenance of way and structures should therefore be charged to each service in proportion to total other maintenance of way expenses. The office expenses of such officers and clerks should then be divided on the same basis on which their salaries and wages are divided. A study should then be made of the causes leading to the renewal of track material, such as ballast, ties and rails, and from this study an approximately accurate division can be made of the charges to these accounts. Such a study should begin with a consideration of the standards of track maintenance which are necessitated by the controlling service. If the weight of motive power and trains is the controlling factor in the determination of the amount of ballast under track, the frequency of tie renewals and rail renewals, it is proper to divide these accounts on a gross ton mileage basis.¹

The Pennsylvania Railroad was the first large American railroad company to divide its expenses as between freight and passenger service, and its formula for this division has been revised from time to time. The latest

¹ A suggested method of arriving at gross ton mileage is as follows:

The average weight of each class of equipment in passenger service should be determined by, if necessary, actual weight of cars. The mileage of each class of equipment should then be multiplied by the weight of that class, and, since passenger mileage is already known, an arbitrary weight per passenger can be applied. In freight service an approximately correct gross ton mileage figure can be arrived at by determining the total car mileage including empty car mileage involved in the movement of 100 tons of freight. The mileage of the different classes of freight equipment can be determined from figures that are generally kept in the car accountant's office and from these figures a total ton mileage for lading and equipment can be arrived at. The mileage of each class of freight and passenger locomotives can also be arrived at and from these figures a total for freight service and for passenger service can be gotten, which total will be approximately correct for the purpose of dividing operating expenses.

and most comprehensive attempt to divide freight and passenger expenses has been made by the roads running through Oklahoma. The accounting officers of these roads have worked in conjunction with the Oklahoma Commission to draw up an experimental set of formulas for dividing all expenses as between states, as between state and interstate, as between line and terminal, and as between freight and passenger service.

The Oklahoma scheme is far more comprehensive and less arbitrary than the Pennsylvania's, but, on the other hand, of course, is purely an experiment, while the Pennsylvania's has been used in practice for a great number of years and has been found to be valuable for comparative purposes.

Maintenance of way presents the most difficulties of any of the general classes of expenses, since so many of the primary accounts under this heading must necessarily be divided on some more or less arbitrary basis. Both the Pennsylvania scheme and the Oklahoma scheme are based on the old system of Interstate Commerce Commission accounts, which was discontinued July 1, 1914, but it is possible to apply the same principles to the new system of accounts which went into effect at the beginning of this fiscal year.

The Pennsylvania divides all of the maintenance of way and structure primary accounts as between freight and passenger service on a revenue train mileage basis with the exception of electric power transmission and docks and wharves. There would, therefore, be no change, presumably, in the Pennsylvania's system with the new classification. The Oklahoma scheme does not attempt to divide freight and passenger expenses until expenses have been divided as between line and terminal.

The theory which underlies the Oklahoma division of maintenance of way and structure expenses is that a con-

siderable proportion of these expenses may be divided directly, and fairly accurately, through careful observation of the facts. Thus the expenses of superintendence for both line and terminal maintenance of way accounts are to be divided directly wherever possible, and this presumably means that an actual study of the time spent by officers whose salaries are charged to superintendence shall be made with the expectation of being able to assign at least a part of their salaries, office expenses, etc., directly to one service or the other. The remainder of the superintendence expenses, that is, the expenses common to both services, are, under the Oklahoma scheme, to be divided in the same proportion as are the expenses for line and for terminal, respectively, of ballast, ties, rails, other track material, roadway and track, removal of snow, sand and ice, tunnels, bridges, trestles and culverts, over and under grade crossings, grade crossings, fences, cattle guards and signs, snow and sand fences and snow sheds, signals and interlocking plants, telegraph and telephone lines, electric power transmission, buildings, fixtures and grounds, and docks and wharves.

In the first draft of the Oklahoma scheme the line expenses of the first nine of these accounts were to be divided experimentally on four different bases. (1) On a revenue train mileage basis; (2) on a train speed ton mile basis: this is the gross ton miles of revenue freight and passenger trains, including the weight of the locomotive and cars as well as loading, multiplied by the average speed between stations for such trains; (3) on an engine ton mileage basis, the weight of the engine including the tender with coal and water; and (4) on the basis of the assigned line expenses—that is, the directly assignable expenses of the cost of the repairs of steam locomotives; cost of repairs of passenger-train cars; cost of repairs of freight-train cars; road enginemen's wages; road engine house expenses; fuel

for road locomotives; water for road locomotives; lubricants for road locomotives, and other supplies for road locomotives; road trainmen and train supplies and expenses, and clearing wrecks.

