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Treatment of maintenance and depreciation accounts in the new classification of accounts prescribed for railroads by the Interstate Commerce Commission; Being a reprint of communications submitted to the Interstate Commerce Commission by Price, Waterhouse & Company

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Treatment of Maintenance and Depreciation Accounts

IN THE

NEW CLASSIFICATION OF ACCOUNTS PRESCRIBED FOR RAILROADS

BY THE

INTERSTATE COMMERCE COMMISSION

BEING A REPRINT OF COMMUNICATIONS SUBMITTED

to the

INTERSTATE COMMERCE COMMISSION

by

PRICE, WATERHOUSE & COMPANY,
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COMPLIMENTS OF

PRICE, WATERHOUSE & CO.,

CHARTERED ACCOUNTANTS,

52-54 William St.

54 WILLIAM STREET,
NEW YORK, May 5, 1908.

The regulations as to renewals and depreciation of equipment are undoubtedly the most important features of the new Interstate Commerce Commission classification of accounts, and constitute a radical departure from the principles of railroad accounting heretofore in force in the United States, and considerable diversity of opinion naturally arises as to the necessity or advisability of such provisions. It is, however, clear that if such a radical change is to be made it should be to a basis of depreciation which is fundamentally sound and which will best harmonize with the practical and theoretical requirements of the subject.

It is therefore important to consider whether such a result has been attained in the regulations already promulgated and, if not, in what respect the scheme put forward is defective. Incidentally it may be pointed out that this question has a material bearing on the broader question as to the advisability of adopting a depreciation scheme at all, since it is believed that any sound depreciation scheme would produce results which, so far as operating expenses are concerned, would not differ materially from those obtained in the past by roads which have maintained their equipment with reasonable efficiency and which have followed the regulations previously in force conservatively and consistently.

Other important questions arise in connection with the new provisions as to maintenance accounts, and it is believed that the following reprints of communications submitted to the Interstate Commerce Commission while the classification was in course of preparation or since it has been promulgated, will be of interest to the Executive and Accounting Officers of Railroads and to others concerned with railroad accounts and reports.

PRICE, WATERHOUSE & COMPANY.

INDEX.

I.

SOME CONSIDERATIONS AFFECTING RAILROAD MAINTENANCE ACCOUNTS.

(A communication submitted to Professor H. C. Adams March 8, 1907.)

A study of the Annual Reports of the leading Railroads for a number of years past affords evidence of some recognition of the inadequacy of the standard methods of treating Maintenance Accounts and of wide divergencies of practice in regard thereto, as well as in the provision of funds for improvements and betterments which, while to a certain extent of a Capital nature, result in little if any increase in earning capacity.

These expenses and provisions are among the most important items in Railroad Accounts for the reason that, on the one hand, such expenditures may easily be deferred according to the policy or discretion of the Directors and Officials without the evil effect of such a course becoming apparent for a number of years; or that, on the other hand, excessive charges to Operating can be made; both methods creating erroneous impressions as to the true earning capacity of a property.

From the earliest days the treatment by Railroad Companies of Renewals, Replacements and Depreciation has differed from the general practice among commercial concerns. In the latter it is customary to make annual reserves for the purpose of providing for Renewals, the necessity for which is accruing from day to day while the actual expenditures may be deferred for many years; but in the case of Railways the theory has been that the Capital and Revenue Accounts were distinct, and that the only charges to be made to the latter should be for the cost of replacing property as and when Replacements were made. This difference in treatment was fostered in England by Legislative Enactments in regard to Railroads; but from an accounting standpoint it has never been regarded as resting on very solid ground, and from a financial standpoint its results have not, we think, proved satisfactory. Up to the date of the financial panic in 1893, however, the method was closely followed by a great number, if not the majority, of American Railroads.

Under this system there were charged to Capital various items which, though technically improvements, did not add to earnings or reduce expenses, a typical example being the excess weight of rails where, as was usually the case, the requirements of traffic made it necessary to replace the rail in the track with considerably heavier metal. After the reorganizations which took place between 1893 and 1899, it was generally recognized that, whilst possibly legitimate, it was unwise to capitalize such expenditures, and the practice has now been generally discontinued with excellent results to the various properties.

RENEWAL OF EQUIPMENT.

