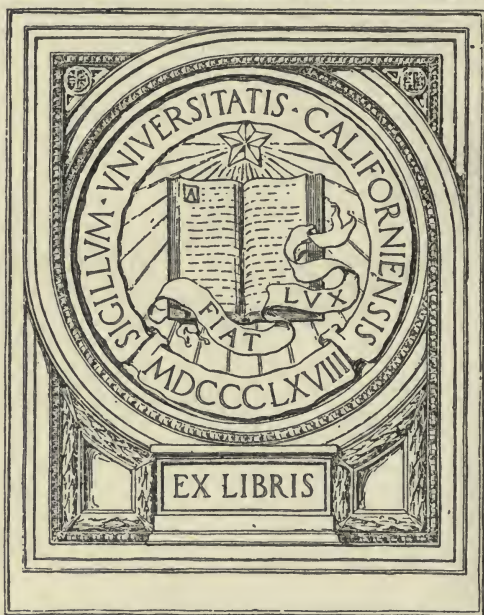


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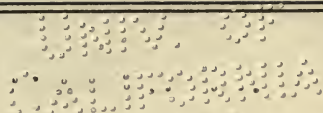


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# DEPRECIATION CHARGES OF RAILROADS AND PUBLIC UTILITIES

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A MEMORANDUM FILED WITH  
THE DEPRECIATION SECTION  
OF THE BUREAU OF ACCOUNTS  
OF THE INTERSTATE COM-  
MERCE COMMISSION

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By  
ROBERT A. CARTER,  
Chairman of the Committee on Rate  
Fundamentals of the American  
Gas Association; and  
WILLIAM L. RANSOM,  
of the New York Bar.

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130 EAST FIFTEENTH STREET

New York City.

HONORABLE FRANK S. FOWLER,  
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Bureau of Accounts,  
Interstate Commerce Commission,  
Washington, D. C.

DEAR SIR:

This memorandum, in letter form, is submitted by way of compliance with your courteous communication of March 2, 1921, in which you stated that for the purposes of the investigations preliminary to the performance of the duties devolved upon the Interstate Commerce Commission by Section 20 of the Interstate Commerce Act as amended, the Bureau of Accounts will be glad to receive an informal submission of the views of those especially interested in the subject of depreciation. I have asked Ex-Justice William L. Ransom, of counsel for some of the companies in which I am interested, to co-operate with me in the preparation of this memorandum, particularly in so far as it deals with the construction of statutes and the decisions of Courts and regulatory tribunals.

First let me say a word as to my reasons for interest in this subject, to which I have devoted thought and study for many years. My interest in the subject is neither academic nor speculative. Consideration of its practical aspects is forced upon me by the incidents of almost every day of my business activity. Error on the part of the Interstate Commerce Commission, in making the classifications and regulatory requirements specified in paragraph 5 of Section 20 of the Inter-

state Commerce Act as amended, would have serious consequences, both to the many investors in the companies of which I am an executive or director, and to the many patrons whom those companies desire to serve economically and well.

The companies with which I am connected furnish heat, light, fuel and power for the daily requirements of many millions of people. The total quantity of gas sold by the Consolidated Gas Company and its affiliated companies in 1919 was 33,674,972,000 cubic feet. Its affiliated electric companies sold in 1919, 865,388,322 kilowatt hours of electric energy. As of April, 1920, the total number of customers relying upon the Consolidated Gas Company and its affiliated gas and electric companies for their needs for heat, light, fuel and power, was 1,409,774. Families depend on gas and electricity for cooking, heating, lighting and other domestic uses; included in the list of consumers are countless factories, shops, hotels, stores, theaters, and other industrial and commercial enterprises, upon which several millions of people depend directly for livelihood. The industrial and commercial success of the splendid territory served by these companies demands the furnishing of good service at the lowest rates consistent with the maintenance of that quality of service and the earning of a fair return on the capital investment. It is not too much to say that the furnishing of gas and electric energy in adequate quantities and at rates no higher than necessary for the defraying of operating expenses and the earning of a reasonable return upon the invested capital, is probably the single service most essential to the convenience, comfort, health and life of the inhabitants of the City of New York and adjacent territory served by these companies, and to the continuance and prosperity of the business enterprises carried on therein.

We desire greatly, in the first place, to furnish an efficient and acceptable service to all our consumers and patrons, and, in the second place, to charge them a rate no higher than is absolutely necessary to reimburse us for operating expenditures actually made, and yield, in addition, a fair return on our actual investment as judicially established. We adhere to that standard in the fixation of the rates charged by our companies; we desire that railroads and regulated utilities whose service we require in the carrying on of our business, shall do the same thing. The amount of money which we have to pay out for freight rates becomes a large item in our operating costs; and we, in turn, as patrons of railway service, do not wish to pay excessive rates or rates inflated by fictitious charges, in the guise of operating expenses or anything else.

In the production of these great quantities of gas and electric energy and, to a lesser extent, in transmitting the same from the manufacturing and generating plants to the premises of myriad consumers, there is required the consumption and use of vast quantities of coal, oil and other materials, all of which coal, and a large part of which other materials are necessarily transported for greater or lesser distances over the lines of railroad common carriers operating in interstate commerce within the boundaries of the United States, for which transportation the Consolidated Gas Company and its affiliated gas and electric companies pay annually large and increasing sums of money in freight charges, the total of such charges paid by them and charged to their operating expenses amounting, on coal alone, during the year 1919, to not less than \$3,967,422.00, and to a substantially greater sum in 1920. During the calendar year 1919 there were delivered by rail trans-

portation 798,937 gross tons of coal to these affiliated gas companies, and 1,008,312 gross tons to the affiliated electric companies, a total of more than 1,800,000 tons of coal, all of which was used in the generation and distribution of gas and electricity during 1919. The quantity used in 1920 amounted to more than 2,200,000 tons. By reason of the foregoing, the gas and electric industry conducted by the Consolidated Gas Company and its affiliated companies has been and is one of the largest patrons of railroad transportation in the United States.

In the construction of new plant, the installation of additions to apparatus and equipment, the repair and upkeep of structures and apparatus, the making of replacements and extensions of the distributing systems, and the like, there is required the use of large quantities of brick, cement, steel, brass-work, iron pipe, and other materials, upon which the freight charges amount to many thousands of dollars annually, which freight charges add greatly to the annual cost of the maintenance, repair and upkeep of the properties of these affiliated companies in their continued high state of operating efficiency, and add substantially to the cost of the new construction, which, in turn, becomes a part of the necessary investment of the companies in property required for the carrying on of the gas and electric business, upon which the consumers must pay a rate yielding a fair return from year to year.

By reason of the effect on both our operating expenses and our required investment, we feel that we are directly and actually interested in seeing to it that the burden of the charges of railroad common carriers for the transportation of coal, oil, brick, cement, iron, steel, pipe and other materials in interstate commerce, shall be and be

kept no greater than is from time to time reasonably necessary to pay the actual cost of the rendering of adequate and efficient service by such common carriers and the maintenance and upkeep of their property in first class operating condition, and to pay a reasonable return upon their invested capital. That interest leads to the preparation and filing of this memorandum.

### The Pertinent Provisions of the Statute

Turning to the particular statutory duty of the Interstate Commerce Commission under discussion, it may be noted that Section 15a, paragraph 2 of the Interstate Commerce Act, as amended, requires that the rates of carriers by railroad be so adjusted that the said carriers

“\* \* \* will, under honest, efficient and economical management and reasonable expenditures for maintenance of way, structures and equipment, earn an aggregate annual net railway operating income equal as nearly as may be to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation.”

and Paragraph 3 of the same section provides:

“that during the two years beginning March 1, 1920, the Commission shall take as such fair return a sum equal to  $5\frac{1}{2}$  per centum of such aggregate value, but may, in its discretion, add thereto a sum not exceeding one-half of one per centum of such aggregate value to make provision in whole or in part for improvements, betterments or equipment, which, according to the accounting system prescribed by the Commission, are chargeable to capital account”;

while Paragraph 1 of the same section defines the term "net railway operating income" as

"railway operating income, including in the computation thereof debits and credits arising from equipment rents and joint facility rents."

The term "railway operating income" has seemed to us to be used in the statute in obviously the same sense as in the accounting system prescribed by the Commission; namely, to denote any excess of railway operating revenues over railway operating expenses.

Section 20, paragraph 5, of the Interstate Commerce Act directs that

† "The Commission shall, as soon as practicable, prescribe, for carriers subject to this Act, the classes of property for which depreciation charges may properly be included under operating expenses, and the percentages of depreciation which shall be charged with respect to each of such classes of property, classifying the carriers as it may deem proper for this purpose. The Commission may, when it deems necessary, modify the classes and percentages so prescribed. The carriers subject to this Act shall not charge to operating expenses any depreciation charges on classes of property other than those prescribed by the Commission, or charge with respect to any class of property a percentage other than that prescribed therefor by the Commission. No such carrier shall in any case include in any form under its operating or other expenses any depreciation or other charge or expenditure included elsewhere as a depreciation charge or otherwise under its operating or other expenses."

X

## Purposes of the Statute Analyzed

The purpose of the prohibition contained in the sentence last quoted above has seemed to us to be obviously the prevention of excessive or improper charges to expense accounts through duplicated charges, and the purpose of the provisions respecting the so-called "depreciation charges" is to keep them within reasonable bounds. The necessity for strict scrutiny and regulation by the Commission in this regard appears clearly when it is considered that the net railway operating income, which the statute directs shall be kept large enough to yield for the carriers of a rate district a fair annual return on the aggregate value of the property devoted to railway service, is in turn dependent on the railway operating income, which is what is left after deducting railway operating expenses from railway operating revenues. In order that the schedules of railway rates at a given time in force may not wrongly be made to appear to yield an insufficient net operating income, and so, because of inflation of the operating expense account, appear to be inadequate, the Commission has now specifically been given the duty, as well as the power and jurisdiction, to control the estimated charges for "depreciation" and the basis thereof. The importance of this we shall hereinafter discuss with concrete references to the so-called "depreciation reserves" of the carriers. Without the possession and exercise of this power by the Commission, any carrier would be left in position to include in its operating expenses unnecessary and excessive charges under this head and thus make its revenues and rates appear inadequate upon the face thereof when in fact they were ample or more than ample. Another consideration impelling the Congress to confer and the Commission to exer-

cise this power of regulation of charges based on estimates is no doubt to be found in paragraph 6 of Section 15a of the same statute, which requires that

“If under the provisions of this section, any carrier receives for any year a net railway operating income in excess of 6 per centum of the value of the railway property held for and used by it in the service of transportation, one-half of such excess shall be placed in a reserve fund established and maintained by such carrier, and the remaining one-half thereof shall, within the first four months following the close of the period for which such computation is made, be recoverable by and paid to the Commission for the purpose of establishing and maintaining a general railroad contingent fund \* \* \*”

and to the further effect shown in the statute. If ✓ the carrier had been or were left subject to no control in respect of the charges which it might make to operating expenses for “depreciation” it might easily, if such charges were based on estimates and were not kept in close relationship to the actual disbursements, make these estimated charges sufficiently high to create the appearance that its “net railway operating income” for any year did not reach “six per centum of the value of the railway property held for and used by it in the service of transportation” and thus deprive the “general railroad contingent fund” of moneys that should go into it in accordance with the provisions and ✓ intent of the statute.

## Nature of "Depreciation Charges" as to Railway Property

In order to determine what amounts may properly be charged to operating expenses to represent "depreciation" as defined in the Act, and the manner in which, as a practical business matter, this phase of railway operation and management should be handled, it is necessary to bear in mind the proper purpose of such charges. The word "depreciation," as commonly used, has a variety of meanings. ✕ One of the most prevalent is to denote a decline or shrinkage in exchange value or market price. That, however, is obviously not the meaning intended by Congress to be attached to the word as it is used in the Interstate Commerce Act. Changes in value are matters of fact to be determined by observation and not by rule prescribed by the Commission. The accounts of a carrier must deal with receipts and outlays—facts, not opinions as to variations in value or as to the probable lapse of time before particular units of property will be retired from use. The railway property of a carrier is held for use and not for sale; and fluctuations in its value, if and as they occur, do not have any relation to the carrier's operating expenses. A merchant may properly reserve out of his revenues sums to provide against shrinkage in the value of goods remaining unsold, below their cost, for, until the complete stock of goods is sold and converted into money, the real profit or loss from his venture cannot be ascertained. The rolling stock, road-bed and equipment of a carrier by railway are not acquired for sale like merchandise; they are expected to be operated forever in furnishing transportation, or at least for an indefinitely long period. ✕ The carrier sells transportation *service* to its patrons, *not* its railway *property* piecemeal. A railway system ✓

is composed almost entirely of tangible property that could not readily, and to a large extent could not economically, be converted to other uses. Its ownership may change and the price at which the transfer is effected may be greater or less than the cost of the property when installed, but it does not appear that the utility of the property or its relations to the shippers and passengers using it is thereby affected. The rate charged for the transportation service does not depend upon the age of the engine, road-bed, or car; nor can it properly be said that the carrier's *operating expenses* vary with changes in the *exchange value* of the property or the cost of reproducing it at a particular time. As has been said by Mr. George N. Webster in a recent monograph\* on the subject:

“The consideration of *age* enters no more into the question of the *rates* of a public service company, which is able to and does render the service it was organized to render, than does the *age* of a *taxicab*, or of its *driver*, or of the *clothes* he *wears*, enter into the question of the *fare*. A driver twenty years old with a new car and a new uniform can charge no more than a man of sixty with a ten-year-old car still operating efficiently. It is *transportation* the passenger is buying—and he expects to pay *uniformly* for a *uniform* service, regardless of the age of the equipment.