The line expenses under these twelve accounts are divided as follows: The repairs of steam locomotives on a mileage run basis with the switching mileage subdivided according to time spent in each class of service. Passenger- and freight-train car repairs are, of course, assigned to passenger and freight service respectively, as are also the wages of road enginemen, engine house expenses and fuel, water, lubricants and other supplies for road locomotives, the engine house expenses being apportioned on the basis of locomotives handled, and locomotives in mixed service being apportioned on the basis of freight and passenger car ton miles in mixed trains, the fuel, etc., involving common expenses being apportioned on the basis of fuel issued to the locomotives involved, with the mixed engine mileage divided on the basis of respective freight and passenger car ton miles; road trainmen and train supplies being apportioned the same as road enginemen, and clearing wrecks being apportioned to the service in which the wreck takes place; common expenses, such as a wreck involving both freight and passenger trains, being apportioned on the basis of the charges for clearing wrecks, assignable exclusively to each one of the two services.

The Oklahoma scheme calls this fourth method of dividing the roadway and track (labor and materials) expenses, the Cost Accounting Method. From one point of view this is true since upkeep of roadway is not an object in itself, but simply a means to the desired end of producing transportation and is, therefore, incidental to the cost of producing transportation and as an incidental expense it may properly be divided upon the proportion of determinable expenses. Moreover, the inclusion of maintenance of equip-

ment expenses which vary in part with the weight of equipment and certain expenses which are divided on a car ton mileage basis, as well as the expenses of clearing wrecks, is a highly ingenious attempt to weight the average used in the arbitrary division of maintenance of way expenses as between freight and passenger.

The second method goes into less theoretical refinement, and for this reason may not be so strictly in accordance with cost accounting principles, but it appears to be more practically useful. In this method speed and weight of trains are given a relationship, arbitrary, of course, but one in which practice alone can show glaring defects. Rails, ballast and other track material do wear out directly both with the tonnage passing over them and the speed of trains. Ties, of course, rot on most roads from weather conditions rather than because of pounding either from weight or speed of trains, but the standard of ties and the frequency with which they are renewed does depend quite directly both on weight of trains and on the speed of trains. No instructions are given for estimating the weight of passengers, but this is not a difficult thing to do with a fair degree of accuracy, and when passenger equipment is once weighed, it is not difficult to keep a record of the weight of trains.

The objection to the second method comes when we consider the removal of snow, maintenance of tunnels, and over and under grade crossings. It is fanciful to say that these expenses vary with speed and weight of trains. It would seem that these accounts ought to be divided according to the fourth method.

The final revised Oklahoma scheme uses no one of these four methods and divides the above accounts for common tracks as between freight and passenger on the basis of engine ton miles based on weight of engines in working order. Presumably it was felt that keeping a record of

total weights of passenger trains was hardly worth the expense involved and presumably the same consideration led to the elimination of speed as one of the factors. Since, however, this factor of speed varies so widely and, moreover, is of so much importance in determining the standard of maintenance, it seems a pity that for experimental purposes at least the engine ton mile was not multiplied by average speed between terminals.

Terminal expenses of the nine primary accounts are, of course, in many cases on a directly assignable basis. Common tracks, such as shop, store house and repair tracks, are apportioned on the basis of the assigned charges of terminal expenses, of repairs of steam locomotives, repairs of passenger-train cars and repairs of freight-train cars. Common expenses, such as engine house, turntable, wye, fuel and water tracks, are apportioned on the basis of the assigned charges for engine house expenses.

The maintenance of grade crossings, fences, cattle guards and signs, and snow and sand fences, and snow sheds for line facilities, are apportioned on the basis of revenue train miles as between freight and passenger service, the terminal facilities, upkeep charges of grade crossings, etc., being charged to freight, and the snow and sand fences not being charged to terminal at all.

The maintenance of signals and interlocking plants being entirely a line charge, is apportioned between passenger and freight service—for the interlockers on the basis of respective number of freight and passenger trains passing over them, and for signals on the basis of respective train miles.

The maintenance cost of telegraph and telephone lines used in line service is allocated direct to passenger or freight where possible and the common expenses on the basis of revenue train miles, while the maintenance charges of these facilities used in terminal service are apportioned

on the basis of the charges for station employees, which charges are assigned on the basis of a time study of each employee.

The maintenance of electric power transmission can, of course, be allocated direct to one class of service or the other for both line expense and terminal expense on the basis of power used.

The maintenance of buildings, fixtures and grounds used in both line and terminal service are allocated direct to freight or passenger, according to use and facilities that are used in common by both services, such as common depot and station buildings, on the basis of the estimated portion of repairs incurred by each class of service, considering each building on its merits. Engine house repairs are divided in proportion to the charges made to each service for engine house expenses, both yard and road; shops on the basis of assigned locomotive and car repairs, fuel and water stations, proportionate to the charges for fuel and water transportation expenses—yard and road; and section and tool houses on the basis of the division of roadway and track expenses.

Maintenance of docks and wharves both line and terminal are allocated direct where possible and common expenses on a basis of use. Roadway tools and supplies (line) are allocated on a basis of revenue train mileage and terminal are all charged to freight.