The practice of providing for Renewals as and when outlays were made was first modified by the establishment of the Equipment Renewal Fund System, under which there is charged to Operating Expense and credited to a Renewal Fund the cost of replacing locomotives or cars destroyed, immediately they are reported as having gone out of service and not as and when they are replaced.

The theoretically correct amount for such provisions is the cost at the date of destruction of replacing the equipment destroyed with equipment of similar character and capacity, but in practice the methods adopted vary widely in different Companies, some roads adopting as a basis the original cost of the equipment, others the present cost of equipment of the same class but of the present standard, while some reorganized Companies have adopted as a basis the depreciated value of the equipment at the date of the reorganization. The charges to Operating resulting from these different methods are, of course, widely different; thus, where a box car of, say, 30,000 pounds capacity is replaced by a car of 80,000 pounds capacity, the charge to Operating might well vary from $400 to $900. Indeed in certain cases, owing to very low valuations being adopted at the date of the reorganization and to subsequent increase in the value of the scrap, the salvage from cars destroyed has frequently exceeded the reorganization value, and consequently no charge whatever has been made to Operating when the equipment has gone out of service.

Some Roads, while adhering to rules involving small direct charges to Operating for cars destroyed, have recognized in this, as in other instances, the inadequacy from a sound financial standpoint of methods of treating Maintenance Charges which may be techically correct, and have made supplementary provisions for Renewals or Depreciation of Equipment. These provisions have been made in various ways, as, for instance:

1. By direct charges to Operating, either
   - Included in general charges for Renewals of Equipment, or
   - Stated separately as "Depreciation of Equipment" or "Fund for Acquiring Additional Equipment."

2. By charges against Income, either
   - As Depreciation of Equipment,
   - As Betterments and Improvements to Equipment, or
   - As Payments on Account of Car Trust Obligations.

3. By charge to Profit and Loss.

As a result of all these variations intelligible comparisons of published figures of Renewals are practically impossible.

Renewals of Bridges and Structures.

The original practice of charging to Capital Account improvements to bridges and structures has, as a rule, been adhered to without any change under the new conditions now existing. There have, however, always been, and still are, important variations in practice which render comparisons between different Roads more or less misleading; some basing their charge to Operating Accounts upon the original cost, while others base it on the cost of Replacement at the time of reconstruction. Bridge and Structure Renewal Funds are seldom met with, and, as a general rule, no provision is made for wear and tear or approaching obsolescence until the necessity for reconstruction or renewal has become urgent, either by increase of traffic or decay of the structure.

Reconstruction of Roadbed, Cut-Offs, Etc.

The practice of a few of the most conservative Roads is to charge to Operating Accounts an estimated sum to represent the value of the abandoned portion, including both track, roadbed and earthworks, the whole balance of the cost of reconstruction being treated as Capital or Improvement Expenditure. This cost, however, may be either estimated original cost or estimated cost to replace at the present day. In other cases either no provision whatever is made out of operating for the value of the abandoned portion, the whole new cost being charged to Improvements, or provision is made out of operating for the original cost of rails, ties, track fastenings, bridge material, etc., removed, but not for that of embankments, cuttings or roadbeds.

Renewals of Rails and Ties.

The treatment of these renewals differs from that accorded to either of the foregoing. In order to distribute expenditures evenly over the different months of the fiscal year, it has become the practice to set aside a fixed sum each month sufficient to aggregate the estimated expenditure for the fiscal year. It has frequently happened for one reason or another that the actual expenditures have fallen short of the provision so made, with the result that a balance has remained unexpended. In the few cases in which a greater sum has been expended the balance has usually been written off, but in the contrary case it has frequently been carried forward and has resulted in the accumulation of large balances to the credit of the Renewal Funds. The charges to Operating have in the first instance usually been based on the estimated amount of rail which the Management have thought it well to relay, and not always, or even frequently, upon any definite proportion of the total rail operated; with the result that the funds provided are quite arbitrary in amount. It is also a usual practice among the leading Railroads to provide for the whole cost of increased weight of rails laid out of charges to Operating Accounts or to the Rail Renewal Funds, although in some cases the excess weight over that replaced has been charged to Income Account as improvements instead of to Operating.

INCONSISTENCY OF ABOVE METHODS.

From the above general relation of observed facts it will appear that the distinguishing characteristic of the present situation is the absence of consistency and uniformity, both as between Roads and as between the treatment of different Assets by the same Roads. It is not at all unusual to find the same Company treating similar items in different ways, as, for instance, providing for renewals of—

Equipment on the basis of the present cost of equipment of the same class and capacity.