“Nor does a lawyer or a physician expect to regulate his fee by the age of his office furniture, as one might think he should from the arguments of the professional depreci-

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\*Copies of Mr. Webster's monograph entitled "Theoretical Depreciation: A Menace to the Public and the Investor," have been reprinted, and will be furnished to anyone interested, on request to the undersigned.

ator. A laborer of twenty with a new pair of overalls draws the same rate *per diem* as the laborer of sixty with a pair of wornout overalls. Both do a uniform day's work for a uniform day's pay and *age cuts no figure* so long as *uniformity in service capacity* exists.

“A celebrated lawyer who died within a year and who bequeathed many millions of dollars to a great college had in his office the simplest and oldest furniture the writer ever saw. Furthermore, his earning capacity increased annually to the day of his death at the age of seventy-four. He probably never realized what a liar he was making out of the professional depreciationist.”

✓ So far as the passenger and the shipper, the purchasers of *railway service*, are concerned, the essential thing is that the system be maintained in efficient operating condition and that its service be rendered efficiently, economically, and at a fair price. Its operating expenses are the out-goes necessary to efficient and economical operation. It has been commonly recognized that in the case of a railway or other public utility, the cost of the maintenance of the property in efficient and economical operating condition, through adequate repairs of wearing parts and through the renewal and replacement of units retired from use for any cause, is a proper charge against the cost of rendering the service as represented by operating expenses; and the statute has declared that the fair price for the service rendered shall be so determined, as nearly as may be, as to yield, in addition to such necessary outgoes, a further sum which shall be, for the carriers as a whole, in a given rate district, “a fair return upon the aggregate value of the rail-

way property of such carriers held for and used in the service of transportation." The statute does not contemplate the inclusion of anything beyond this in fixing the rate.

It is a matter of common knowledge that in any extensive or complicated system, plant or instrumentality, such as that of a railway or public utility, the thing does not wear out or give way as a whole. Some part wears or weakens to the point that it ceases to operate satisfactorily, and upon being repaired or replaced, the whole continues to operate satisfactorily. These repairs and replacements in respect of any particular unit of plant or equipment become necessary only at irregular intervals, but in an extensive and heterogeneous railway or utility system subjected to a variety of hazards, they tend to equalize themselves from year to year, and the tendency is still more marked if longer periods be compared.

The statute does not indicate how frequently the Commission shall revise and adjust the general level of rates for the carriers of a particular rate district, but presumably such readjustments will be made only at intervals of several years. It takes an appreciable period of time for traffic to adjust itself to a new level of rates and such level ought not to be disturbed until it becomes clear that it is inadequate or excessive. If the intervals between readjustments of rate levels are long enough to permit the law of averages to operate with respect to repairs and renewals and replacements of rolling stock and equipment, it seems apparent that there would be no occasion at all for the introduction of any estimated charges into operating expenses, to secure a fair statement of cost of operation for the period. If the intervals are too short for this, the justification arises for the admission of charges based on

estimates of current outlays. Such estimates, however, when permissible, should be restricted to elements other than anticipated shrinkage in "value" of parts of the property, for, as has been said above, the carrier is not a trader or merchandiser in respect of its railway property and its duty in connection with its property is to maintain the same in efficient operating condition and to operate it efficiently and economically in the transportation of goods and persons; and *any* charges for repairs, renewals and replacements, whether actual or estimated, should be based only upon *the actual requirements for those purposes*.

When any part of a unit of railway property wears to such a point that the particular unit no longer operates efficiently, it is the carrier's duty, under the statute and in the exercise of ordinary business judgment alike, to either repair it or replace the wearing part of such unit, and thereby to overcome the *actual* deterioration of the unit and restore it to full operating efficiency.

✓ If in the interval since a complete unit was installed, the art of transportation has progressed to such a point that it has become obsolete or is inadequate and the economies to be realized justify its withdrawal from service, it should be replaced with a unit of improved type and adequate capacity, and the cost of retiring the obsolete or inadequate unit, if too great to charge against the provision for renewals for the current year, should be borne by *future* passengers and shippers. "*Abandonments occasioned by changes of this character are therefore chargeable to future earnings.*" (*Kansas City Southern Ry. Co. vs. U. S.*, 231 U. S., 423, 451, 452.)

## The Sound Treatment of "Retirement Expense"

When a given unit of property used in transportation service is installed, the executives who financed its installation and are charged with the duty of maintaining the property as a whole and with making financial provision therefor, realize that certain things may transpire as to the new unit of property or portions thereof. If it is of such a character that it has wearing parts, or that portions of it will be affected by the action of the elements, the executives of course are aware that repairs of such wearing parts will have to be made from time to time, else the unit and property as a whole will not function efficiently and will break down altogether if these repairs are not made as required. On the other hand, they are aware that a large portion of the property, at least if properly maintained by these repairs and renewals of wearing parts, has a practically indefinite life in service, unless its retirement from use comes about from causes in no way related to the effects of use. At a recent hearing before the Federal Power Commission, the Secretary of War, Mr. Weeks, trenchantly inquired of a distinguished hydraulic engineer whether an estimate could soundly be made as to the probable "life" of a dam such as would figure in a water-power project. The reply was, in substance, that such a thing could hardly be calculated, because dams known to be more than 2,000 years old are still functioning and in use, with no signs of going out of service because of any consequences of age, use or wear. Probably these dams, too, have had practically no repair work done upon them since they were built before the Christian era.

As has been said by Mr. Webster in the monograph already referred to:

“Stephenson’s second locomotive was still in use in 1911 (*Engineering and Contracting*, October 11, 1911). The cast-iron water-pipes leading from the river Seine to the fountains at Versailles, were installed in 1658. The only repairs that have been necessary after two and a half centuries of service are the occasional replacing of bolts (*Engineering and Contracting*, May 27, 1914). Rome is still supplied with water by an aqueduct, the construction of which was begun by Quintus Marcius in 144 B. C. Tunis is now supplied by an aqueduct built by Hadrian in A. D. 120. The aqueduct at Nimes has been in use for nearly twenty centuries. There are many other instances of masonry and concrete structures which have survived many hundreds of years of useful service.”

The wearing parts of units of railway property are currently repaired as needed, and the effect is to maintain the unit in existence and in high operating efficiency, for an indefinite and undefinable period, and the expense of this repair and replacement of wearing parts is properly assessed by the company executives against the current cost of rendering the service in which the use and wear took place.

The responsible executives of the carrier also realize that although the newly installed unit may continue in use for an indefinite and incalculable period, if thus maintained in good operating condition, it may go out of use, for other causes than wear or the flight of time, and that such retirement from use may come about at almost any time—a time in no way susceptible of estimate at the time it is installed, but varying altogether with the particular carrier, the particular territory being served, the nature of the service being ren-

dered, the various factors affecting the cost of service, and the like. The unit may be retired from use because it has become *inadequate* to meet the growing demands for service (and hence is uneconomical) or because new inventions have resulted in improvements in the type of a given unit, making its retirement *economical* in the interests of future patrons. A larger volume of traffic can be handled or the existing volume of traffic can be handled more cheaply or more efficiently, if the present unit is removed and a new one put in, although the unit taken out is still functioning as efficiently as when installed. The time when such supersession of a unit will take place cannot be forecast in terms of years, by company executives, engineers, or any one else, at the time the unit is installed. "Tables of useful lives" of units of that kind are unavoidably conjectural and speculative, bearing no possible relationship to the controlling factors, which vary utterly with the individual instance. To try to "assign" a probable period of "life" to the unit when it is installed, and then charge against current rates an accrual based on the amortization of the cost of the unit over that period, is to set up a system of swelling operating expenses and "padding" rates on a basis of mere conjectures, because with the great mass of railway property its proper maintenance by current repairs consigns all "life tables" to the realm of silly impracticabilities, and supersession, when it does take place, occurs for causes in no way related to such "life tables." Moreover, such supersession comes about for causes which make improper the amortization of its cost through increased rates during the period before it is superseded. X The unit did not *wear out* in the service of the patrons it served. They paid the cost of maintaining it in good, undiminished operating

efficiency; there is no reason why they should, in addition, pay the cost of retiring it to put in a new unit which will serve *more* patrons or serve *future* patrons *more cheaply*. The existing unit was serving present patrons efficiently; the cost of retiring it to put in a larger or more economical unit becomes a proper charge against those who will be served and benefited thereby. The expense of retiring property should therefore be borne *by current or future charges, and not by anticipatory accruals* (*Kansas City Southern Ry. Co. vs. U. S.*, 231 U. S., 423, 451-2) in other words, the retiring of a very large unit may necessitate the distribution of the amortization of the investment therein, over a short period of succeeding years.

It thus appears that wherever departure is made from the actual current outlays, year by year, for repairs and for the renewal and replacement of property withdrawn from service, "depreciation" charges in operating expenses should in any event be restricted to those necessary to equalize from year to year the charges for extraordinary repairs and for renewals and replacements which occur irregularly. As experience shows that in large plants and other utilities whose property is distributed sufficiently widely to be subjected to a variety of hazard, the actual costs of repairs and retirements tend to equalize themselves when taken over a period of years, it is apparent that there is no need at all for permitting the introduction of estimated charges in operating expenses to cover the matter of "depreciation" in connection with the determination of a fair level of rates as defined in the statute, unless the Commission contemplates frequent readjustments of the rate level. If such frequent readjustments are contemplated, the regulation of such

charges should be based on the actual present and past experience of the carriers, and the charges themselves should be proportioned on the basis of the work done rather than on mere lapse of time. Extensive reconstruction projects involving numerous renewals and replacements cannot advisably be undertaken at a time of the year when the plant is working under full load or overload, for at such times operation would be too much impeded by the execution of any maintenance work in excess of actual immediate needs. Furthermore, at such times prices are usually high and the supply of materials and labor restricted, and it would be uneconomical to do work of this character which is not absolutely essential to the continuity of operation. In such periods, therefore, when the actual disbursement for maintenance work is comparatively small, the estimated charges may properly, if ever, be introduced in operating expenses to make provision for the time when traffic has slackened and the forces of the carrier can advantageously be concentrated on maintenance work.

#### **Analysis of the "Depreciation Charges" of Railway Carriers Since 1912**

Illustration of the pertinency of the foregoing suggestion that care be taken to limit "depreciation charges" to actual maintenance requirements rather than to base them on tables of assumed "lives" of property, is afforded by the fact that an examination of the figures published in the Interstate Commerce Commission's reports on railway statistics shows that during the four years from June 30, 1912, to June 30, 1916, the credit balance in the reserve account "Accrued depreciation" for all Class I railways and their non-

operating subsidiaries increased from about \$300,000,000.00 to about \$555,000,000.00. In other words, the charges to operating expenses for "depreciation" during those four years were \$255,000,000.00 greater than was necessary to provide for all retirements of equipment and other railway property made during that period and charged against the reserve thus created. However, owing to some anomalies in the Commission's rules of accounting at that time in force, there were charges made to "Profit and Loss" account to the extent of about \$59,000,000.00 for "loss on retired road and equipment." Granting, for the sake of argument, that all of this \$59,000,000.00 might properly, in the absence of the "depreciation" charges in operating expenses, have been made to operating expenses, it is still true that *the charges to operating expenses in this connection were about \$196,000,000.00 (the difference between \$255,000,000.00 and \$59,000,000.00) greater than were necessary to provide for all retirements actually made during those four years, or, in other words, for all renewals and replacements necessitated during that period on the assumption that such renewals and replacements had cost no more than did the things renewed or replaced.* The Commission's rules properly permit the excess cost of the replacement over the cost of the original to be charged to the road and equipment account, so that it is shown by the Commission's figures that *the operating expenses of Class I carriers and their subsidiaries were overstated during those four years by nearly \$200,000,000.00.* Similarly, for the eighteen months from June 30, 1916, to December 31, 1917, the credit balance in the reserve account "Accrued depreciation" for such carriers increased about \$224,000,000.00, whereas the charges to "Profit and Loss" for "loss on retired road and

equipment," during the twenty-four months from December 31, 1915, to December 31, 1917, were about \$30,000,000.00. Owing to the change in the reporting year from that ending June 30th to that ending December 31st, there is an overlap of six months in the income accounts and profit and loss accounts contained in the annual reports relating to the year ended June 30, 1916, and that ended December 31, 1916, and it is impracticable to say, from the figures published by the Commission, what this item of "loss on retired road and equipment" charged to "Profit and Loss" is for the eighteen months from June 30, 1916, to December 31, 1917. It is safe to say, however, that it is materially less than thirty millions of dollars, and therefore that *the amounts charged to operating expenses for "depreciation" during those eighteen months were more than \$194,000,000.00 in excess of the amount of retirements actually made during that period, so that for the five and one-half years from June 30, 1912, to December 31, 1917, the amounts charged for "depreciation" in operating expenses were over \$390,000,000.00 more than was necessary to provide for all of the retirements actually made during the period; or, in other words, the operating expenses of this class of railroad common carriers as reported during that period were, so far as this item is concerned, overstated by at least \$390,000,000.00, with corresponding effect upon the net operating income and so upon the apparent adequacy or inadequacy of the rates paid by the companies represented by the undersigned, in common with all other users of similar commodities, for the transportation of coal, oil, iron, steel, pipe and other materials in interstate commerce.*

Another concrete instance emphasizing the importance of sound treatment of "retirement ex-

pense'' may be taken from the records of a regulated utility of whose service the Consolidated Gas Company (with its affiliated companies) is probably the largest single patron. The sums which we have to pay for telephone service enter heavily into our operating expenses, amounting to more than \$200,000 per year. Examination of the figures published by the Public Service Commission for the Second District shows that as of December 31, 1914, the credit balance in the two reserve accounts of the New York Telephone Company, entitled "Accrued Depreciation" and "Amortization," was \$25,498,912. Five years later, after taking care of all retirements of fixed capital actually made over this considerable period, the accruals had increased the reserves to \$63,390,038. In other words, the rates charged during the five years had included the collection by the company, from us and other consumers, of \$37,891,126 more than the actual cost of property retirements during the same period. In the same five years, the telephone company's investment in fixed capital devoted to its telephone business was increased \$76,805,076 by the addition of new facilities and equipment. Thus while less than \$77,000,000 of new property was being installed, 49.33 per cent. of its total cost was being collected from consumers, over and above the actual requirements for the five years, on the theory of providing for possible but uncertain future retirements. During the eight months ended August 31, 1920, the credit balance in these reserves was increased \$6,580,064 over actual retirement expenses, whereas only \$14,460,695 was in the same period added to the company's capital investment. In other words, over a period covering five years and eight months, the company collected from its consumers, to make good its losses from the retirement of property from service, \$44,471.190

more than its actual losses from such retirements over this considerable period, or approximately \$7,850,000 in excess of average actual yearly requirements; and the credit balance in its reserves, as of August 31, 1920, representing collections from consumers over actual retirements, was \$69,970,102, or nearly 35 per cent. of its aggregate property investment of \$240,432,094.