Injuries to persons, stationery and printing and other expenses both line and terminal are allocated direct to freight or passenger where possible, and common expenses on the basis of previously mentioned maintenance of way and structure accounts, excepting superintendence and roadway tools and supplies. Maintenance of joint tracks, yards and other facilities (line) are apportioned direct where possible, and common expenses on a basis of revenue train miles of each district, and common terminal expenses

preciation of electric locomotives. The repairs, renewals and depreciation of passenger-train cars are, of course, assigned to passenger service, and freight cars to freight service, and all electric equipment of cars on the basis of freight and passenger cars, all floating equipment according to the service in which used, and all work equipment on

INSTRUCTIONS.

1. In the "Nature" space give description of the work which MUST be the same as that given on the authority, additional information may be shown on the second line.
2. In the "Authority" spaces at top of report show number of E. A. 1, or other authority and the gross amount of such authority. The total amount of credits on such authority must also be shown as a separate item in the space provided for that purpose.
3. After "Work Train Service" fill in on two final blank lines charges from Pit or Power Station report as the case may be.
4. In the "Total" column at the right show total charges from Pay Roll, Material, Work Train Service Pit and Power Station reports and total of vouchers, collection bills, etc.
5. Under "Vouchers, Collection Bills, etc.," classify each item in accordance with printed heading and list each item separately. If space is not sufficient to provide for all bills passed during month, attach separate list arranged in similar manner.
6. The Labor, Material, Work Train Service and other charges and charges from vouchers, collection bills, etc., must include the amounts chargeable to I. & C. which apply on the job. The space reserved for I. & C. distribution should not include the arbitrary per cents added to collection bills.
7. Indicate status of work in space provided, using the terms "Complete" or "Incomplete" as the case may be.
8. Distribute the total expenditures reported by accounts and classification in the spaces provided for that purpose at bottom of the blank. In the authorization spaces on bottom of blank show separately the authorized debit and credit to Operating Expenses, Addition-Betterments or other account as specified on the authority.
9. No charge should be made to Addition-Betterments for any portion of the salaries of the permanent organization on such authorizations that include estimate for Engineering. The actual expenditures for Engineering may be distributed to Operating Expenses unless such expenditures cover salaries and expenses of such persons as may be engaged exclusively for certain Addition-Betterment work, in which event their services should be charged to the account depending upon the nature of the work.
10. Whenever the cost of any track work is included on this report attach three copies of form 50-A.

FIG. 58B.—REVERSE SIDE OF MONTHLY REPORT AND SUMMARY.

the basis of the maintenance of way charges mentioned above. Shop machinery and tools are apportioned on the basis of assigned charges for the respective locomotive, passenger car, freight car and work equipment repairs, as are also injuries to persons, stationery and printing and other expenses, power plant equipment being apportioned on a basis of power used.

Maintaining joint equipment at terminals being entirely a terminal charge is divided as between passenger and

freight direct where possible and common expenses on the basis of respective cars handled at terminals.

There is an interesting difference in the Pennsylvania and Oklahoma methods of dividing traffic expenses. The Pennsylvania assumes that all of these expenses can be accurately divided according to the facts, even to superintendence, which, under each of the other general classes of expenses, is divided in the Pennsylvania scheme on an arbitrary basis.

The Oklahoma scheme considers all traffic expenses as terminal, but does not assume that all of them can be divided accurately as between freight and passenger and of the common expenses apportions 50 per cent. each to freight and passenger. The reason that the Pennsylvania's traffic expenses can all be divided is because the Pennsylvania has a distinct organization of freight and passenger traffic men, all the way up to the vice-president, who, however, is in charge of the entire traffic department but his salary may be charged to general expense.

The primary transportation accounts which the Pennsylvania apportions between freight and passenger on a basis of "facts" are station employees, weighing and car service associations, coal and ore docks, motormen, engine-men (when in mixed passenger and freight service, their wages are divided between these accounts on the basis of mileage of cars in mixed trains); fuel for road locomotives (for mixed trains divided on car mileage basis); operating power, purchased power, road trainmen, train supplies and expenses (pay of employees and material used in connection with mixed passenger and freight trains apportioned between these accounts on relative work performed or use made of material); operating floating equipment, express, loss and damage to freight and baggage. The primary accounts that are apportioned on revenue train mileage are superintendence, dispatching trains, station supplies and

expenses, yard masters, yard conductors, yard switch and signal tenders, yard supplies, crossing flagmen, drawbridge operation, clearing wrecks, telegraph and telephone operation, stationery and printing, insurance, damage to property, damage to stock, injuries to persons, operating joint yards and terminals.

Yard enginemen, engine house expenses (yard), fuel for yard locomotives, water and lubricants for yard locomotives and other supplies, are divided on a yard locomotive mileage basis.