Rails on the basis of the present cost of rails of greatly increased weight and capacity.

Bridges and structures on the basis of the original cost of the structure destroyed.

It is obviously to be regretted that such different methods should be used to achieve the same result, and that comparisons between Roads should thereby be rendered so much the more difficult and unsatisfactory, and it is worth considering whether some better methods cannot be adopted.

SUGGESTIONS FOR IMPROVED METHODS.

The possible remedies seem to resolve themselves into the following:

(1) To abandon altogether the present methods and to adopt instead those employed to-day by the most progressive industrial Companies, which those who are familiar with the accounts of both must recognize are superior in the information they afford, alike to the Executive, the Directors and the Stockholders, to the best Railroad Accounts.

These methods are to charge to Operating Costs the actual expenditure upon ordinary repairs and maintenance, and to supplement these charges by a more or less arbitrary provision, based, however, on the estimated life of the different classes of wasting property, allowing for obsolescence as well as wear and tear, and calculated to provide the total original cost over the term of that life. All expenditures tending to increase that life, such as replacement or reconstruction of bridges, structures, rails and equipment, are charged not to Operating Accounts but to the Renewal Funds so created. In addition, funds are created by charges to Income Account to provide for improvements which may be necessary from time to time, but which, either by reason of their not creating additional earning capacity, or by reason of their resulting only in a reduction of Operating Expenses over the term of their life, cannot conservatively be considered as permanent additions to property.

The distinction between the two classes of funds is that the former, or Depreciation Fund, is a necessary Operating charge to be provided year in and year out as a matter of necessity to take care of wear and tear, which is continuously taking place, while the latter is in the nature of a voluntary provision which can be increased in times of prosperity and reduced or even temporarily abandoned when the Surplus Income is insufficient.

There should be no greater difficulty in estimating the probable average lives of railroad properties than those of industrial properties where conditions vary at least as greatly, and such a method as that suggested, if supplemented in the Annual Reports as it should be by full particulars of the basis of determination of the various reserves, would at any rate show clearly and with approximate accuracy the actual position of any road, and enable Stockholders and the Public to judge both of the efficiency of the operating organization and of the manner in which the property had been maintained and improved.

(2) To revert to the theoretically correct basis of the standard method and charge to Operating in every case the estimated present cost of replacing the abandoned property, and to supplement this provision by charging to Income Account the whole, or such proportion as may be thought fit by the Management, of the excess cost over and above the actual cost of replacement.

The effect of this treatment would be to show over a series of years the true Operating Expenses and the true amount provided for future renewals or improvements, but it does not meet the objection already urged against the present system, that if a fair proportion of the property subject to renewal is not being renewed, no provision is being made out of Operating for accruing renewals which are each year becoming more necessary and, when they are at last unavoidable, frequently cannot be met out of the Earnings of the Road.

(3) To provide such definitions of terms and such classifications of expenditures as will result in a clear and intelligible statement of the actual outlays and provisions for future outlays.

It appears probable that absolute uniformity of policy and practice is unattainable, and in the opinion of many even undesirable, as tending, by avoiding competition in such directions, to defer the necessary provision for improvements, and to dictate a definite policy for all roads which is suitable only to the poorest and least conservative.

It is generally recognized that there are at least four general subdivisions of the property expenditures of a railroad, namely—Repairs, Renewals, Improvements and Additions. It is also fairly generally, though not universally, recognized that between renewals and improvements there is a class of expenditures which, while not strictly renewals, and possibly in some cases from a technical point of view justifiably chargeable to Capital, cannot safely be so treated. These comprise such items as excess cost of new rails on account of increased weight, minor improvements to the track, and generally such improvements as do not add to the earning capacity of the road, but either are made to relieve future operating expenses or are forced on the road by the demands of progress. For this class of expenditures, intermediate between renewals and improvements, the term "Betterments," already employed in railroad practice, might well be adopted.

Railroads should be required to group their expenditures upon property under these five fundamental captions, distinguishing between each upon definite principles to be prescribed in the Interstate Commerce Commission Classification, each caption containing sub-headings for every kind of expense which experience has proved to be necessary.