Whether the rates charged by the telephone company or by the railway carriers are or were reasonable or excessive, we do not undertake to say. That question is for the regulatory commissions charged with the duty of seeing to it that such rates are kept neither too high nor too low. Our comments are only upon a system of accruals through charges to operating expenses on the basis of theoretical estimates, which leads to the collection of sums so greatly in excess of the actual retirement expense over a representative period. Whether the rates actually charged yielded more than a fair return over and above actual operating expenses, we do not here discuss. Any sums collected in excess of actual operating costs, including the actual retirement expenses (averaged, if desired, over a representative period) should be collected as return on investment or not at all. No carrier or utility should be permitted to collect from its patrons more than its operating expenses plus a fair return, and no carrier or utility should be permitted to make its return from existing rates *appear* inadequate through charging to *operating expenses* a sum whose accrual is not required by any actual outlays of the company, either current or prospective. No implication is intended to be conveyed against the policy of making reserves, out of the fair return, for contingencies, if it is deemed advisable to thus segregate a part of the surplus earnings. There

should be left, however, no room for doubt that when thus segregated such a reserve still represents surplus earnings belonging to the stockholders and that upon the property in which it is invested the company has as unquestionable a right to earn a fair return as it has upon the property representing its surplus so called.

### Concrete Recommendations as to the Handling of Depreciation Charges

These were the practical considerations which led the Consolidated Gas Company of New York, in its petition of June 1, 1920, as intervenor in *Ex Parte* 74 before the Commission, relative to increases in freight rates, to present to the Commission a more formal statement of the foregoing contentions, and accordingly to urge upon the Commission the following suggestions, which are of equal pertinency to your present inquiry:

“1. That the above-stated considerations be taken into account and kept in mind by the Commission in all pending and future proceedings for the fixation of the rates chargeable by railroad common carriers in interstate commerce.

“2. That the petitioner be permitted to intervene and be heard, by counsel, in such proceedings, and to file a brief therein, in behalf of the considerations hereinbefore stated.

“3. That the Commission will find that for Class I carriers there are no ‘classes of property for which depreciation charges may properly be included under operating expenses,’ and that *it will require that the maintenance charges for any calendar year, including charges for renewals and replacements, be stated on the basis of expenses ac-*

*tually incurred during that year, to the end that freight rates be placed at a level which will be fair both to carriers and to shippers, and that they be not made unduly high in order to provide for estimated charges not based on actual facts.*

“4. In the event that the Commission be of opinion that a year is not a sufficiently long period to include representative fluctuations in maintenance charges, the petitioner prays that *the rules governing estimated charges for ‘depreciation’ shall hereafter be based on the actual experience of the carriers during a period of a length reasonably sufficient to include such fluctuations and that the estimated charge shall be distributed from year to year upon a suitable operating unit* (such as, for example, car-miles), so that during years of heavy traffic the estimated charge may be correspondingly great and during years of light traffic it may be correspondingly less, and thus avoid, so far as may be, fictitious fluctuations in the ‘net railway operating income’ which the statute makes the test of the adequacy or inadequacy of a given schedule or level of rates.”

#### The Two Opposing Views as to Provisions for the Upkeep of Property

✓ In line with the foregoing, there may be said to be two opposite views, two radically differing policies, which may be followed by a regulatory body in fulfilling duties such as those devolved upon the Interstate Commerce Commission by Section 20 of the Interstate Commerce Act as amended:

X 1. *The course four-square with business practice in large utility and industrial establishments*; which recognizes that property used in public service does not go out of use on arbitrary or theoretical grounds or according to any preconceived "table of lives," but for reasons not calculable in advance as to time, and commonly related to economies in the cost of service or increases in demand for service; and hence does not make "accruals" of reserves over estimated periods to provide for a "going out of use" which does not occur with any calculable reference to such estimates or such periods and does not undertake to burden present consumers or patrons with the cost of retiring property altogether adequate for their needs but not adequate for the needs of a larger number of patrons or not as economical in serving future patrons as some newly developed unit or machine.

+ 2. *The course predicated on preconceived "lives of property"*; which disregards actualities and substitutes for business experience the theories of academicians; which creates unnecessary charges to current operating expenses to create unnecessary "reserves," all to the end that through these accruals current passengers and shippers may be compelled to contribute to a piece-meal but surreptitious "purchase" of the property, to be effected by the deduction of the amount of such reserves from the sum on which the company would otherwise be entitled to earn a return or the sum for which the company would be entitled to be compensated, when, if ever, the "theoretical depreciationists" have their way and the Federal Government takes over railroad property for governmental ownership and operation.

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## Decisions of the Courts and Regulatory Commissions Concerning These Opposing Views

Although we recognize that a business problem of this character cannot be solved merely by citation of judicial decisions, we believe that an analysis of the pertinent rulings may prove of assistance to the Depreciation Section and the Bureau of Accounts at this juncture. Particularly in the early years of rate litigation, it cannot be said that the Courts always perceived the problem in all its aspects or phrased their discussion of it with the exactness of expression which has come ✓ with fuller consideration. It remains true that no leading or well-considered case has decided that "accrued theoretical depreciation" must be deducted from the so-called "rate base" and provided for in the rate. The trend of decision is unmistakably toward rejection of this concept altogether. As has recently been said by Ex-Judge H. M. Wright, the distinguished Special Master who has heard many of the rate cases arising on the Pacific Coast, the whole subject must be re-examined and earlier conclusions revised, because of the trend of judicial decisions ✓ and recent literature. (See *Pacific Gas and Electric Co. vs. City and County of San Francisco*; U. S. Dist. Ct.; No. Dist. of Cal.; Report filed March 2, 1920; quoted from on page 71, *post*).

One of the most recent decisions in the Federal Courts was in *New York and Queens Gas Company vs. Newton, et al.*, in the United States District Court for the Southern District of New York, on November 19, 1920, before Mayer, D. J., on a motion to confirm the Report and Opinion of the Honorable A. S. Gilbert as Special Master. (See 269 Fed. 277, and supplemental opinion by Mayer, D. J., not officially reported). The Special Master had ruled that there should be no deduc-

tion from actual investment or present value of property, for so-called "expired life" or "accrued theoretical depreciation," and the Federal Court agreed with him and refused to make any such deduction.

The whole issues of fact and engineering and accounting experience having to do with the maintenance of property and the provisions to be made for renewals and replacements were exhaustively litigated in this case, and the Report and Opinion therein seem conclusively to establish the propriety of handling these matters in the practical business way urged in this memorandum. We quote from the opinion in that case and urge that the matters of *fact* therein set forth are fatal to the theoretical assumptions on which some of the proposed regulations on this subject are based:

**"No Deduction for 'Accrued Theoretical  
Depreciation'**

"In determining that the complainant's property has a fair present value of at least the amount of the complainant's actual investment therein as found by me, viz., at least \$1,655,877.94, I have made no deduction for what is termed 'depreciation,' in whatever way calculated. Under any basis of determining present value, the complainant's property is now worth at least the amount of such investment therein, and the sound rule of law and policy seems to require the allowance of a reasonable return upon at least that sum.

"Upon the present trial, it was insistently urged upon me by some of the defendants that there should be deducted from the cost of the property (irrespective of whether

'original,' 'pre-war,' or 'present reproduction' cost be under consideration) an amount claimed to represent so-called 'accrued theoretical depreciation,' based upon an assumption of 'life expectancy' for a gas plant and equipment and the estimated or known number of years since the same was erected or installed. From the testimony given upon the trial, I was strongly impressed by the fact that in respect of a very large proportion of gas property, there is no ascertainable 'life expectancy.' The withdrawal of such property from service comes about from inadequacy or obsolescence which cannot be forecast in terms of years or even satisfactorily guessed at. Certain parts of operating machinery and equipment are of course subject to effects of use. The replacement of these wearing parts enters into the cost of repairs. As to the substantial units of structures, apparatus, mains, and equipment, their withdrawal from the property accounts comes about from causes not attributable to the condition of the property itself or any diminution in its operating efficiency, but varying utterly with the particular plant, time, local conditions and service demands and hence capable of being forecast only as the occasion for such change in plant or equipment becomes imminent.

#### "The Renewal and Replacement of Gas Property

"In other words, in order to keep abreast of improvements in the art of making and distributing gas when and as it becomes economically advantageous to do so, and to meet the growing demand of the public for service more adequately and economically than would

be possible through merely making additions and extensions to existing plant and equipment, larger or better and more economical and efficient units of plant and equipment are from time to time installed to take the place of units which still are operating as efficiently as when first installed. The loss due to such supersession cannot properly be said to have accrued during the period the superseded unit was in service. It *occurred* when supersession took place. It became a proper charge against the economies to be realized therefrom. It furnished no basis for the imposition of an additional charge against the user of the superseded unit during the period of its useful service over and above the higher cost of operating it. Such a charge could not be justified either on the ground that the unit was losing potential life, or that the capital invested in it was being consumed, because neither is true.

#### “Additional Burden on the Consumer Unwarranted

“In order to justify the deduction of ‘theoretical depreciation,’ I was asked in this case to *assume* that a ‘depreciation reserve’ equal to the computed ‘theoretical depreciation’ had been collected from the public, and then to deduct from the company’s investment the amount of such assumed reserve. No such reserve had, in fact, been collected or accumulated by this company. The rate chargeable did not permit it, and there is no reason to believe that the Legislature, in prescribing the rate, ever contemplated it. As I have set forth in Findings Nos. 32 and 27 of my Report and as I have elsewhere indi-

cated herein, the complainant gas company has maintained its property and investment intact in the past, through renewals and replacements, at an average actual cost of approximately three cents per thousand cubic feet of gas sold, and no reason appears for believing that it cannot continue to do so on that basis. Even assuming that the statute permitted such a rate, to have imposed on the company's consumers an additional burden nearly twice as great, representing a purely theoretical item of operating cost, merely to accumulate a useless reserve to justify a drastic deduction from investment in some ultimate proceeding as to rates, could not have been justified on any sound theory in the past and cannot now be sustained as to the future.

#### "Effects of an Unnecessary Reserve

"In order to justify the assumption that a 'depreciation reserve' was or should have been collected, defendants' witness Hine testified in this case that such a reserve was necessary 'so that when the property is retired for any cause whatsoever the fund can be charged with the cost of the property.' He testified also that the reserve should be, in his opinion, 'invested in the property,' and that when the funds were needed for renewals and replacements they would be provided 'by issuing securities against construction work which had been done originally out of this fund, for the money laid aside for this fund, just to reimburse the treasury on account of these expenditures.' This view seemed to me to disregard the obvious fact that having deducted the amount of the reserve temporarily

invested in property from that on which he proposed the company should be allowed to earn a return, he, to all intents and purposes, destroyed the earning power of such property and investment; that therefore he could not issue any securities against such property, there being no earnings therefrom with which to pay interest on the securities; that the reserve could never thereafter be availed of for the purpose for which it was alleged to have been created, and that it would be, in fact, as if it had never been created. Thus he not only failed to sustain his contention that a 'depreciation reserve' was necessary for the purposes which he alleged, but he proposed to treat the reserve as if he himself believed it to be both unnecessary and ineffectual, except for the purpose of justifying a deduction from the complainant's investment.

"It is obvious that the collection of an unnecessary reserve and its periodic deduction from the value of the property in service would operate to effect a piece-meal purchase, on the part of the public, of the property used by the utility in its service. In other words, it is really *asking the consumer to pay for the plant, instead of paying a return on the investment*. If such a consummation is desirable, of which there is no evidence, it should be effected openly, and not surreptitiously under the guise of providing for so-called 'theoretical depreciation.'

#### "Present Condition of the Property

"Mr. Miller testified that as of April, 1920, the expenditure of \$6,144.07 for repairs, renewals and replacements, would put the plant, structures, machinery and equipment in con-

dition substantially as good as when they were erected or installed. His testimony in this respect was not contradicted by that of any witness. This sum, however, does not, in my opinion, measure any impairment in the present value of the property used and useful in the gas business. It represents merely an unmatured obligation to *maintain* the property in efficient operating condition *out of future earnings*, the expert witnesses of both the complainant and the defendants agreeing *that it was and is maintained in efficient and first-class condition*. I therefore have not deducted this or any other sum representing so-called 'accrued depreciation' from the amount found by me to represent the investment of the complainant in its gas property upon which it is entitled to have its rate such as to yield a reasonable return."