The Oklahoma scheme divides superintendence, both line and terminal, by directly assigning expenses where possible and apportioning common expenses on the basis of assigned charges of all other transportation expenses, except telegraph and telephone operation and express service, stationery and printing, other expenses, loss and damage to property and stock, injuries to persons, and joint tracks and facilities. Dispatching trains is apportioned for line service—there being no terminal service—on the sum of total train mileage of freight and passenger trains in the same territorial units as are used for dividing these expenses between the different states.

Station employees are the subject of time studies and their wages are divided in proportion to the duties performed by them in each class of service.

Weighing and car service associations, and coal and ore dock expenses are assigned to freight exclusively. Station supplies and expenses are allocated direct where possible and common expenses are apportioned on the basis of the assigned charges for station employees.

All yard expenses are to be divided on a time basis, the expenses of each yard to be treated separately and all passenger switching to be considered line service.

Motormen, road enginemen, fuel and water for road locomotives, and lubricants and other supplies for road locomo-

tives, road trainmen, train supplies and expenses are all allocated direct with mixed service apportioned on the basis of freight and passenger car ton miles in mixed trains. Engine house expenses are apportioned on the basis of the number of locomotives handled, locomotives in mixed service being apportioned on the basis of freight and passenger car ton miles in mixed trains.

Operating power plants and purchased power are apportioned as between freight and passenger on a basis of mileage of equipment used employing such power, while interlockers and block signal operation, crossing flagmen and gatemen, and drawbridge operation which are line services are apportioned on the basis of freight and passenger trains passing such facilities. Crossing flagmen and gatemen and drawbridge operation, which are terminal service, however, are apportioned on a basis of assigned charges of yard operation.

Clearing wrecks is charged to the service in which the wreck occurs and common expenses apportioned on the basis of located charges. Telegraph and telephone operation is apportioned on the basis of all maintenance of way, maintenance of equipment, traffic and transportation expenses. The cost of operation of floating equipment is, of course, assigned according to the service performed. Stationery and printing and other expenses are assigned directly where possible and apportioned where common on the same basis as superintendence. Loss and damage to freight is, of course, assigned to freight service and baggage to passenger service, and damage to property, to stock on right of way, and injuries to persons directly where possible, and common expenses are apportioned on the basis of directly assignable charges of this account. Operating joint tracks and facilities are assigned directly where possible and common expenses are apportioned on the revenue train mileage by divisions in each service.

The Pennsylvania divides all general expenses on a revenue train mileage basis.

The Oklahoma scheme assigns salaries of general officers, their clerks, expenses and general office supplies, directly where possible, apportions the remainder on the basis of the assigned charges on all expenses other than general expenses. Law expenses are allocated in the same way, while insurance, directly where possible, is apportioned when common on the basis of "appropriate units of property or persons insured." Relief department expenses, pensions, stationery and printing, and other expenses are apportioned on the basis of assigned charges to all expenses except general expenses.

General administration of joint tracks, yards and terminals, where common, is apportioned on the basis of assigned charges on all other joint facility accounts. Valuation expenses are apportioned on the basis of all assigned charges except general expenses.

Both the Pennsylvania and Oklahoma methods of dividing expenses use the old form of primary accounts, but it is possible to apply the theory apparently underlying the Oklahoma scheme to the classification which went into effect July 1, 1914. The following table is an attempt to carry out the Oklahoma theories for the new classification. It is understood that the division of expenses as shown in this table is in all cases direct where possible, and the column headed direct contains the accounts which may be charged in whole to one service or the other. The other columns give instructions for dividing common expenses of such accounts as are not assignable in their entirety direct to one or the other service. Thus the expense of superintendence under maintenance of way and structures is to be allocated directly where possible to freight and passenger service, and it is only the balance which is not directly allocatable that is to be divided on the same basis as the

MAINTENANCE OF WAY AND STRUCTURES

On the basis of assigned charges in accounts 202-220, omitting 204-5 and including 272	Engine ton miles	Revenue train miles	Direct	Repairs incurred by each class of Service	Assigned charges accounts 388 and 400	Assigned locomotive and car repairs 202-203 and 220	Basis of use by trains in each class of service	On a basis of power used in each class of service	Basis of accounts 382 and 384
Superintendent-ence; injuries to persons; assessments for public improvements; insurance; stationery and printing; other expenses.	Roadway maintenance; ties; rails; other track material; ballast; track laying and surfacing; paving; removing snow, ice and sand; tunnels and subways; bridges, trestles and culverts; elevated structures.	Right of way fences; snow and sand fences; and snow sheds; crossings and signs; telegraph lines; signals; roadway machines, small tools and supplies; maintaining joint tracks.	Grain elevators; storage warehouses; docks; coal and ore wharves; gas producing plants; miscellaneous structures.	Station and office buildings.	Engine houses.	Roadway buildings.	Interlockers.	Power distribution systems; underground power tubes; power line poles and fixtures; underground conduits; power plant dams; power plant buildings; power sub-station buildings; power transmission systems.	Fuel stations.
									Basis accounts 385 and 397 Water stations