The Revenue Accounts should be divided into three sections, as is in fact usually done at present; the first, known as

"Operating Account," containing gross earnings and the cost of obtaining them and so showing the income from operations; the second, known as "Income Account," showing the income from operations and all other sources and how that income has been expended or appropriated, and so showing the net income for the year available for distribution and the dividends paid thereout; and the third, known as "Profit and Loss Account," which contains the balance from the preceding year and the net surplus for the year, any special appropriations made out of this total, and the balance carried forward to the succeeding year.

"Repairs" and "Renewals" are clearly always properly chargeable against OPERATING, and if provisions are made for future expenses of similar character these also should be charged to OPERATING under the caption of "Repair" or "Renewal" Funds.

Improvements are legitimately chargeable to Capital, but in practice it is frequently deemed desirable to provide for them out of the Income for the year. In such cases, whether actually expended or merely represented by appropriations for future expenditures, the amount should be charged to Income Account.

Additions, including therein the term "Extensions," are clearly a charge to Capital, but if, as is sometimes the case, it is not desired to follow this course, the amount should be charged to Profit and Loss Account as an appropriation of Surplus.

The suggested term "Betterments" covers charges which cannot properly be included as repairs or renewals and yet are recognized in the best railroad accounting practice as being essentially operating charges. It would seem best to follow this practice and charge all items under this caption to Operating, rather than to adopt a less conservative course and allow them to be absorbed in the general classification of "Improvements."

Whether the term "Betterments" is the best that can be adopted as a description of such expenditures is a matter for discussion, but the term is already in general use without any very clear definition, and it is suggested that it might well be retained for this special purpose and applied to such expenditures as are needed to keep the property up to a certain required but progressively higher standard, irrespective of increased traffic; while Improvements should consist only of expenditures necessitated entirely by the growth of traffic or incurred to provide for its increase.

Finally, it would be necessary to require that any expenditures made out of funds provided to take care of future expenditures under any of the fundamental captions, should be confined to the same classification and clearly detailed in the annual report.

If the above suggestions were adopted and made compulsory on all railroads, it would at any rate be possible in future to ascertain the facts as to all these expenditures, and so to form a critical and correct opinion as to the effects of whatever policy may have been adopted.

The three alternative methods here outlined are offered as suggestions worthy of careful consideration and in the belief that there is urgent need of a change in present accounting practices, if the accounts of railroads are to give the necessary information to enable their Stockholders and the public to appreciate their condition as regards the up-keep of their property and the effect upon this condition of any policy that may be adopted.

II.

DEPRECIATION AND RENEWALS OF EQUIPMENT.

(A communication submitted to Professor H. C. Adams, April 30, 1908).

We would like to place before you some considerations in regard to the much discussed question of Depreciation, which in the present classification of Railroad Operating Expenses is not, in our opinion, treated correctly, having regard to the conditions that actually prevail.

As Public Accountants the whole question of Depreciation, from both the practical and theoretical points of view, and in its bearing on all forms of undertakings, has been brought constantly before us, and received a great deal of attention at our hands for many years; and we trust, therefore, you will not feel that we are trespassing unduly on your patience if we offer in some detail our reasons for the views which we hold.

We would now state briefly what we consider to be the defects of the present classification.

DEFECTS IN CLASSIFICATION.

(1) The object of a Depreciation scheme is, we take it, to make provision for the decrease in value from year to year by reason of wear and tear, etc., as it accrues instead of as it is made good, the latter being the practice under the old classification. It seems to us that to such a proposition there is an obvious corollary that renewal expenditures made to arrest Depreciation should be charged against a Fund created in the years when the Depreciation accrues, and not against the Operating Expenses of the year in which the expenditures are made. The new classification requires, on the contrary, that all renewals shall be charged to Operating Expenses.

(2) Any plan for Depreciation of a number of units is necessarily based on the principle of averages, and assumes an average life which some units will not attain but others will exceed, and, consequently, the difference between the depreciated value of a particular unit going out of service and the scrap value should be charged, not to Operating Expenses, but, at least as regards equipment voluntarily abandoned, to the Depreciation Fund provided for this specific purpose.

Before giving our reasons for these views we would say that we realize that the subject is full of difficulty, and that objections can be urged against any plan proposed. We think, however, that the defects above noted can readily be eliminated, and that unless eliminated they will go far to neutralize the advantages of the whole Depreciation plan.