#### Judge Hand's Rejection of "Accrued Depreciation" Theories

The "straight-line" theory of "depreciation" and the setting up of "reserves" and deductions based thereon, have also been emphatically rejected by Judge Learned Hand, in the United States District Court for the Southern District of New York (*Consolidated Gas Co. vs. Newton*, 267 Fed., 231, 265; P. U. R. 1920 F, page 485). The Special Master in this case also had rejected the claim that deduction must be made for "accrued depreciation," in ascertaining present value. Judge Hand said:

"Maltbie figured a 'straight-line' depreciation of three and a half millions, for all plants and holders. *This was necessarily a conjec-*

ture, based upon the supposed life of the plant; *it has no application while the plant is kept up.* \* \* \*

“The other elements of depreciation are for mains, about one million five hundred thousand dollars, and services and meters, one million five hundred thousand dollars. *Any depreciation in the mains appears to me quite fanciful.* Little said that the life of a main when properly buried was indefinite; the only question is of obsolescence and repairs, and I should suppose that obsolescence would occur only after it got too small for its requirements. It might of course be possible to show that all necessary mains could now be laid for less than the book cost, but the plaintiff has shown the contrary by Miller, and it is not contradicted.

“As to meters and services the case is not so strong because even if their life be seventy-five years, as Little thinks, no one knows the age of all those in use. Moreover, the depreciation of one million five hundred thousand dollars is only about twelve per cent of their cost. However, the same rule applies as before. The plaintiff proved the cost and the necessary repairs to bring the whole plant up to its original condition. It proved that the cost of reproducing fixtures of equal capacity was more than the book cost. That made a case, in my judgment, which was proof against any theory of ‘straight-line’ depreciation. The allowance for repairs might be attacked on the ground that the condition of the plants and fixtures in fact required inordinate repairs, but that was not done. In accordance with the principle which I have tried to demonstrate I decline to make any allowance for depreciation.”

## Age of a Plant "Not a Function in Rate Base"

On the broader aspects of the subject, Judge Learned Hand had occasion to consider its legal and economic aspects in the light of the more thorough and intelligent investigation which recent experience has prompted, and he stated his conclusions as follows:

"The defendants insist upon the element of depreciation based upon an allowance each year of that proportion of the total value which a year bears to the whole life of the plant. The Supreme Court (*Knoxville Water Co. vs. Knoxville, supra, Minnesota Rate Cases, supra*) has recognized that some depreciation is a proper element in estimating the 'rate base,' but has not as yet authoritatively settled on what principle it shall be calculated. It seems to me hardly possible in the case at bar to avoid taking a position with regard to that principle.

"If the proper standard for a 'rate-base' is the present cost of a substitute plant of equal capacity, as I believe, depreciation can be a function of it only in case the allowance for renewals to the plant under consideration will in the future be greater than that of the assumed standard. If the rates allowed in the future include only an allowance for renewals of a new plant the company will have to abate something from its normal profits because of its extraordinary renewal charges. Theoretically it makes no difference whether this problem is met by giving the plant a smaller value at present because of its future greater renewal charges and then allowing a higher rate for renewals, or by giving it its present value based on capacity and letting it bear its extra renewals out of its normal profits. Were the

plant sold, the future abnormal renewals would be reflected in the sale price, being discounted at once, but that would be because the parties must at present clear their accounts once and for all. The seller would be unwilling at once to abate from his price, and later to allow the buyer from time to time for his unusual renewals. In the case of a public service company where the authorities may always require the plant to be kept up to standard, there is an obvious advantage in declining to attempt a repeated adjustment between the actual renewals necessary and normal renewals, as would be necessary if the present prospect of such allowances were now discounted; it is the better practice to allow the plant to bear its own extra renewals and to insist that it shall always be kept up. *Therefore, it appears that, so far as concerns the future, the age of the plant should not be a function in the 'rate-base.'*

“On the other hand, in computing the ‘rate-base’ from the original cost, depreciation is of vital consequence. Practical men will prefer to ascertain the cost of a present plant by experience, when they can, rather than by estimate, just as the master here has done. In so arriving at the cost of a present plant of equal capacity, it is clear that the original cost of the plant in question must be abated by depreciation, *so far as that is reflected in a loss of capacity.* In such a calculation, however, there must figure past renewals as an offset to past depreciation *and if in fact the capacity has remained the same, depreciation should not be a function of the ‘rate base’ at all.* In such a case the inquiry as to depreciation should be confined to changes in ‘price-levels.’ ”

*There being no loss of capacity to serve*, in the case of the rolling-stock, road-bed, terminals, round-houses, and other property and equipment of a railway common carrier, through lapse of time, but probably rather an increase in capacity and efficiency over previous years, and the property being in fact maintained in repair and excellent operating condition, as the statute requires, there is no sound reason to set up and accrue any sum for "accrued theoretical depreciation" or to require that this be done.

### The Nashville Railway Company Case

✓ The so-called "accrued theoretical depreciation" concept is in contradiction to the rulings of the United States Circuit Court of Appeals for the Sixth Circuit on December 7, 1920, in *Nashville C. & St. L. Ry. Co. vs. United States* (269 Fed., 351). In that case, the railway company had computed "depreciation" of roadway for the two years in question by the so-called "straight-line" method, taking three per cent. of the value thereof as annual depreciation on the theory that the average life of the perishable elements was thirty-three and one-third years, and had deducted the amount from gross income. The Government's contention was that there was no net depreciation in the intrinsic value of the roadway and structures considered as a unit and that the deduction should not have been made. The Circuit Court of Appeals sustained this view, quoting with approval the testimony of witnesses that "there may be depreciation in the units comprising the roadway, track and structures of the railroad, while there is no depreciation in the machine as a whole;" also that it is possible "to maintain the roadway, track and structures so that there will be no depreciation if we consider the roadway,

track and structures as a composite whole;" also that "the service life of any normally operated and well maintained railroad is perpetual and it is maintained in the condition of property serving its purpose by annual renewals and replacements."

### Contentions of the Government in the Nashville Case

Of very great interest in connection with the foregoing decision of the United States Circuit Court of Appeals are the following excerpts from *the brief filed in behalf of the United States*, by way of reply to the contention of the brief submitted in behalf of the railroad company:

"The Government admits that there would have been depreciation to the roadway of the railway for the years 1909 and 1910 after all reasonable and proper repairs merely had been made; but *the Government proved* that the renewals and replacements together with the repairs which were made, maintained the roadway, and, in fact, kept the roadway in as good or better condition at the end of each of said years as it was in at the beginning of each of said years, *and that therefore there was no depreciation.*

"It is the theory of the Government that the usefulness of roadways determines their value in use. In other words, as their usefulness is, so is their value. *If their usefulness remains the same, their value also remains the same;* if their usefulness is increased, their value is correspondingly increased; if their usefulness is decreased, their value is likewise decreased. It is obvious, therefore, that whatever increases or reduces the usefulness of railroads, correspondingly increases or re-

duces their value. In this connection, it is well known that wear and tear, etc., reduces the usefulness, and consequently the value of railroads. On the other hand, it is equally well known that repairs, renewals, and replacement of parts increase the usefulness and consequently the value of railroads. It is also well known that the occurrence of wear and tear is the occasion for repairs, renewals and replacements of parts, and that, with the roadway and other property properly managed, railway companies' wear and tear no sooner occurs than renewals and replacements are made—so that both take place simultaneously and tend to counteract or offset each other.

“When this occurs, i. e., where wear and tear suffered by railroads is sought to be offset or counteracted by repairs, renewals, and replacements of parts, one of three results must happen. First, if the wear and tear is exactly offset or counteracted by repairs, etc., the usefulness and value of the railroad remains the same and the value is said to be ‘maintained’ intact. Second, if the wear and tear is not entirely overcome by the repairs, etc., the usefulness and value are reduced and the value is said to be ‘depreciated’ to the extent of the difference between the original and present value of the railroad. Third, if the wear and tear is more than overcome by repairs, renewals, etc., the usefulness and value is ‘increased’ and the increased value is regarded as ‘an additional capital investment.’

“Counsel for the railway, on page 44 of its brief, says:

‘The fallacy in the Government’s theory is first, that it considers “betterments” as a means of offsetting depreciation. This cannot properly be done; sums for betterments are charged to capital account, not operating expenses.’

**The Government Proved There Is No “Accrued Depreciation” of Railway Property**

“The Government did not consider betterments as a means of offsetting depreciation when sums expended for betterments were charged to the capital account of the railway. The Government proved that it is an established policy of American railways not only to maintain but to improve the usefulness and value of their roadways; and to accomplish this end, it is their practice to make repairs, renewals, and replacements of parts as occasion requires, and that *as a result of such policy and practice, railways prevent or overcome depreciation in the value of their roadways as a whole and continue the service life of their roadways indefinitely.* Materials of a more modern and improved type are constantly being used in effecting renewals and replacements of a roadway which actually constitute an improvement or betterment which is not usually shown on the books, as will be shown from Mr. Isbell’s testimony, on pages 43 and 44, which is as follows:

‘I do not think the deduction made by the railway for depreciation of its roadway should be allowed because in these charges for maintenance of roadway are included items for renewals and replacements. Un-

der the income tax law, renewals and replacements should be charged not against expenses, but should be taken from a depreciation reserve, if such a reserve is on the books. It could not be taken from a depreciation reserve unless such reserve does appear on the books. Then it is not an allowable expense or deduction on the income or excise tax returns, for the reason that this renewal or replacement keeps the property to its original value. As to what I mean by original value, when the railroad replaces any item, they try to, according to my experience, make it as good or better. For instance, if a cross-tie is replaced, if they can get a better cross-tie to put in there, they do it. In the matter of what is technically known as other track material, consisting of such things as switches and frogs and things like that, they try to put in a better one if they have to replace an old one; they try to put in better ballast, if possible. In that way they not only effect a renewal, but they have an improvement or betterment, which is not usually shown on the books. Of course, if they build additional trackage, that is charged to capital account, and is an addition or betterment, and that does not enter into this question whatever \* \* \*

‘When a tie is played out, a new tie is put in place. That is called a renewal or replacement. In the same way, if a depot needs to be rebuilt, and about the same character of structure is to be built, that is called a renewal or replacement of the depot, and the same thing is true of a trestle. If the trestle is replaced as near as possi-

ble at about the same cost as the old one, that is called a renewal or replacement of that bridge or trestle.

‘If an additional track is built, for instance, a branch line is built to a new town or new territory, even if it is one mile or fifty miles long, that is called an addition or betterment. If a bridge costing \$10,000 is replaced by a new one costing \$20,000, then \$10,000 is a renewal and charged to operating expenses, and the additional \$10,000 is an addition or betterment, and that goes into the capital. It is not charged as an expense against the gross income for one year.’ ”

\* \* \* \* \*

#### The Contention of the Government as to the Effect of Renewals and Replacements

“Counsel for the railway states on page 45 of its brief as follows:

‘The Government gave no consideration to such repairs as painting a depot, putting windows in machine shops, fixing the floor of a section house—that class of repairs that prolong the life of the unit repaired but cannot totally arrest its depreciation.’

“Mr. Isbell, one of the Government’s witnesses, in his answer to the following question in regard to repairs to depots, shows very plainly that repairs are taken into consideration (see Tr., page 47):

‘Q. If a railroad company repairs a depot, by painting, for instance, will that arrest the functional depreciation that is accruing daily to take care of increased business in the future?

‘A. It arrests the deterioration of the plant. It replaces the paint. It would not arrest the depreciation of any other part. That would be arrested when that other particular part might be repaired.’ ”

\* \* \* \* \*

“Since, as Mr. McKeand stated, a railroad property is of necessity a composite property, made up of individual units, the proper and only basis upon which any sane method of depreciation could possibly be figured would be upon the composite property and not upon the millions of individual units which go to make up the composite property.

“In other words, as aptly expressed by the learned Trial Judge in his charge:

‘I further charge you, as a matter of law, construing this statute, that in that sense you should not consider each of the individual units that enter into the roadway. It was not intended to have a system of bookkeeping with reference to each particular cross-tie or each particular rail, but you should look to the value of the roadway as a whole, comparing its value at the beginning of the year with its value at the end of the year’ (Tr., page 104).

“If the statement of counsel for the railway that ‘it is undisputed that functional depreciation cannot be arrested, retarded or offset by repairs, renewals or replacements’ were correct, then it would necessarily follow that no matter how much money was expended each year on any roadway, then it would be impossible to prevent that roadway from at some time becoming absolutely worthless, and it would have to be abandoned at some time

in the future. It is a matter of common knowledge that such a catastrophe never occurs, and that if a roadway is properly maintained from day to day and month to month and year to year by the expenditure of proper amounts in making repairs, renewals and replacements, that the life of the roadway is perpetual and that the roadway will never have to be junked as a whole or entirely rebuilt."

\* \* \* \* \*

"Since the railway has admitted that its railroad is a well maintained railroad, and since one of its experts, who was called as a witness for the railway in its behalf, has suggested that 'the service life of any normally operated and normally and well maintained railroad is perpetual, and it is maintained in the condition of properly serving its purpose by annual renewals and replacements,' *it is apparent that the service life of the N., C & St. L. Ry. is perpetual and that the repairs, renewals and replacements which were made to it during the years 1909 and 1910 eliminate both functional and physical depreciation or any other kind of depreciation which would have taken place had it not been for the repairs, renewals and replacements which were made, as testified to by its Chief Engineer, Mr. Hunter McDonald.*"

#### The Basis of the 1920 Grant of Increased Freight Rates

The Interstate Commerce Commission, in granting the increase in freight rates effective last August (*Re Increased Freight Rates, 1920, 58*

I. C. C., 220), was required, as we understood it, to determine, in accordance with paragraph 3 of Section 15-A of the Interstate Commerce Act, as then recently amended, "the aggregate property value" of the railroads, upon which a percentage constituting a fair return was to be earned under rates fixed by the Commission. There was available no detailed appraisal of the railroad properties, and the carriers submitted as a basis "the book figures for investment in road and equipment, improvements on leased railway property, materials and supplies and government allocated equipment, hereinafter referred to as the book costs" (page 227).

The Interstate Commerce Commission pointed out that

"The carriers recognize the infirmities inherent in the investment accounts as carried upon the books of the carriers, as a measure of the value of the respective properties taken separately."