Notes.—The above table shows only the division of line expenses. In general the terminal expenses are to be divided in the same way as the line expenses, or rather in an analogous way. Thus the maintenance charge for wharves and docks, where a line charge, is assigned on the use for either freight or passenger service, where a terminal charge is likewise assigned on the basis of use for either freight or passenger service. There are certain exceptions, however, noted below: Accounts 202 to 220, omitting 204 and 205, but adding 272, where a terminal facility, are divided not on the engine ton mile basis but in accordance with the

following instructions: (a) "Common tracks, such as shop, storehouse and repair tracks, to be apportioned on the basis of assigned charges in accounts 308, 314 and 317; engine house, turntable, wye, fuel and water tracks to be apportioned on the basis of assigned charges in accounts 388 and 400." (b) Telegraph and telephone lines, where a terminal charge, are apportioned on the basis of assigned charges in account 373. (c) Maintaining joint tracks, yards and other facilities where a terminal charge, is apportioned on the basis of respective cars handled at such terminals. In each case depreciation is on the basis of repairs.

MAINTENANCE OF EQUIPMENT

Basis of assigned charges for repairs	Basis of miles run by individual locomotives in each class of service	Basis assigned charges 202-220, omitting 204-5 and including 272	Direct	Basis of power used	Basis of cars handled at terminals
Superintendence; shop machinery; injuries to persons; insurance; stationery and printing; other expenses.	Repairs of steam locomotives; repairs of other locomotives.*	Working equipment repairs.	Freight train cars; passenger train cars; motor equipment of cars; floating equipment repairs; miscellaneous equipment repairs.	Power plant machinery; power sub-station apparatus.	Maintaining joint equipment at terminals.

* Where the locomotives are used in switching, locomotives' repairs are on the basis of time in freight and passenger switching.

NOTE.—The formulas for dividing maintenance of equipment expenses (terminal) are analogous to those for dividing maintenance of equipment expenses (line). In each case, of course, depreciation and retirements are divided on the same basis as repairs.

TRAFFIC

TRANSPORTATION—WATER LINE

Direct	Fifty per cent. of freight and passenger respectively	Superintendents; insurance; stationery and printing; other expenses.
Outside agencies; advertising; traffic associations; fast freight lines; industry and immigration bureaus.		
NOTE.—Terminal expenses are divided in the same way as line expenses.		
Operation of vessels.—The salaries of officers and the cost of fuel for vessels transporting both passengers and freight should be apportioned on a basis of the relative space assigned to passengers and to freight on such vessels.		
Operation of terminals.—As above.		
Incidentals.—As above.		

TRANSPORTATION EXPENSES

Assigned charges	Direct	Time basis	Basis of freight and passenger gross ton miles in mixed trains	Basis of mileage of equipment used employing power
Superintendent. Stationery and printing. Other expenses.	Station employees. Station supplies and expenses. Weighing, inspection and demurrage bureaus. Coal and ore wharves. Operating sleeping cars. Loss and damage to freight. Loss and damage to baggage.	Yardmasters and yard clerks. Yard conductors and brakemen. Yard switch and signal tenders. Yard engine-men. Yard motormen. Fuel for yard locomotives. Yard switching power produced. Yard switching power purchased. Water for yard locomotives. Lubricants for yard locomotives. Other supplies for yard locomotives. Engine house expenses—yard. Yard supplies and expenses. Operating joint yards and terminals—Dr. and Cr.	Train enginemen.* Train motormen. Trainmen. Train supplies and expenses.	Train power produced. Train power purchased.
Basis of total freight and passenger trains in territorial units	Dispatching trains.	Basis of assigned charges of all accounts for maintenance traffic and transportation—rail	Basis of service performed	Basis of appropriate units of property or persons insured

Basis of freight and passenger trains passing facilities	Basis of charges of the same account	Basis of locomotives handled	Revenue train mileage	Basis of appropriate units of property or persons insured
Signals and interlocker operation. Crossing protection. Drawbridge operation.	Fuel for train locomotives.* Water for train locomotives. Lubricants for train locomotives Other supplies for train locomotives. Clearing wrecks. Damage to property. Damage to livestock on right-of-way. Injuries to persons.	Operating floating engine house expenses—road.	Operating joint tracks and facilities—Dr. and Cr.	Insurance.