THEORY OF DEPRECIATION.

It is essential to a proper consideration of the subject to have a clear realization of the physical side of the question. A further essential is to arrive at a clear meaning of the term "estimated life." One conception of this term assumes that all repairs, renewals and rebuildings will be carried out as the necessity therefor arises, and that the estimated life is simply the period which will elapse before it finally becomes necessary or desirable to abandon the property entirely. A Depreciation Fund created on the basis of distributing the original cost of the property, less the ultimate scrap value, over the term of the life so estimated, without regard to the cost of renewals and rebuildings which are essential to the realization of that life, clearly does not in the slightest degree provide for wear and tear as it accrues, but only for obsolescence. Obsolescence is obviously the one factor in depreciation any estimate of which is at best a conjecture. It is hardly too much to say, therefore, that a fund created on such a basis will be not only inadequate, but little more than a guess.

Another, and in our opinion preferable as being a more practical, conception of the term "estimated life," is that it means the average effective life of the property, which must be determined on a consideration not only of the term which will elapse before the property is abandoned as obsolete, but also of the estimated life and scrap value of the several component parts of the property and the percentages of the original cost represented by such component parts. It is undoubtedly possible to arrive at an estimated life on this basis which will be approximately correct, and when this is done a depreciation scheme which distributes the original cost over the term of such an estimated life will clearly be sufficient to provide for all renewals which restore or extend life, and will result in the distribution of both wear and tear and obsolescence substantially to the periods in which they accrue. In such a calculation the element of obsolescence is relatively a minor consideration, and any error in the rate of depreciation adopted, which may be caused by an incorrect estimate of the period which will elapse before the property is finally abandoned, will be very small as compared with the error which would result from a similar cause in a calculation made on the basis indicated in the preceding paragraph.

It is a very common error to consider Depreciation on the theory that the property, beginning with a maximum value when new, steadily diminishes in value until at the end of its useful life it has only a scrap value, but this theory is, in practice, seldom if ever found to be in accordance with the facts. On the contrary, the changes in the value of a property will usually be found to be represented graphically, not by a steadily falling line, but by one which rises and falls at different points before it reaches that from which it finally declines to scrap value, the rises being, of course, due to expenditures for rebuilding or renewal.

Commencing with a new property, or a new series of units of equipment, for some years, whilst wear and tear will be taking place, it will not be practicable or economical to make good this wear and tear, consequently the renewals will be light while the value of the property will steadily diminish until a point is reached where any further deterioration would mean a loss of efficiency. At this point renewals will begin, and every such renewal will tend to restore or extend the original life of the unit to which it is applied. The point at which such renewals become necessary will vary with each unit, even of the same kind, but taking all kinds of units and averaging the usual conditions of a whole group, it will probably be found to be from 60 per cent. to 75 per cent. of original cost. Beyond this point the group cannot further depreciate if it is properly maintained ; and hence in practice, while single units may and frequently do run down to a point much below this average without becoming absolutely inefficient, a complete property, if properly maintained, arrives at a more or less stationary value, and never reaches the theoretical scrap value. At this point proper maintenance will call for expenditures for renewals and replacements which will approximately equal the Depreciation Charge; Renewals and Replacements, due either to wear and tear or to obsolescence, all the time tending to postpone the date when final replacement takes place.

SUGGESTED BASIS FOR DEPRECIATION FUND.

It seems to us that under these circumstances the best method of caring for Depreciation is to establish, by annual charges to Operating, a Fund which will provide over the whole useful life of the property for the original cost thereof, plus the expenditures for rebuilding, either in whole or in part, and minus the scrap value. The other extreme is the practice which has prevailed in the past of charging renewals to the years in which they are made, and of writing off the original value of the property, less the scrap value, when it finally goes out of service. Under the new classification, seeing that Renewals which arrest Depreciation and tend to lengthen the life of the property, are required to be charged to maintenance, it is clear that the amount which must be provided for Depreciation is only a proportion of the original cost less the ultimate scrap value corresponding to the years of probable life, as extended by subsequent expenditures for rebuilding or renewal. It follows that in every year of the life of the equipment, except those in which substantial expenditures for renewals are made, the resultant charge against maintenance will be less than the proper amount, and that, at least up to the date of the first extensive renewals, the credits in the Depreciation Fund will always be less than the Depreciation actually accrued.