The aggregate amount carried as book costs of road and equipment was stated to be \$20,040,572,611 (page 228).

The Commission found that

"the value of the steam-railway property of the carriers subject to the act held for and used in the service of transportation is, for the purposes of this particular case,"

approximately \$18,900,000,000 (*Re Increased Freight Rates*, 1920, 58 I. C. C., 220, 229).

✓ The exact basis on which the Commission reduced the aggregate book investment from \$20,040,572,611 to \$18,900,000,000 was not disclosed in the published opinion, and has not since been made public; but it has seemed to us to be

obvious that the Interstate Commerce Commission took no account whatever of "expired life" or "accrued theoretical depreciation" in arriving at such an investment figure as representing a minimum value of the property for the purpose of granting emergency relief. Had any such deduction been made, the valuation would have been placed at between thirteen and fifteen billion dollars instead of at \$18,900,000,000, which was but five per cent. less than the value claimed by the carriers.

### The Knoxville Water Company Case

The *Knoxville Water Company* case (212 U. S., 1) is sometimes urged as authority supporting the view of the ultra-depreciationists. In that case, decided in 1909, the Supreme Court said:

"A water plant, with all its additions, begins to depreciate in value from the moment of its use. Before coming to the question of profit at all the company is entitled to earn a sufficient sum annually to provide not only for current repairs but for making good the depreciation and *replacing the parts of the property when they come to the end of their life. The company is not bound to see its property gradually waste without making provision out of earnings for its replacement.* It is entitled to see that from earnings the value of the property invested is kept unimpaired, so that at the end of any given term of years the original investment remains as it was at the beginning. It is not only the right of the company to make such a provision, but it is its duty to its bond and stockholders, and, in the case of a public service corporation, at least, its plain duty to the

public. *If a different course were pursued the only method of providing for replacement of property which has ceased to be useful would be by the investment of new capital and the issue of new bonds or stocks.* This course would lead to a constantly increasing variance between present value and bond and stock capitalization—a tendency which would inevitably lead to disaster either to the stockholders or to the public, or both.”

In other words, there should, of course, be at all times included in the operating expenses of a railroad or other public utility a sufficient amount to provide for the *replacement and renewal of property* as the need arises. The Court referred to “making good depreciation” synonymously with “replacing the *parts* of the property when they come to the end of their life.” This does not mean that a reserve for “accrued depreciation” based on theoretical age must be provided, if provision is made for meeting all withdrawals and replacements of property when and as the need arises. If proper provision is made in operating expenses for current replacements, and the property is kept in a high state of repair and efficiency, as railroad property is required to be maintained, both as the result of legal requirement and the exigencies of operation, the investment remains unimpaired and subject to no deduction, and no “reserve” need be set up to create a pretext for a reduction.

### The Minnesota Rate Case

In the *Minnesota Rate Case* (230 U. S., 352), the Master had made no deduction for so-called depreciation, holding that while as to certain classes of carrier property there had been depre-

ciation *in fact*, yet it was more than offset by the appreciation; that the roadbed was constantly increasing in value through having become solidified and adjusted to surface drainage, *et cetera*. The Supreme Court declined to approve this disposition of the Master, pointing out that he had also allowed a gross sum separately for adaptation and solidification of the roadbed. At page 457, Mr. Justice Hughes said:

“It is also to be noted that *the depreciation in question is not that which has been overcome by repairs or replacements*, but is the actual existing depreciation in the plant as compared with the new one. It would seem to be inevitable that in many parts of the plant there should be *such depreciation*, for example, *old structures and equipment remaining on hand*. And when an estimate of value is made upon the basis of reproduction new, the extent of existing depreciation should be shown and deducted. \* \* \* And when particular physical items are estimated as worth so much new, *if in fact* they be depreciated, this amount should be found and allowed for. If this is not done the physical valuation is manifestly incomplete, and it must be regarded as incomplete in this case. *Knoxville vs. Knoxville Water Co.*, 212 U. S. 1, 10.”

There can be little doubt as to the kind of depreciation the Supreme Court was discussing in the *Minnesota Rate Case*. It was actual deterioration, represented by old and useless buildings and equipment remaining in existence but of no utility, not equipment and buildings actually rendering service as economically and efficiently as when new. The citation by the Court in the *Minnesota Rate Case* of its prior opinion in the *Knoxville*

case reveals what was meant in the latter case even if that was not made clear in the opinion written in the earlier case itself.

In *Lincoln Gas Co. vs. Lincoln* (223 U. S., 349, 363), decided two years after the *Knoxville* case, the Supreme Court said:

“The question as to what sum, if any, upon the facts of this case, should be annually deducted from the net income as a permanent maintenance or replacement fund is novel, and presents a grave problem.”

#### Comments on the Knoxville Case

The observations of Mr. Justice Moody in the *Knoxville* case have recently been discussed, from what may be regarded as an executive and accounting point of view, rather than that of legal theory, in a letter sent to one of the members of the Interstate Commerce Commission by one of the authors of this memorandum (Mr. Carter) under date of December 7, 1920, and that communication is here quoted from in lieu of a restatement of the subject-matter thereof. After making the quotation from the *Knoxville* case set out on page 45 hereof, *ante*, the letter to the Commissioner continued:

“Writing as a layman, it does not seem to me that this expression of view by Judge Moody in his opinion in the *Knoxville Water Company* case in 1909 is necessarily to be construed as ‘the holding of the Supreme Court’ in this regard, but rather as ‘dicta’ which carries no finding of fact or force of precedent.

“It is a question whether in the discussion of this subject Judge Moody was not depart-

ing from the field of law and fact and entering that of theory and speculation and directing his attention to questions of economics and finance, regarding which, at that time, there was sharp disagreement between such students of these subjects as had ventured to express an opinion thereon. Or whether Judge Moody did not go even further than this and assume a familiar knowledge of the effect upon physical property of its employment in the public service, a phase of the subject requiring more or less technical engineering knowledge which, it must be assumed, if the Court concluded, as is alleged, that such property gradually wastes, the Court did not possess.

“Must it be assumed that the Court fell into the error of accepting as sound theories of depreciation which had nothing to commend them but their plausibility and which have long since been rejected by all sound thinkers? And if so, would it not be reasonable to subject the remarks of the Court to the closest scrutiny and analysis as to their meaning, in order to determine whether they are really susceptible of the kind of interpretation which some students of the subject are disposed to place upon them?

“It may be noted, for example, that Judge Moody’s language has been availed of by professional depreciationists as sustaining them in the application of theories of accrued depreciation designed to impair, by purely artificial means, the investment of public utilities in plant and equipment devoted to the public service. In fact, it is the only language appearing in any decision of the United States Supreme Court which even appears to sustain these destructive theories.

“There is not the slightest indication that in Judge Moody’s mind there was any thought of the impairment of the investment of utilities in their properties through the application of depreciation theories. On the other hand, the language of the Court in the paragraph quoted plainly discloses the intent of the Court to indicate the *rights and privileges* of utilities to *maintain their properties and their investment intact*. In the first sentence, for example, the words ‘the company is entitled’ are used; in the second sentence appear the words ‘The company is not bound to see its property gradually waste;’ in the third sentence the words ‘It (the company) is entitled to see that from earnings, etc., etc.,’ are used, and in the fourth and last sentence in the paragraph are found the words ‘The right of the company’ and ‘Its (the company’s) duty to its bond and stockholders, etc.;’ this sentence also indicating that in the Court’s opinion, making provision for the maintenance of the property by renewals and replacements is the public service corporation’s plain duty to the public.

“From the writer’s point of view, the thought which was in Justice Moody’s mind and which he sought to express in the form of a rule of procedure was, in substance, that the maintenance of plant and equipment by renewals and replacements was a proper charge against earnings and that the earnings should be adequate for this purpose. In other words, that the cost of such maintenance should not be capitalized. All of which is perfectly sound. In fact, it is so self evident as to lead one to inquire as to the reason for its enunciation. The answer is found in the fact that in the *Knoxville Water Company*

case the Master included in the assets of the company—in other words, in the rate base upon which the rate of return was computed—certain plant and equipment that had been superseded by other plant and equipment and had been definitely withdrawn from service. In the Court's opinion this inclusion was improper on the theory that the discarded plant and equipment should have been charged against prior earnings and not continued in capital account. The record does not disclose (1) whether the earnings had been theretofore adequate to enable the writing off of the loss due to the withdrawal in question; (2) whether, if they were inadequate, the company had the right arbitrarily and of its own motion to increase its rates and make them adequate. If the answer to both is in the negative then an obvious error was committed because the right to charge the loss against the earnings continued and provision should have been made therefor in the rate under review, which would require a slightly higher rate during the period of amortization than would be necessary to pay merely a return on the unamortized investment. If it was the Court's intention to establish a rule that the loss due to renewal and replacement of property may in no event be charged against earnings accruing after the fact, then such rule has definitely been set aside by the United States Supreme Court in the *Kansas City Southern* case.

“It has come to be generally recognized that a very large percentage of the cost of supersessional operations, commonly alluded to as ‘renewals and replacements,’ is due to inadequacy or to advancement in the science

of rendering public utility service. Some of the best informed engineers attribute from 90 to 95 per cent. of the cost of so-called renewals and replacements to these causes and from five to ten per cent. to wear and tear. This being the case it is manifest that such cost is chargeable against current or subsequent earnings and not at all to prior earnings. As a matter of fact it is almost universally provided for out of current earnings. The most recent system of accounting formulated for public utilities (\*) provides not only that the cost of renewals and replacements shall be charged against current earnings but that in case the amount involved exceeds the current provision therefor together with such balance as may appear to the credit of the renewal account it may be carried in a capital suspense account pending its amortization through the annual provision for this purpose.

“In this connection the report of the Special Master in the *New York and Queens Gas Company* case, a copy of which is enclosed, contains a discussion of the subject and of the testimony of witnesses in the case who make the exploitation of theories of so-called ‘accrued depreciation’ a matter of their bread and butter.

“The fact that the greater part of the plant and equipment of a utility has no ascertainable life and that if kept in repair it can be operated as efficiently as when it was installed until the end of time, unless for purely econ-

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(\*) Uniform System of Accounts for Gas and Electric Companies, recommended to the regulatory commissions of the various States by the National Association of State Railway and Public Utility Commissioners at its Annual Convention in Washington, D. C., November 9-12th, 1920.

omic reasons it is displaced by other plant and equipment, leads to the conclusion that if Judge Moody's conclusions were based upon the assumption that such property had a definite life which was terminated by wear and tear and that in the meantime it was gradually wasting, he was palpably and obviously in error. In this as in all other debatable subjects theory must, in the final analysis, yield to fact.

"It is not necessary, however, to ascribe error to the Court if the language used may be shown not to justify the extreme interpretation put upon it by professional depreciationists.

"The first sentence in the quoted paragraph reads as follows:

'Before coming to the question of profit at all the company is entitled to earn a sufficient sum annually to provide not only for current repairs but for making good the depreciation and replacing the parts of the property when they come to the end of their life.'

"If there is any doubt that what is meant by the last half of the sentence is that the company is entitled to earn a sufficient sum annually for *making good depreciation by replacing the parts of the property when they are withdrawn from service*, then Congress has settled the question in the Water Power Bill by providing for a depreciation reserve and defining very definitely what it is for, viz., the renewal and replacement of plant and equipment. The same bill also plainly indicates that by such renewal and replacement the investment is kept intact and unimpaired."

“The second sentence reads as follows :

‘The Company is not bound to see its property gradually waste, without making provision out of earnings for its replacement.’

“In the light of the facts before the Court in this case it may be assumed that the Court had reference to the practice apparently prevailing in that company of continuing to carry, in capital account, property which had been withdrawn from service and discarded, making no provision either at the time or subsequently for the amortization out of earnings of the investment therein, which practice would represent a wasting of assets and an impairment of the investment as measured by the property remaining in service, and that the thought in the mind of the Court was that *the cost of property displaced and withdrawn from service should be charged against the earnings.*

The third sentence reads :

‘It is entitled to see that from earnings the value of the property invested is kept unimpaired, so that at the end of any given term of years the original investment remains as it was at the beginning.’

“If a utility has been permitted to earn a sufficient sum annually to enable it to charge all property withdrawn from service against earnings and had so charged off all displaced property and has maintained the rest of its plant and equipment in good operating condition, so that at the end of any terms of years its capacity for rendering service remains unimpaired, *the original investment in*

*the plant still in service remains what it was at the beginning.* Prof. Laughlin has well referred to the investment as a *stream* of capital. As fast as water from the stream runs over the mill-wheel, it is replaced by new water. The value of the water-power is not decreased by the water that runs away.

“Judge Learned Hand, in the *Consolidated Gas Company* case last August, found as follows, in this regard:

‘ \* \* \* \* if in fact the capacity (of the plant) has remained the same, depreciation should not be a function of the “rate base” at all. In such a case the inquiry as to depreciation should be confined to changes in “price levels”.’

“Thus interpreted Justice Moody’s opinion conforms not only to sound theories of economics and finance, but to the facts regarding the operation and maintenance of the plants and equipment of public utilities.

“Shrinkage in value may not be attributed to the mere incidence of use where the article used does not deteriorate from use. Therefore, the word ‘depreciation’ applied to property which does not deteriorate from use, must have the meaning of ‘a shrinkage in value’ due to a *decrease in the price level*. Similarly the word ‘appreciation’ applied to property which does not improve from use must have the meaning of ‘an expansion in value’ due to an *increase in the price level*.

“The proposition that an investment in property, which does not deteriorate from use, begins to ‘shrink’ the moment it is made, notwithstanding the fact that the price level remains unchanged, cannot be sustained for a

moment. It is not conceivable that Justice Moody would have made such a pronouncement as this; and yet, shorn of all verbiage, this is just the interpretation which some theorists seek to place upon his utterances.