NOTE.—Transportation expenses, where terminal, are divided in the same way as transportation expenses—line, with the following exceptions: Crossing protection and drawbridge operation, where the expense is terminal, is divided on the basis of accounts 377 to 391 inclusive; operation of joint tracks and facilities, where terminals, is apportioned on the basis of cars handled.
 * This is, of course, only for mixed train service. In freight or passenger service these expenses are charged direct.

assigned charges in accounts 202 to 220, excluding 204 and 205, and adding 272. In the same way a part of the charge for roadway maintenance may represent the cost of roadway maintenance of tracks used exclusively in freight service, and another part the cost of roadway maintenance of tracks used exclusively in passenger service. These directly assignable charges are to be made to the proper service

GENERAL EXPENSES		
On the basis of all accounts other than general	On the basis of all other joint facility accounts.	On the basis of appropriate units of property or persons insured
Salaries and expenses of general officers.	General joint facilities.	Insurance
Salaries and expenses of clerks and attendants.		
General office supplies and expenses.		
Law expenses.		
Relief department expenses.		
Pensions.		
Stationery and printing.		
Valuation expenses.		
Other expenses.		
MISCELLANEOUS OPERATIONS		
Direct		No charge
Dining and buffet service.		Produced power sold
Hotels and restaurants.		
Grain elevators.		
Stock yards.		
Other miscellaneous operations.		

and it is only the remainder which is to be allocated on a basis of engine ton miles.

The table will be clearer by following through a hypothetical example. The accompanying table shows an expense account for a road of 800 miles. Superintendence under maintenance of way on this road cost \$70,000, and no part of this sum could be assigned directly to either freight or passenger service. According, therefore, to the Oklahoma scheme this \$70,000 is to be divided between freight and passenger service on the same basis as the charges to accounts 202 to 220, excluding 204 and 205, and adding 272. It will be seen that these accounts are to be

divided direct where possible, and where this is not possible, on an engine ton mile basis. According to our table, the total of these accounts that are common to both passenger and freight amounts to \$1,186,500, and there is \$24,600 directly assignable to freight and \$3,400 directly assignable to passengers. The \$1,186,500 is now to be divided on a basis of engine ton miles. Let us suppose that our road uses Mikados in through freight service and Pacific type locomotives in through passenger service, and that the total engine ton mileage in passenger service was 126,240,000, and in freight service 873,640,000. If X, therefore, represents the proportion of the total \$1,186,500 assignable to passenger service, we have $126,240,000 : 873,640,000 :: X : \$1,186,500$. Thus $X =$ about \$171,000. This leaves \$1,015,000 of the total of these charges to be assigned to freight service.

Adding the directly assignable amounts to each of the derived figures we have \$174,400 total charges against passenger service, and \$1,040,100 against freight service. We are now in the position to divide our \$70,000 superintendence charges and have $\$174,400 : \$1,214,500 :: X : \$70,000$, where X represents the amount of superintendence chargeable to passenger service. X equals, therefore, \$9,970 and the total superintendence charges is divided \$9,970 to passenger and \$60,030 to freight service.

This, of course, is only for line expenses. Superintendence charges for terminal maintenance of way are to be divided as the *terminal* proportion of the same 202 to 220, etc., accounts are to be divided. The instructions for dividing these terminal accounts are to locate charges directly where the facilities are used exclusively in either service and to divide the expenses of common tracks, such as shop, storehouse and repair tracks, on the assigned charges for the repairs of steam locomotives, passenger cars and freight cars, and the expenses of such other common tracks—

engine house, turntable, wye, fuel and water tracks on the assigned charges for engine house expenses, both yard and road—are apportioned on the basis of locomotives handled.

In our example above we have assumed that there were no superintendence maintenance of way charges for terminal expenses.

The complications that arise under the Oklahoma scheme are at once apparent from our example. It consists of wheels within wheels and complications within complications, but so does the operation of a railroad. If a cost accounting system is to be devised for a very complicated set of transactions a minute analysis is necessary and it would be quite surprising if the accounting could be accurately done by means of some simple formula.

New Classification of Expenses

MAINTENANCE OF WAY AND STRUCTURES

	Freight	Passenger	Common
201—Superintendence			\$70,000
202—Roadway maintenance			340,000
203—Roadway—depreciation			60,000
204—Underground power tubes			2,000
205—Underground power tubes—depreciation			100
206—Tunnels and subways			1,000
207—Tunnels and subways—depreciation			
208—Bridges, trestles and culverts			142,000
209—Bridges, trestles and culverts—depreciation			40,000
210—Elevated structures			10,000
211—Elevated structures—depreciation			800
212—Ties	\$15,000		140,000
213—Ties—depreciation	600		17,000
214—Rails	6,000	\$3,000	104,000
215—Rails—depreciation	200	100	2,700
216—Other track material			46,000
217—Other track material—depreciation			3,000
218—Ballast	2,000		58,000
219—Ballast—depreciation			5,000
220—Track laying and surfacing	800	300	190,000
221—Right-of-way fences			5,000
222—Right-of-way fences—depreciation			600
223—Snow and sand fences and snow sheds			700
224—Snow and sand fences and snow sheds—depreciation			100
225—Crossings and signs			12,000
226—Crossings and signs—depreciation			1,000
227—Station and office buildings	22,000	10,000	
228—Station and office buildings—depreciation	2,200	1,000	
229—Roadway buildings			7,000
230—Roadway buildings—depreciation			900
231—Water stations			1,000
232—Water stations—depreciation			200
233—Fuel stations			700
234—Fuel stations—depreciation			150
235—Shops and engine houses			22,100
236—Shops and engine houses—depreciation			3,000