The only objections we can perceive to the course which we have suggested, are, first, that the calculation of the annual charge for Depreciation is possibly somewhat more complicated than that under the rules established by the new classification; and, second, that it is difficult to distinguish between Renewals which should be charged against the Depreciation Fund and Repairs which should be charged against Operating.

COMPARISON OF DIFFICULTIES IN ESTABLISHMENT OF RATES ON THE TWO BASES.

We do not think there is much force in the first objection. There must be, in existence and available, statistics in regard to a large number of units of different classes of equipment as to the original cost, the expenditures for rebuilding, the final scrap value, and the number of years of actual life (as extended by rebuilding) of such equipment, and it should be possible to determine with approximate accuracy the annual rate of Depreciation on the basis we have advocated. It seems to us clear that in this way a rate can be ascertained which will more nearly represent the actual Depreciation on equipment during the early years of its life than one estimated on the basis of the present classification, and it may be pointed out that when the property has "aged" or reached a state of "average efficiency" it will be possible to test, and if necessary modify, the rate originally adopted. It should not be difficult to determine approximately in regard to equipment or any other class of railroad property the percentage of original cost which is represented by a state of average efficiency. If a fund is established on a proper basis for an entirely new property or group of properties, it should steadily grow until it reaches a sum representing the difference between this percentage and one hundred per cent. of the original cost. This sum will represent continuously what may be called the permanent Depreciation of the property, which in practice will never be made good. Any steady increase in the fund beyond this point must mean either that the property is not being efficiently maintained at a point at which it can be economically operated, or that the basis of Depreciation is too high. The former condition can as a rule be ascertained by a careful examination of the property by experts, and if the latter condition is found to exist a revision of rates of Depreciation should be made, based upon the experience gained in the past.

On the other hand, the rule laid down in the present classification appears to us to suffer from the very serious defect that changes in policy, or technical differences in the treatment of facts which are practically identical, may produce widely different results. Thus, after equipment has been in service for a number of years it is often open to a Company either to sell it to a road whose requirements are less exacting and to replace it with new equipment, or to rebuild it. Obviously, if in calculating depreciation the average life is based on the assumption that the first of these policies will be pursued, and subsequently the second is adopted, the rate will be found to be much too high, and *vice versa*. Again, if a car reaches a point where a substantial part of it requires to be renewed and another substantial part has still many years of useful life, the part which has the useful life will doubtless be combined with new materials to form a perfectly efficient car. If this car continues to have the same number as the old car, presumably the expenditures would be treated as rebuilding or renewals and charged to Operating Expenses. On the other hand, the car produced may be treated as a new car and the old one treated as condemned and gone out of service. The result would be practically identical, but the effect on the accounts of the Company might easily be very different. To take one more instance, supposing two cars of the same series and age to be wrecked, one of which is on the way to the shops for rebuilding and the other of which had been entirely rebuilt within one or two years. The operating charge in respect of the wrecks of the two cars would, under the existing system, be identical, though clearly the loss of value resulting therefrom would be materially different. The system which we advocate, by treating substantial renewals as restoring the value of the car, avoids the inconsistencies which would arise under the present rule in all these cases.

DISTINCTION BETWEEN RENEWALS AND REPAIRS.

With regard to the second objection to the rule we have proposed, there would doubtless be some difficulty in distinguishing between expenditures for rebuilding and renewals which should be charged against the Fund, and ordinary repairs which should be charged to Operating Expenses, but it is equally true that all classifications merge one into the other, and that there are always expenditures on the border line which it is difficult to distribute with entire accuracy. It does not seem to us that the difficulties of distinguishing between renewals and repairs are any greater than those experienced in distinguishing between other classifications.

AVERAGE THEORY INCORRECTLY APPLIED.

The second feature of the classification to which we have referred as defective does not seem to call for much discussion. It is clear that a Depreciation Fund properly constituted is necessarily based on averages; that in assuming, say, 20 years life for a unit it is not expected that every unit will last 20 years, but that some will drop out long before that period is reached, and others will last a good deal longer, quite apart from the question of renewal expenditures already considered. Hence, any unit dropping out before the average life is reached should be charged off, not to Operating under the head of Renewals, but to the Depreciation Fund created for this express purpose; otherwise Operating will be overcharged when such cases arise, unless, of course, the provision for Depreciation is calculated on the basis, not of the average, but of the maximum life of the equipment.