“The kind of shrinkage which Justice Moody had in mind is that which would result from failure to charge the cost of displaced property against earnings and from capitalizing the expenditures involved in supersessional transactions thus destroying the parity between *outstanding stock and bonds* and *property in actual service*, the former exceeding the latter, thus producing a *shrinkage* in the *property in service* as compared with the *capitalization*. That this was really all that he had in mind would seem to be established beyond controversy by his remarks immediately following those heretofore quoted:

‘If a different course were pursued the only method of providing for replacement of property which has ceased to be useful would be by the investment of new capital and the issue of new bonds or stocks. This course would lead to a constantly increasing variance between present value and bond and stock capitalization—a tendency which would inevitably lead to disaster either to the stockholders or to the public, or both.’ ”

#### The Kansas City Southern Case

It may further be pointed out that if, as is often urged, the Supreme Court intended in the *Knoxville* case to hold that the cost of superseded property should not be amortized from present or

future earnings, its decision in *Kansas City Southern Ry. Co. vs. U. S.* (231 U. S. 423; quoted from on page 93, *post*), must be regarded as an overruling precedent. The major part of the culminated depreciation involved in the *Knoxville* case arose from the abandonment of a water station which had cost a predecessor company \$52,000. Its withdrawal from service was attributed to the fact that it was a duplication of plant facilities, and its use by the present company was no longer economical or necessary. The position of the company before the Circuit Court was that the amount of "culminated depreciation" should not be deducted from the "rate base" unless and until the same had been amortized and provided for through the operating expense accounts (Print 202; 13th Exception, Print 191). The Circuit Court sustained this contention. The Supreme Court deducted \$50,000 for "depreciation" from the figures representing "reproduction cost new," but omitted to add anything to the expense accounts for the amortization of the sum deducted. In the *Kansas City Southern* case, nearly five years later, the Supreme Court sustained a rule of the Interstate Commerce Commission providing for the amortization by way of charge to future operating expenses of the cost of portions of a railway division withdrawn from service because of the construction of a new line with lower grades and increased capacity, holding that the cost of property thus withdrawn from service should not remain in the investment accounts and that "abandonments occasioned by changes of this character are therefore chargeable to future earnings."

## The First Consolidated Gas Company Rate Case

The case of *Willcox vs. Consolidated Gas Company* (212 U. S., 19), which was decided on January 4, 1909, the same day as the case of the *City of Knoxville vs. Knoxville Water Co.* was decided, but in which the opinion was filed on January 12, 1909, is sometimes cited as a companion case to the *Knoxville* case and in support of the contention that "theoretical accrued depreciation" should be deducted from the reproduction cost.

Any claim that the decision in the first *Consolidated Gas Company* case sustains such a theory is due to a lack of familiarity with the facts in that case, and with what the Court did in fact find and decide. The Master in that case flatly rejected the claims of fact on which "theoretical depreciation" was advanced by the defendants' witness Marks, for the first time in any rate case in Court (Master's Report, pages 35-37); Judge Hough, sitting in the United States Circuit Court, approved the Master's finding (157 Fed. Rep., 849, 856), and the United States Supreme Court expressed its concurrence with the lower court in failing to deduct so-called depreciation (212 U. S., 19, 52).

The facts in the first *Consolidated Gas Company* case, as disclosed in the record, are in brief as follows: The complainant called Frederick J. Mayer, who had been a practicing mechanical engineer for thirty-four years, and for the preceding twenty-three years had been connected with the firm of Bartlett, Hayward & Co., the largest manufacturers of gas holders and apparatus in the country. Mr. Mayer testified to a value of the plant, consisting of buildings, apparatus, holders and general connections at the stations, of \$15,532,489, after deducting the sum of \$604,988,

“for depreciation based on an examination of each individual item upon which it was computed. Such deduction represented his estimate of what would be required to place the plant in every respect in condition as good as new, and amounted in the aggregate to \$604,-988.” (Master’s Report, pages 29 to 30, 35).

A purported valuation was also put in by Mr. Henry H. Edgerton, who estimated the value of the “plant” at \$10,023,057.25; and another purported valuation was put in by William D. Marks, also called in behalf of the defendants, who estimated the value at \$9,348,692. (Master’s Report, page 29.)

The Master reported (page 31) that Mr. Edgerton and Mr. Marks

“showed no especial qualifications to testify as experts on this branch of the case. *Neither Mr. Marks nor Mr. Edgerton had recent experience in the construction of gas plants in large cities or showed familiarity with existing metropolitan conditions.* The former, some 30 years ago, was connected with the construction of a plant in St. Louis, but his practical experience in recent years has been limited to small towns in North Carolina. He has never conducted building operations or installed manufacturing apparatus in New York City. *This is the case likewise with Mr. Edgerton. His chief connection with practical gas manufacturing, aside from a small plant in Connecticut, appears to have been over 30 years ago.* Neither of these gentlemen made a careful detailed examination of the plants, and each frankly stated that the time at his disposal was entirely inadequate for the preparation of an accurate appraisal of values.”

Mr. Marks, the defendant's witness, had made a deduction for "theoretical depreciation of the proposed life of the plant," and this deduction was completely rejected by the Master, as appears from the following portion of his report (pages 35 to 37):

"Having thus obtained his total cost, Mr. Mayer made deductions for depreciations *based on an examination* of each individual item upon which it was computed. Such deductions represented his estimate of what would be required to place the plant in every respect in condition as good as new, and amounted in the aggregate to \$604,988.

"The examination made by Mr. Edgerton was of such a cursory nature that his figures for depreciation were necessarily made less carefully. In one case, for instance, he ascribed the same depreciation of 10 per cent. to new apparatus installed in 1904-5, as to old apparatus installed 15 or 16 years earlier.

"Mr. Marks did not particularly regard the extent of depreciation actually existing, but assumed a theoretical deterioration of the supposed life of the plant.

"He testified:

"*Depreciation results from several causes. The most ordinary one is decay or wear and tear, as observed. There is another factor which is inadequacy, owing to the increase of the business. There is also another cause of depreciation, obsolescence, which is due to the changes in the arts and in the methods and in the general growth of scientific knowledge; if a works built at a certain period is kept in perfect repair,*

meaning by that, always restored to their original condition, and in good working condition, there remains, assuming that, a depreciation due to both obsolescence and to inadequacy.'

"In this view he made estimates on the theory of the cost of final replacement to cover such inadequacy or obsolescence ranging from 25 per cent. to 60 per cent. and based on a supposed life of 120 years for the plant. The discrepancy between his valuations and those of Mr. Mayer is largely due to their different methods of estimating depreciation. He said:

" 'Mr. Mayer does not differ largely from my own figures of structural cost. You may say for all ordinary purposes they coincide, with the exception of the gas holders, and even there they do not differ largely. It is the question of depreciation entirely.'

" 'As will hereafter appear, *it is proper in the administration of a manufacturing plant to take depreciation of the character above described into account and provide against it by setting aside a reserve fund from current earnings. For the purpose of determining present value, however, particularly on the basis of cost of reproduction, the method followed by Mr. Marks does not commend itself.* It appears from the record without substantial dispute, that while certain of the plants and apparatus may not be in perfect repair, they are, as a whole, in efficient operating condition, and that a large proportion of their capacity is represented by the latest pattern of water gas apparatus installed within the

last few years. The books show expenditures since November, 1885:

|                                                                       |                       |
|-----------------------------------------------------------------------|-----------------------|
| For renewals offsetting depreciation by loss or abandonment . . . . . | \$1,227,683.10        |
| For repairs to buildings . . . . .                                    | 1,275,749.03          |
| For repairs to apparatus . . . . .                                    | 4,865,362.51          |
| New construction . . . . .                                            | 3,904,937.31          |
| Total . . . . .                                                       | <hr/> \$11,273,731.95 |

“The fact thus being that the plants are in good order and operating efficiently, it does not appear reasonable, for the purposes of this case, to charge them with a theoretical deficiency so great as, if actually existing, would make their successful operation a practical impossibility. An estimate of depreciation like those of Mr. Edgerton and Mr. Mayer, based on a detailed examination of the property as it stands to-day, affords in my opinion a more fair and practical method to be followed in determining its value.

“I accordingly find and report the value of the complainant’s plants to be substantially in accordance with the estimate of Mr. Mayer, a summary of which is given below; but adopting, for purposes of convenience and to allow for possible over-valuations in some details, the round figure of \$15,500,000, instead of \$15,532,489, as shown by the appraisal.”

It is true that the Master made a deduction for the amount representing Mr. Mayer’s estimate “of what would be required to place the plant in every respect in condition as good as new,” but the amount was arrived at by the actual examination of the plant and not by any theoretical esti-

mate of expired age based upon hypothetical lives attributed to the component parts of the plant or by a process of averaging which is altogether baseless and misleading.

#### The Opinion of Judge Hough in the Circuit Court

When the report of the Master in the *Consolidated Gas* case came before Judge Hough in the United States Circuit Court, he completely approved the Master's finding and his method of arriving at the value in this respect (*Consolidated Gas Co. vs. City of New York*, 157 Fed. Rep., 849, 854, 855, 856), saying:

“It appears by undisputed evidence that some of these last items of property cost more than new articles of the same kind would have cost at the time of inquiry; that some are of designs not now favored by the scientific and manufacturing world, so that no one now entering upon a similar business would consider it wise to erect such machines or obtain such apparatus. *In every instance, however, the value assigned in the report is what it would cost presently to reproduce each item of property, in its present condition, and capable of giving service neither better nor worse than it now does.* As to all of the items enumerated, therefore, from real estate to meters inclusive, the complainant demands a fair return upon the reproductive value thereof, which is the same thing as the present value properly considered. To vary the statement: Complainant's arrangements for manufacturing and distributing gas are reported to be worth the amounts above tabulated if disposed of (in commercial parlance) ‘as they are.’

“Upon authority, I consider this method of valuation correct. What the Court should ascertain is the ‘fair value of the property being used’ (*Smyth vs. Ames*, 169 U. S., at page 546, 18 Sup. Ct., at page 434 [42 L. Ed., 819]); the ‘present’ as compared with ‘original’ cost; what complainant ‘employs for the public convenience’ (169 U. S., at page 547, 18 Sup. Ct., at page 434 [42 L. Ed., 819]); and it is also the ‘value of the property at the time it is being used’ (*San Diego Land Co. vs. National City*, 174 U. S., at page 757, 19 Sup. Ct., at page 811 [43 L. Ed., 1154]). And see, also, *Stanislaus Co. vs. San Joaquin Co.*, 192 U. S., 201, 24 Sup. Ct., 241 [48 L. Ed., 406]). It is impossible to observe this continued use of the present tense in these decisions of the highest court without feeling that the actual or reproductive value at the time of inquiry is the first and most important figure to be ascertained, and these views are amplified by *San Diego Land Co. vs. Jasper* (C. C.), 110 Fed., at page 714, and *Cotting vs. Kansas City Stock Yards* (C. C.), 82 Fed., at page 854, where the subject is more fully discussed. Upon reason, it seems clear that in solving this equation the plus and minus quantities should be equally considered, and appreciation and depreciation treated alike. Nor can I conceive of a case to which this procedure is more appropriate than the one at bar. The complainant by itself and some of its constituent companies has been continuously engaged in the gas business since 1823. A part of the land in question has been employed in that business for more than two generations, during which time the value of land upon Manhattan Island has increased even more

rapidly than its population. So likewise the construction expense not only of buildings, but of pipe systems under streets now consisting of continuous sheets of asphalt over granite, has enormously advanced.

“The value of the investment of any manufacturer in plant, factory, or goods, or all three, is what his possessions would sell for upon a fair transfer from a willing vendor to a willing buyer, and it can make no difference that such value is affected by the efforts of himself or others, by whim or fashion, or (what is really the same thing) by the advance of land values in the opinion of the buying public. It is equally immaterial that such value is affected by difficulties of reproduction. If it be true that a pipe line under the New York of 1907 is worth more than was a pipe line under the City of 1827, then the owner thereof owns that value, and that such advance arose wholly or partly from difficulties of duplication created by the city itself is a matter of no moment. Indeed, the causes of either appreciation or depreciation are alike unimportant, if the fact of value be conceded or proved; but that ultimate inquiry is oftentimes so difficult that original cost and reasons for changes in value become legitimate subjects of investigation, as checks upon expert estimates or bookkeeping inaccurate and perhaps intentionally misleading. Cf. *Ames vs. Union Pacific R. R.* (C. C.), 64 Fed., at pages 178, 179. If 50 years ago, by the payment of certain money, one acquired a factory and the land appurtenant thereto, and continues to-day his original business therein, his investment is the factory and the land, not the money originally paid; and un-

less his business shows a return equivalent to what land and building, or land alone, would give if devoted to other purposes (having due regard to cost of change), that man is engaged in a losing venture, and is not receiving a fair return from his investment, i. e., the land and building. The so-called 'money value' of real or personal property is but a conveniently short method of expressing present potential usefulness and 'investment' becomes meaningless if construed to mean what the thing invested in cost generations ago. Property, whether real or personal, is only valuable when useful. Its usefulness commonly depends on the business purposes to which it is or may be applied. Such business is a living thing, and may flourish or wither, appreciate or depreciate; but, whatever happens, its present usefulness, expressed in financial terms, must be its value.

“As applied to a private merchant or manufacturer the foregoing would seem elementary; but some difference is alleged to exist where the manufacturer transacts his business only by governmental license—whether called a franchise or by another name. Such license, however, cannot change an economic law, unless a different rule be prescribed by the terms of the license, which is sometimes done. No such unusual condition exists here, and in the absence thereof it is not to be inferred that the American Government intended, when granting a franchise, not only to regulate the business transacted thereunder, and reasonably to limit the profits thereof, but to prevent the valuation of purely private property in the ordinary economic manner, and the property now under consideration is

as much the private property of this complainant as are the belongings of any private citizen. Nor can it be inferred that such government intended to deny the application of economic laws to valuation of increments earned or unearned, while insisting upon the usual results thereof in the case of equally unearned, and possibly unmerited, depreciation.