	Freight	Passenger	Common
237—Grain elevators.....	\$700		
238—Grain elevators—depreciation.....	100		
239—Storage warehouses.....	500		
240—Storage warehouses—depreciation.....	50		
241—Wharves and docks.....	9,000		
242—Wharves and docks—depreciation.....	900		
243—Coal and ore wharves.....	3,000		
244—Coal and ore wharves—depreciation.....	300		
245—Gas producing plants.....			
246—Gas producing plants—depreciation.....			
247—Telegraph and telephone lines.....	500	\$1,500	\$10,000
248—Telegraph and telephone lines—depreciation.....			1,200
249—Signals and interlockers.....			10,000
250—Signals and interlockers—depreciation.....			1,000
251—Power plant dams, canals and pipe lines.....			
252—Power plant dams, canals and pipe lines—depreciation.....			
253—Power plant buildings.....			3,500
254—Power plant buildings—depreciation.....			500
255—Power sub-station buildings.....			2,000
256—Power sub-station buildings—depreciation.....			200
257—Power transmission system.....			900
258—Power transmission system—depreciation.....			90
259—Power distribution system.....			700
260—Power distribution system—depreciation.....			70
261—Power line poles and fixtures.....			200
262—Power line poles and fixtures—depreciation.....			
263—Underground conduits.....			
264—Underground conduits—depreciation.....			
265—Miscellaneous structures.....			300
266—Miscellaneous structures—depreciation.....			
267—Paving.....			200
268—Paving—depreciation.....			50
269—Roadway machines.....			85
270—Roadway machines—depreciation.....			
271—Small tools and supplies.....			24,000
272—Removing snow, ice and sand.....			27,000
273—Assessments for public improvements.....			150
274—Injuries to persons.....	19,000	12,000	8,000
275—Insurance.....			1,600
276—Stationery and printing.....	2,600	1,000	
277—Other expenses.....			
278—Maintaining joint tracks, yards and other facilities—Dr.....			46,600
279—Maintaining joint tracks, yards and other facilities—Cr.....			83,000

MAINTENANCE OF EQUIPMENT

	Freight	Passenger	Common
301—Superintendence.....			\$58,000
302—Shop machinery.....			27,000
303—Shop machinery—depreciation.....			16,000
304—Power plant machinery.....			3,000
305—Power plant machinery—depreciation.....			800
306—Power sub-station apparatus.....			600
307—Power sub-station apparatus—depreciation.....			100
308—Steam locomotives—repairs.....	\$394,000	\$87,000	15,000
309—Steam locomotives—depreciation.....	54,000	17,000	
310—Steam locomotives—retirements.....	41,000	13,000	
311—Other locomotives—repairs.....			
312—Other locomotives—depreciation.....			
313—Other locomotives—retirements.....			
314—Freight-train cars—repairs.....			659,000
315—Freight-train cars—depreciation.....			250,000
316—Freight-train cars—retirements.....			78,000
317—Passenger-train cars—repairs.....			51,000
318—Passenger-train cars—depreciation.....			13,000

ALLOCATION OF REVENUES

449

	Freight	Passenger	Common
319—Passenger-train cars—retirements			
320—Motor equipment of cars—repairs			\$14,000
321—Motor equipment of cars—depreciation			6,000
322—Motor equipment of cars—retirements			
323—Floating equipment—repairs		\$2,000	
324—Floating equipment—depreciation		700	
325—Floating equipment—retirements		300	
326—Work equipment—repairs			
327—Work equipment—depreciation			\$21,000
328—Work equipment—retirements			9,000
329—Miscellaneous equipment—repairs			400
330—Miscellaneous equipment—depreciation			
331—Miscellaneous equipment—retirements			
332—Injuries to persons			4,000
333—Insurance	\$1,100	500	
334—Stationery and printing			5,000
335—Other expenses			
336—Maintaining joint equipment at terminals—Dr.		1,000	
337—Maintaining joint equipment at terminals—Cr.			