ACCIDENTAL DESTRUCTION.

In any scheme of depreciation the question of accidental destruction of property as a result of wrecks, fires, etc., has to be considered. It would, of course, be possible to take into consideration the losses from such causes in fixing the annual rate of Depreciation; but having in view the varying standards of efficiency on different railroads in the country, and seeing that the losses by wrecks will depend very largely on the degree of efficiency, it would seem to be preferable on the whole to calculate the depreciation charge without reference to involuntary abandonment. In that case it would, of course, be necessary to establish rules covering, first, rebuilding rendered necessary by wrecks, and, secondly, abandonment as a result of wrecks.

Where cars are rebuilt their value when rebuilt is usually materially greater than immediately before the wreck, except, of course, in cases of cars which are new or have been recently rebuilt, and it would be proper to lay down rules under which the increase in value would be treated as a charge to Depreciation Fund, the balance of the expenditures being treated as the loss by wreck. In the case of abandonment, the difference between the depreciated value of the unit and the scrap value would be a proper charge to Operating Expenses.

TENDENCY OF ERRORS IN PRESENT CLASSIFICATION.

It may be interesting next to consider in what direction errors in the classification will tend, assuming our views to be correct. This, of course, depends on the rate of Depreciation established by the Commission, or, if no rate is so established, on the the rates adopted by the Railroads. If the rates are such as to write off the cost of equipment over the average life as extended by rebuilding, the effect will clearly be that in the early years of the life of the equipment the charges against operation will be far too small, and the deficiency of the late classification will be removed only in a comparatively small measure. As, however, units reach the point at which they require substantial rebuilding, some will be rebuilt, and others, perhaps, condemned without reaching the average life. At such a time Operating Expenses will be overburdened in two respects: firstly, by the heavy charges for rebuilding those cars which are retained in service, and secondly, by the charge to Operating Expenses of the difference between the depreciated value and the scrap value of those cars which go out of service. Obviously some cars must last longer than the average, and as the whole of the Depreciation thereon will have been provided for when the average life is terminated, Operating will be undercharged for the remaining years that such cars are in the service.

It may be argued that on most railroads there will be at all times equipment in all the different stages above mentioned, and that consequently the annual charges to Operating will be substantially correct under the new classification, but this is equally true of the old classification, and, indeed, of any method of treating Depreciation and Renewals which provides for writing off property when or before it goes out of service, and which is consistently and conservatively followed.

SUGGESTIONS.

In conclusion, we would strongly urge a change in the classification relating to Repairs, Renewals and Depreciation on the following basis, which will conform very closely to that which has been in successful operation in Industrial and other Companies for many years past :

(1) That a distinction be made in the classification between Repairs and Renewals. The former term should be defined as those general expenses of maintenance and up-keep which are practically continuous and involve the renewal, at short intervals of less than one year, of small parts, while Renewals should include only periodical replacement of important parts, such as will on each occasion give a new lease of life to the unit. The exact dividing line between these two classes of expenditure should be defined in some detail, as is done in Manufacturing Plants, and a minimum figure for the expenditures at one time which may be charged as Renewals might be established.

(2) That a Depreciation Fund be established at such a rate upon the original cost of a unit as will, on an estimated basis, suffice to take care of all these renewal expenses, as well as for the replacement of the entire unit when, either from wear and tear or obsolescence, it ceases to be economical to continue it in service.

(3) That all Repairs be charged direct to Operating Expenses, but that all Renewal Expenses, except such as are attributable to involuntary destruction, be charged to the

Depreciation Fund, irrespective of the age of the unit at the time when such Renewals or Replacements become necessary.

(4) That the difference between original cost and scrap value of units abandoned should be charged to the Fund, except in the case of involuntary destruction, in which case the difference between depreciated value of the unit and scrap value or value for rebuilding purposes should be charged to Operating.

UNIFORM RATES OF DEPRECIATION NOT PRACTICABLE.