“I think the method of valuation applied by the report to land, plant, mains, services, and meters lawful.”

The United States Supreme Court, in reviewing the case, no doubt fully conscious of what it had decided the same day in the *Knoxville* case, approved the views and accepted the resultant figures of valuation reached by Judge Hough, who had, as we have seen, adopted the method of valuation applied by the Master (212 U. S., 19, 52).

#### The Decision in *Bonbright vs. Geary*

Reference is frequently made to the decision of the Special Statutory Court convened under Section 266 of the Judicial Code of the United States in *Bonbright vs. Geary* (210 Fed. 44), as sustaining the deduction of “accrued theoretical depreciation.” We do not find such a citation to be warranted. That decision was rendered in the United States District Court for Arizona, in 1913, by Morrow, Circuit Judge, and Van Fleet and Sawtelle, District Judges. The rates proceeded against were gas and electric rates prescribed by the Corporation Commission of Arizona. After quoting (210 Fed. 52) from the “uncontradicted statement” of the expert engineer for the company to the following effect:

*“Condition of Property.* The gas and electric plants of Pacific Gas & Electric Company are in good and efficient condition. All parts of the electric generating plant are modern, up-to-date installations, including turbo-generators, water-tube boilers, condensers, oil and lamp black burning apparatus, etc. There is an ample water supply obtained from wells. The new gas generating plant is a modern, up-to-date, reversible Lowe water gas apparatus. Both plants are housed in brick buildings with steel truss roofs covered with fire-proof material. Neither plant could be improved upon anywhere. The electric distributing system is the most modern type for distribution in cities of this character, and all the lines, transformers, and service equipment are of the latest, most improved type. The gas distributing system includes ample mains, well laid, the greater portion of which have been installed during the last three years. This distributing system is in the best possible condition and of the most up-to-date qualifications. The utility equipment of the company is also of the latest design, including automobile trucks and the latest office labor-saving devices.”

The Court, through Morrow, Circuit Judge, said, along lines sustaining the views hereinbefore expressed as to the proper interpretation of the *Knoxville* case:

“It would seem that, if the plant is in the condition set forth in this statement, a deduction of 49 per cent. from its original value for depreciation, or approximately that percentage, is excessive; but to what extent it is excessive we do not now determine. We call attention to the statement

for the purpose of referring to the fact that the plant appears to have been kept in repair and is now in good condition. In the *Knoxville* case the Supreme Court commended this method of preserving the integrity of a public service plant. \* \* \*

“This brings us to a peculiar feature of this case. There was on hand in the treasury of the company at the time of the valuation of the plant the sum of \$64,292.67, accumulated for the purpose of meeting the expense of current repairs and for replacing such parts of the property as had been worn out and the life of the part ended. The fund had been withheld from the stockholders that it might be used in preserving the plant in good condition and in proper efficiency. This was good business judgment on the part of the officers of the corporation and must be approved. Public service corporations are to be encouraged in maintaining their plants in a proper state of efficiency. We are of the opinion that the Corporation Commission was in error in its estimate of depreciation of this plant, and *particularly was in error in omitting this reserve fund from its valuation of the plant.*”

### The Cumberland Telephone & Telegraph Case

The decision of the United States Circuit Court in *Cumberland Telephone & Telegraph Co. vs. City of Louisville* (157 Fed. 637, 650; reversed 212 U. S. 414), does not seem to warrant the frequent references made to it by advocates of the “accrued depreciation” theory. The Court said:

“We have not been able, from anything said by the Master, to see what his reasons were for the reduction of 10 per cent. for depreciation, as shown in the above extract from his report, particularly as the large sums shown by him to have been expended for maintenance and reconstruction had, as he tells us, put the plant in excellent condition and practically equal to a new one, and had prevented any material change of its value during the 20 months the case was before him. If we eliminate the 10 per cent. reduction made by the master we find that his estimate of the value of the plant would be \$1,506,665.09, which would be \$133.88 in excess of the original cost of the plant, which he found to have been \$1,506,531.21. We think the reduction of 10 per cent. under the circumstances, *was in large measure an arbitrary reduction in the sense that it was without an adequate basis in view of the large expenditures made to keep the plant up to the standard.*”

#### California and Oklahoma Decisions Sometimes Cited as Adverse Authority

The reports filed by Ex-Judge H. M. Wright in *Contra Costa Water Co. vs. City of Oakland* (113 Pac. 668) and in *Spring Valley Water Co. vs. San Francisco* (252 Fed. 979) (1918), are often cited as giving support to the inclusion of provision for “accrued theoretical depreciation” in utility rates and the deduction of the estimated amount of such “depreciation” from the sum on which the fair return to be earned by the utility would otherwise be computed. Those who cite these earlier discussions from the erudite pen of Judge Wright

overlook the conclusions of his elaborate report as Special Master in *Pacific Gas and Electric Co. vs. City and County of San Francisco*, filed March 2, 1920 (Northern District of California; Second Division).

In the case just cited, Judge Wright said that in view of recent literature and judicial decisions the whole subject must be re-examined. He concluded that in a rate case, the matter of depreciation is a false quantity and that the real question is "When shall the charges to provide funds for replacement begin and end?"

He said:

"Unlike tables of human mortality, tables of the mortality of structural elements, founded on the experience of plants all over the country, or a table of abandonments in the plant under examination, will, all alike, be unsafe guides for prediction of future experience. For certainly, to the extent that past abandonments have occurred by reason of obsolescence or inadequacy, there can be no uniform rule, in the nature of things, and therefore no guide for forecast of the future" (page 45).

Advocates of "accrued theoretical depreciation" often cite as authority in their behalf the decision in *Pioneer Telephone & Telegraph Co. vs. Westenhaver* (299 Okla. 420) (1911). In so doing they overlook the later decision in *Pioneer Telephone & Telegraph Co. vs. State of Oklahoma* (167 Pacific 995), in which the Supreme Court of Oklahoma said, in 1917:

"We are unable to perceive the necessity for building up a fund to be used for the pur-

pose of counteracting a purely theoretical depreciation. The theory of the Commission seems to be that charges should be made in rates sufficient to counteract or prevent depreciation by replacements and that where replacements are thus fully provided for depreciation is counteracted.”

The Superior Court of Pennsylvania has recently reaffirmed its decision respecting depreciation in *Ben Avon Borough vs. Ohio Valley Water Company* case (9 Pa. Corp. Rep. 404; reaffd. *Id.*, P. U. R. 1918 A, page 161; see, also, 253 U. S. 287), in which the Pennsylvania Court said:

“Depreciation, though largely theoretical in its nature, which is allowed on the reproduction cost, seems to have a fixed place in valuation. If, however, replacements and renewals are amply provided for and made, depreciation only to a very small extent takes place. If, through depreciation, the value of the property is largely reduced, the securities which were placed thereon may be unnecessarily reduced in value. As these charges withdraw from the rate-making base, such depreciation naturally effects a purchase of a part of the property for the consumer—a thing never contemplated. A rate for renewals and replacements should be provided and expended for that purpose; when that is done, as is the custom in every utility concern, depreciation is a very small fractional per cent. This should be placed in a reserve, and it, with renewals and replacements, are properly allowable in fixing a schedule of rates.”

## Essential Purposes of the Statute and the Relation of "Depreciation Charges" Thereto

Looking at the matter from the viewpoint of fundamentals, it may be observed, at the risk of repetition in part of what has already been said ✓ herein, that the object of statutory provisions, such as are contained in Section 20, and correlated sections of the Act, is threefold: (1) to ensure to the public good, safe service, through keeping railway property in good repair and operating efficiency; (2) to protect the public from unlawful and burdensome exactions, and (3) to secure to investors in railway enterprises a fair return upon the property employed in the public service. The object in view cannot be accomplished unless an economically sound plan for the maintenance of the integrity of the property and investment through repairs, renewals and replacements be set up and followed. The application of unsound and fanciful theories leads to results most unjust to all affected. The carrier or other public utility is at all times entitled to a reasonable return on the fair value of its property, and the user of its service is entitled to service at the lowest cost consistent with efficiency of service, the defraying of operating expenses, and the earning of a fair return ✓ on the investment.

The investment of money in a railroad or utility is made to serve the needs of particular communities, usually a territory in course of growth and development. Continuous and efficient service is demanded and must be provided. Repairs are necessary as portions of units of property are worn in the service of the patrons, and the expense thereof must be currently provided in the rate. As time goes on, certain items of property which have not been affected by use or wear, must never-

theless be retired to meet the growing demands upon the system. Some are retired to effect economies; others go out because larger facilities are needed or become more economical. These processes of repair, renewal and replacement go on continuously; their combined effect is to perpetuate the railroad property as a going concern. No one thinks of a time when the entire rolling stock, structures and equipment will be retired or go out of service. The railway property is perpetuated and its efficiency maintained, and the expense thereof borne by the users.

Additions to the capacity of the system, extensions of its lines, etc., should of course be provided for by the employment of new capital invested by those having the capital to invest and not by exactions from passengers or shippers. All those expenses which are required for what are commonly known as repairs and which are currently made in the every day operation of the system to make good the parts that actually wear out in the service, should be met by the every day users of the transportation service and provided for in the rates and fares charged. The cost of items of property which are not worn out in use, but which it may become necessary to retire for other reasons, such as increases in facilities to accommodate additional shippers or passengers, or to effect the economies made possible by the progress of the art, is chargeable against the economies resulting from such retirement.

#### Reasons Why the Cost of Retirements Should Not Be Anticipated Through Accruals Based on "Life Tables"

✓ This may be made concrete by saying that outside of such portions of the rolling stock, equipment, etc., as are affected by wear and tear and

so are made good by current repairs, the great bulk and in fact substantially all the major items going to make up a railroad or utility property, are not subject to wear and tear and have lives of indefinite duration, and are continued in use indefinitely if the service conditions presented when the demand for service greatly increases do not render them *inadequate* or if economies and betterments made possible by the progress in the art do not make them obsolete, even though still rendering their original services at least as economically and efficiently as when installed. This increase often necessitates the installation of larger or different units to meet the increased demands, but otherwise their use goes on. For example, in a gas plant or steam-generating plant for electricity, the replacement of checker brick in a gas machine, the installation of new tubes in a steam boiler or a condenser, the repairing of a meter or service, the painting of a holder or a building, the replacing of a pole, the overhauling of a pump or engine, the pointing up of a wall, renewal of the slate or shingles on a roof, and the like, are all matters of *repair* which are taken care of in the everyday operation of the plant and charged to its operating expenses. In this way the consumer bears his burden of maintaining the plant in condition to render him service. It is his proper burden and should rightly be borne by him because it is his use of the service that makes the expense necessary.

But when the times comes, if it ever should come, that a length of gas main, a purifier box, a rotary converter, or a switchboard, or a part of some such unit, would need to be retired, such expense should not be put upon the past consumers, because their *use* has not made the retirement necessary. *Use* has not lessened the efficiency of

these units or created the conditions of increased demand, greater economies, or progress in the art, which lead to their retirement. The mere expiration of *time* has not created these conditions, which bear no relation to any fanciful "expired portion" of an "estimated life" of the property to be retired. The burden or expense should, as was pointed out in the opinion in the *New York & Queens Gas Company* case, quoted from on pages 26-32, *ante*, be met in another way from that followed as to current repairs, and the only just way to meet it is by placing it upon those who benefit by the change, to wit, the larger body of consumers, whose present and prospective requirements compel the change, and it is a change which would not be made were not the improvements and economies effected thereby to operate to their benefit. The expense of such retirement *adds nothing to the rate*, because being offset by economies it does not unduly burden the operating expenses. *If collected in advance, however, it would mean increased rates to those who might never derive any benefit therefrom.*

**Concrete Illustration of the Reasons Why the Rate  
Should Not Be Burdened With Charges  
Anticipating Future Retirements**

That the method above outlined produces a price such as the consumer is entitled to and may demand, and which does not overcharge him to the advantage of some future consumer, may best be illustrated by citing a typical case, which any manufacturer or utility would recognize as characteristic of the business of producing and selling commodities and service:

Smith embarks in the business of producing a commodity involving the employment of plant and

equipment representing an investment of \$100,000.

For all that he knows to the contrary, the plant and equipment in which he has invested his capital may be operated perpetually, if maintained by repairs, renewals and replacements, as occasion therefor arises.

He can produce 500,000 articles which will sell for ten cents apiece.

His gross receipts are \$50,000.

His expenses are \$40,000.

His profit is \$10,000, or ten per cent. upon his investment.

His investment is represented by:

|                 |          |
|-----------------|----------|
| Land .....      | \$10,000 |
| Structure ..... | 60,000   |
| Machinery ..... | 30,000   |

At the end of three years, he learns that an inventor has improved upon the machinery required for the production of this particular article and upon investigation ascertains that by the installation of the new machinery, at a cost of \$30,000, he can save in the operating expenses \$10,000 per annum. The new machinery is installed and the machinery with which he began business, and which is as good as it ever was, and which he might continue operating perpetually, is withdrawn from service, with the result that of his gross income of \$50,000 there is required:

|                              |          |
|------------------------------|----------|
| For expenses .....           | \$30,000 |
| For Amortization (3 years) . | 10,000   |
| Leaving a profit of.....     | 10,000   |

There is no more reason than there was in the first instance for his speculating as to the time

when new discoveries or inventions will make it profitable for him to displace his new equipment. Nevertheless, after the expiration of another three years, he again learns that improvements have been made by an inventor in the type of machinery required for the manufacture of his particular article, which will reduce his expenses \$10,000 per annum. The new machinery is installed at a cost of \$30,000 and the machinery theretofore used is withdrawn from service.