TRANSPORTATION EXPENSES

	Freight	Passenger	Common
351—Superintendence			\$80,000
352—Outside agencies	\$6,900	\$4,800	
353—Advertising	600	10,000	
354—Traffic associations	3,000	600	
355—Fast freight lines			
356—Industrial and immigration bureaus	500	300	
357—Insurance			
358—Stationery and printing	9,700	2,200	

TRANSPORTATION—RAIL

	Freight	Passenger	Common
371—Superintendence			\$76,000
372—Dispatching trains			104,000
373—Station employees	\$229,000	\$61,000	
374—Weighing, inspection and demurrage bureaus	35		
375—Coal and ore wharves	12,000		
376—Station supplies and expenses	12,000	8,000	
377—Yardmasters and yard clerks			59,000
378—Yard conductors and brakemen	186,000	3,000	
379—Yard switch and signal tenders	2,000		
380—Yard enginemen	114,000	300	
381—Yard motormen			
382—Fuel for yard locomotives	99,000		
383—Yard switching power produced			
384—Yard switching power purchased			
385—Water for yard locomotives	2,400	300	
386—Lubricants for yard locomotives	1,900		
387—Other supplies for yard locomotives	4,000		
388—Engine house expenses—yard	41,000		
389—Yard supplies and expenses	6,000	3,000	
390—Operating joint yards and terminals—Dr.	9,000	17,000	
391—Operating joint yards and terminals—Cr.	600		
392—Train enginemen	384,000	91,000	6,000
393—Train motormen	3,000	10,000	
394—Fuel for train locomotives	597,000	114,000	17,000
395—Train power produced		7,000	
396—Train power purchased			
397—Water for train locomotives	21,000	10,000	1,000
398—Lubricants for train locomotives	10,000	3,000	700
399—Other supplies for train locomotives	16,000	4,000	500
400—Engine house expenses—train	96,000	40,000	
401—Trainmen	360,000	90,000	14,000
402—Train supplies and expenses	42,000	40,000	1,000
403—Operating sleeping cars			

	Freight	Passenger	Common
404—Signal and interlocker operation.....	.....	.....	\$6,000
405—Crossing protection.....	.....	.....	14,000
406—Drawbridge operation.....	.....	.....	.....
407—Telegraph and telephone operation.....	.....	.....	50
408—Operating floating equipment.....	\$1,600	.....	.....
409—Express service.....	.....	.....	.....
410—Stationery and printing.....	26,000	\$8,000	1,000
411—Other expenses.....	300	1,400	.....
412—Operating joint tracks and facilities—Dr.....	27,000	18,000	800
413—Operating joint tracks and facilities—Cr.....	20,000	6,000	.....
414—Insurance.....	6,000	4,000	.....
415—Clearing wrecks.....	17,000	200	.....
416—Damage to property.....	3,000	1,000	500
417—Damage to livestock on right of way.....	1,800	900	.....
418—Lost and damaged freight.....	16,000	.....	.....
419—Lost and damaged baggage.....	.....	2,000	.....
420—Injuries to persons.....	23,000	7,000	1,700

TRANSPORTATION—WATER LINE

	Freight	Passenger	Common
431—Operation of vessels.....	\$60,000	\$35,000	.....
432—Operation of terminals.....	3,000	7,000	.....
433—Incidental.....	.....	.....	\$300

MISCELLANEOUS OPERATIONS

	Freight	Passenger	Common
441—Dining and huffet service.....	.....	\$15,000	.....
442—Hotels and restaurants.....	.....	1,600	.....
443—Grain elevators.....	\$4,000	.....	.....
444—Stock yards.....	16,000	.....	.....
445—Produced power sold.....	.....	.....	.....
446—Other miscellaneous operations.....	.....	.....	.....

GENERAL

	Freight	Passenger	Common
451—Salaries and expenses of general officers.....	\$90,000
452—Salaries and expenses of clerks and attendants.....	135,000
453—General office supplies and expenses.....	9,000
454—Law expenses.....	36,000
455—Insurance.....	2,000
456—Relief department expenses.....	600
457—Pensions.....	36,000
458—Stationery and printing.....	14,000
459—Valuation expenses.....	12,000
460—Other expenses.....	400
461—General joint facilities—Dr.....	200
462—General joint facilities—Cr.....	170

Transportation for Investment—Cr.

This attempt to make a comprehensive formula for the apportionment of expenses between freight and passenger service is the most comprehensive and scientific attempt that has ever been made to lay down the principles of cost accounting for railroads. The scheme was worked out by a committee of which James Peabody, statistician of the Atchison, Topeka & Santa Fe, was chairman. Most fair-

minded, unprejudiced railroad officers would probably acknowledge that if this scheme could be applied by a corps of unusually intelligent accountants to the operation of a railroad it would show with at least a working degree of accuracy a division of expenses as between freight and passenger service. The difficulty lies in the fact that in practice if such a scheme as this were to be subscribed by the Interstate Commerce Commission it would not be and could not be applied by an unusually intelligent and competent corps of accountants to the operations of each railroad company in the country. The scheme depends for its accuracy both on a keen analysis of conditions and on a sympathetic and painstaking application. Its application to all railroads in the country would undoubtedly be most uneven. No one who has had anything to do with the returns which are now made to the Interstate Commerce Commission can doubt that on some roads the commission's instructions would be most unintelligently carried out. There are infinite opportunities for bias or bad judgment to warp the results that would be obtained by the application of such a scheme as this by the Interstate Commerce Commission. This is not, however, saying that it would be without value to the roads themselves, or would not in time and through practice be well worth while.

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