The rates to be adopted as the basis of depreciation would require very careful consideration, and it will probably be found that they should vary according to the nature of the road ; and for this reason it may be desirable to leave each road to determine its own rates, subject to the establishment of fixed minima, merely requiring it to specify in its published accounts the rates actually adopted. It would also be desirable to allow some latitude in the annual provision in cases where, for reasons of general depression in business or reduction in traffic, the units are not being so fully used, and for this purpose we think that in the case of equipment the locomotive or car mile basis is preferable to the equal monthly or annual installment basis. This principle, that when property is only partially in use the wear and tear is not so heavy and that consequently less Depreciation is required, is already recognized in many cases by Industrial Companies, and, provided that a fixed minimum is established, would appear to be only fair and reasonable.

The whole question of Depreciation is of so much importance, and its proper treatment so essential to a correct statement of accounts of all commercial enterprises, that a failure of any attempt to deal with it, due to a neglect of the experience already gained during many years by purely Industrial Companies, would be much to be regretted.

III.

RECONSTRUCTION OR ABANDONMENT OF PROPERTY.

(A communication submitted to Professor H. C. Adams, April 6, 1908).

The question with which we wish to deal in this letter has relation to the treatment proposed in the tentative classification for betterment expenditures which we understand will, with some modifications, become effective on July 1st next. In this classification it is provided that if any property be abandoned the original cost or estimated cost of replacement thereof must be charged into Operating Expense Accounts. It appears to us that this treatment is erroneous and tends to distort Operating Expenses out of their true meaning and intent.

The generally accepted definition of Operating Expenses, with which we believe you agree, would confine them to the actual cost of operating and maintaining the property, and any abandonment of property resulting from the wear and tear of operation would properly be chargeable thereto. But there is another kind of abandonment—the necessity for which occurs continually in small and occasionally in very large units—which in no sense whatever arises from the operation of the property, but is due entirely to the necessity of improvements carried out to meet increasing traffic or increasing demands of the Public for better accommodation. In our opinion it is entirely misleading to treat such abandonments as an operating charge, or even as a charge against the Income for the year, but they should be charged to Profit and Loss Account. Our views on this question are as follows:

Property when abandoned may either have reached the end of its useful life and have only a residual scrap value, or may have many years of useful life unexpired and be still entirely fit for the purpose for which it was originally constructed. In the former case the whole abandoned value has been used up in the operation of the road and should properly be considered as an operating expense, while in the latter there is a certain value, being the difference between the present value in service and the scrap value (if any), which is lost to the property but has not in any sense been used up in operating it. This loss must obviously be met out of earnings in some form in order to maintain the integrity of the Capital Account, but it is not a charge against the earnings of a particular year, and should therefore be met either out of accumulated earnings specially reserved or remaining unappropriated in Surplus Account, or out of the earnings of future years if no surplus exists.

We know of cases in which the cost of such abandonments, if wholly charged to Operating Expenses, would absorb the entire net earnings for some years in succession, and thereby prevent the Stockholders from receiving any return on their investment; and while the policy of actually paying dividends in such cases may be doubtful, it cannot be right so to swell Operating Expenses as to induce the belief that the road cannot be operated at a profit, and by depressing the market value of its securities lead stockholders to dispose of their holdings at a price below their intrinsic value. The advantages which the authorization of such methods by the Interstate Commerce Commission would give to unscrupulous men hardly need be mentioned. To remedy this defect in the classification we would propose the following amendment:

That on the abandonment of any property,—

(1) The difference between its actual or estimated original cost and its estimated value in service at time of abandonment should be charged either to Operating Expenses or to funds which have been provided out of Operating Expenses;

(2) The excess of estimated present value in service over scrap value recovered, being the measure of the useful life abandoned, should be charged to Profit and Loss Account; and

(3) The excess cost of reconstruction over the sum of these two elements should be charged to Construction or to Betterments at the discretion of the road.

This is in effect carrying out the principles already laid down for the treatment of equipment. An explicit provision might perhaps be added that the suggested treatment is to be applied only to voluntary abandonments and not to abandonments due to accident, although, as a matter of fact, the requirement of a charge to Operating of the difference between original cost and present value at time of abandonment is an implicit provision to the same effect.

One further point remains to be noted, viz.: that in preparing statistics as to the net returns yielded by the property it will be necessary to consider as deductions from gross earnings:

(1) Operating Expenses.

(2) Net charges to Income including Taxes but excluding perhaps Fixed Charges for use of Capital.

(3) Necessary charges to Profit and Loss Account.

While of course voluntary charges to Profit and Loss, or, in other words, items charged thereto which might under the Interstate Commerce Commission classification be charged to Capital Accounts, would be excluded.