At the same time he is able, as the result of the first supersession, to reduce the price of his commodity from ten cents per article to eight cents per article, and in the seventh year his revenue statement would be as follows:

|                               |          |
|-------------------------------|----------|
| Gross receipts .....          | \$40,000 |
| Expenses .....                | 20,000   |
| For Amortization (3 years) .. | 10,000   |
| Leaving a profit of.....      | 10,000   |

At the end of the ninth year, he reduces the price of his commodity to six cents per article and thereafter until and unless some further invention justifies or necessitates another supersession transaction, his annual operations will be as follows:

|                          |          |
|--------------------------|----------|
| Gross receipts .....     | \$30,000 |
| Expenses .....           | 20,000   |
| Leaving a profit of..... | 10,000   |

During the entire ten years, there was no change in the amount of his profit. During the first six years there was no change in his price. The cost in the first three years was his operating expenses of \$40,000. During the second three years his operating expenses, including as a proper element of cost the amortization of investments in the superseded machinery, were (\$30,000

plus \$10,000) \$40,000. During the next three years (7th, 8th and 9th) his annual expenses were (\$20,000 plus \$10,000) \$30,000, which gave him, notwithstanding a decrease of two cents in the selling price per article of his commodity, a profit of \$10,000.

In the tenth year, as stated, he was able to reduce the price of the article two cents more, to six cents, reducing his gross revenue to \$30,000 and the amortization of the last withdrawal having been completed, his expenses amounting thereafter to only \$20,000, his profits continued at the rate of \$10,000 per annum on his investment of \$100,000.

For the purpose of presenting the illustration in its simplest form, the elements of interest in connection with the process of amortization and of scrap value of withdrawn machinery have been disregarded. The fact that, in order to provide for the elements of scrap value and interest on the unamortized investment during the period of amortization, the annual economy would have to be a little greater, or smaller, or the amortization period a little longer, or shorter, than the illustration indicates, has no relevancy to the principle involved.

Had this manufacturer been so misguided as to adopt so-called "theoretical depreciation" as a basis for determining the cost of his product and had he possessed actual powers of clairvoyance and been able to forecast that at the expiration of the first three years his machinery would be superseded, had he seen fit to disregard the fact that the supersession would *pay for itself*, and undertaken to collect it in advance, his selling price for the first three years would have been twelve cents per article produced, instead of ten cents.

Not only would he have been robbing Peter (his customers during the first three years) to pay Paul (his customers for the second three years) but, for reasons above stated, he would have put himself out of business altogether, since it is impossible to conceive that all of his competitors would be guilty of similar folly.

### The "Woodpile" and "Fleet-of-Taxicabs" Illustrations As Used by the Depreciationists

The "stock" arguments of the advocates of "accrued theoretical depreciation" are predicated on what may be termed the "woodpile illustration" and the "fleet of taxicabs" illustration. These fallacious illustrations were testified to at length by Milo R. Maltbie and other champions of the depreciation theory in *Consolidated Gas Co. vs. Newton, et al.* (see pages 32 to 36, *ante*), as well as in *New York & Queens Gas Company vs. Newton, et al.* (see pages 26 to 32, *ante*); and so were taken up, analyzed, and refuted in detail, before the Special Master in both those cases. We quote from the *resume* of that argument, as set forth in the brief submitted to Judge Learned Hand in the *Consolidated Gas Company* case (for his opinion, see pages 32 to 36, *ante*):

"On page 13,316 of the printed record, Professor Maltbie confused a gas-plant with a wood-pile and gave it as his opinion that the plant disappears in the same manner as a wood-pile disappears as the result of 'putting a chunk of wood into your stove right along,' and adds, 'that wood-pile is depreciating in value.' The absurdity of this illustration is at once apparent to the sound thinker. A gas plant is not treated as a wood-pile is treated. There is no analogy between the

withdrawal of wood from a pile and the operation of a gas-plant. No 'chunks' of plant are taken out and consumed for fuel nor for any other purpose. On the other hand, if any part of a plant is taken out of service it is immediately replaced—otherwise the plant could not operate. If the wood-pile were similarly maintained it would never diminish either in dimensions or in value. In other words the gas-plant is like a wood-pile to which a stick of wood is added every time one is withdrawn.

“On page 13,137 of the printed record, Professor Maltbie endeavored to improve upon the wood-pile analogy by a clumsy attempt to expound the sophistries by which it is undertaken to demonstrate that a unit of equipment when new, produces a certain store of productivity which diminishes progressively during its period of life expectancy and is finally reduced to zero. He said, ‘When you start out with anything there is a certain amount of service it will render and it has value because it will render that service. Now, as time goes on the amount of remaining service which that thing will render decreases as you go along and consequently the value of that commodity, or article, or plant, whatever it may be, decreases in value because the person who owns it has a shorter and shorter time to get service out of that plant or anything.’

#### Fallacy of the “Wood-pile” Illustration

“The falsity of this theory lies in the assumption that a gas-plant as a whole, or even 95 per cent. of the units contained in it,

actually have any ascertainable limit to productivity. In other words, their capacity to produce runs to infinity. It is only what may be termed the 'wearing parts' of a gas-plant to which may be attributed any limitation of their productivity, but the renewal and replacement of such wearing parts constitutes a proper item of operating cost and does not in any way affect the continuing productivity of the plant as a whole. The fact that the growth of a utility's business or the development in the art of producing artificial gas may require that in the interests of economy and efficiency units of equipment, which would otherwise last forever, are displaced, has nothing to do with the productivity of the unit. It is not because its period of productive usefulness has expired that it is withdrawn from service, but that the interests of economy and efficiency may be conserved that units of equipment are withdrawn. Such withdrawals, however, uniformly furnish their own economic justification. The loss involved in such withdrawals is too large to charge against the revenue for the year in which the withdrawal occurs should be charged against the revenues thereafter until the loss is amortized out of the earnings. There is no good nor plausible excuse for providing for the loss involved in such withdrawals in advance of their occurring. The reasons are several and obvious. Aside from the fact that the rates paid by the users of an improved service should bear the burden of improving the service (and this does not imply that it is ever necessary to increase a rate in order to amortize the loss involved in a replacement for obsolescence or inadequacy, for no instance of the kind is recorded), is the impossibility of forecasting

in respect of what unit of plant or equipment obsolescence or inadequacy will ultimately disclose itself and the consequent impossibility of adjusting the provision to the necessity—and even if this could be done, there would still be no justification for imposing upon the users of a given unit of plant or equipment the obligation of providing in advance for the loss involved in its ultimate displacement with no assurance that the then rate-payer would ever benefit by the transaction. In other words, an attempt to provide in advance for future obsolescence and inadequacy (which are the only causes for which units of plant and equipment are displaced) would involve not only speculation as to the amount, but would lead inevitably to a burdensome rate and to the accumulation of a useless fund which could never be used for the purpose for which it was alleged to have been created.

“Since the rate for service, if properly adjusted to cover the operating expenses, includes a fair return on the investment, including the cost of maintaining the property by renewals and replacements as and when necessary, and providing the amount necessary to reimburse the company for the loss involved by renewals and replacements on account of obsolescence and inadequacy, it is obvious that no parts of the plant diminish in value so long as they are in use. The amount recoverable in the rates for renewals and replacement of plant for obsolescence and inadequacy is the amount in each case of the investment in the unit of the plant or equipment retired. Its value, therefore, suffers no diminution or impairment during the

period that it is in use. The investor buys a plant which becomes second-hand the moment it is put in service. Theoretically, it has lost value, actually it has lost nothing, and the investment remains intact. In fact, the investment is in the plant as it may be found at any time during the period of its operation. The idea that something more than the cost of maintaining it should be collected in the rates in order to maintain the investment unimpaired has no basis in fact nor in economics. The absurdity of the theory that an investment in gas-plant becomes progressively impaired and must be compensated for by the accumulation of unnecessary funds and the charging of an unnecessarily high rate for the service is best demonstrated by considering the investment made in the distributing system. When a company has removed a necessary amount of pavement and excavated a trench four feet deep and has installed therein a gas-main and has dug laterals and made house connections and has then refilled the trench and repaved the street-opening and has expended in this process say \$1,000,000, it has, in substance, thrown that amount of money away, except as the law recognizes that the amount invested was invested in good faith to enable the utility to render a service in accordance with its franchise obligations, and that upon the amount invested it is entitled to earn a return so long as the investment remains in the property and is not refunded to the utility. So far as worth or value is concerned, independently of the franchise and the legal rights of the company in the premises, the buried mains and services have no value whatsoever. It would cost a great deal more to recover the pipe than it

was worth. It would cost more to recover it than it cost to bury it. If the questions of worth and value are to be considered independently of the question of the investment, then the utility should collect from its prospective consumers the cost of installing the mains and services before they are installed, which would, of course, be impossible. The thing has but to be stated to disclose the nonsense of it, and if it is considered that such an investment may be made by a gas company with safety and propriety, then there is no ground upon which at any time any impairment of the investment may be alleged as long as the mains and services continue to perform their function of conveying gas to consumers. Every dollar thereafter expended

✓✓ // on such mains and services becomes either a capital charge or an operating expense. If it becomes necessary, in order to meet a demand for a volume of gas in a particular section, the necessity for which could not be foreseen, to provide additional main capacity, the problem would be whether it would be better to install an additional main to the one already in use and of perhaps a corresponding size, involving the maintenance and upkeep of two mains instead of one, or of installing a single main of sufficient capacity to meet the demand and withdrawing the old main from service. The economic question presented in such a case is whether to make an additional capital investment of a given sum and charge against the revenue derived from the additional business to be obtained from the additional main capacity the interest on the capital and the cost of maintaining the main, or of amortizing the capital investment in the old main, installing a larger

main and obtaining from the earnings of the larger main the amount necessary to maintain a single main instead of two mains, to cover the amortization cost in the main withdrawn and to pay a return upon the capital invested in the single main. The problem, when solved in accordance with the facts disclosed in the particular instance, adds nothing to the rates. The company has recovered—probably out of the earnings for the current year, and certainly out of the earnings for that and one or two subsequent years—the amount of its investment in the discarded main and the entire incident discloses no ground whatever for the accumulation of any reserves nor for the application of any theory of depreciation.

“The proper method of dealing with a case of obsolescence may be briefly illustrated by citing the case of one of the Consolidated Gas Company’s affiliated companies which, in addition to doing a gas and electric business, operated a trolley line. Its equipment consisted of the conventional surface cars. The proposition was made by the engineering staff that a new type of cars known as the ‘one-man-car’ could be substituted advantageously for those in use and that the economies resulting from the saving in the use of electric current required to operate the cars and in the wages of one man, would suffice to amortize the investment in the old cars within a period of three years. Instructions were, therefore, given to dispose of the old cars at the best price which could be obtained for them and to charge the loss involved in their withdrawal from service to a capital account entitled “Unamortized investment in cars withdrawn from service;” to buy the new cars

and charge them to capital account and to charge against the operating expenses and credit to the unamortized investment in the old cars the amount of estimated savings, so as to amortize the balance of this account within a period of three years. No change was necessary in the rates in order to effect the result. This case is typical of what has been going on, in respect of all classes of public service corporations, including railroads throughout the country, for the last half century. The method of bookkeeping may have differed and different terminology may have been used, but the substance and effect of the transaction was substantially the same.

“On page 13,335 of the printed record, the Master asked: ‘How is the public interested so far as the cost of gas to the public is concerned?’ and then after Maltbie stated that there is depreciation notwithstanding the fact that a plant or property may be rendering sufficient service at the time (p. 13,336), the Master said: ‘He is entitled to have a normally efficient, up-to-date, economically operated plant, isn’t he?’

“It is to be emphasized that what the Master described is exactly what the investor has put his money into. It represents his investment unimpaired and undiminished by any theory of expired life, in other words, by so-called “accrued depreciation.”

“On page 13,377 of the printed record, in answering the Master’s question as to renewals and replacements and their being provided for in the rates, Professor Maltbie said: ‘I cannot see that they should be allowed for those repairs and disregard the other’ (depreciation) ‘because the two things

have got to be taken together.' This is not true. They have not got to be considered together and should not be taken together. The only provision required in order to continue serving the public until the crack of doom is that for maintenance and repairs, and nothing else.

### The Analogy to a "Fleet of Buses"

"The witness Maltbie was asked by counsel for the defendant Newton to explain in his own way as to 'the value of depreciation as applicable to a bus and a fleet of buses.' The explanation which follows furnishes a striking illustration of the disingenuous casuistry of the professional depreciationist. He did not take a single bus because he knows that the absurdity of a computation applied to a single bus would disclose itself immediately. He does not even take ten buses and work out his depreciation theory as applied thereto, but undertakes to make the computation more complexed and involved by assuming that at the expiration of every year new buses are added to the fleet. To put the matter simply and to show why the owner of a single bus would handle his individual problem differently from the owner of a fleet of buses and to show why in neither case, nor in the case of a gas company, there is any excuse for using a bogus formula designed for the purpose of finding something that does not exist, it is only necessary to explain that the provident operator of a single taxi-cab, who expected to continue in business after his cab became inadequate or obsolete, would set aside out of his earnings and deposit in the bank such a sum, periodically, as would, at

compound interest, equal the difference between the amount he would be able to obtain for his old cab and the amount he would have to pay for a better one. No one would question his right to collect in his fare the amount necessary to provide by the sinking fund method for the loss due to the obsolescence or inadequacy of his cab as nearly as he could compute it. No one would have the temerity to question his right, in the meantime, to collect a uniform fare for the use of his cab. It would be difficult to conceive of a situation where the operator of a taxi-cab would have to disclose to a prospective customer the period of life expectancy of his cab, the percentage of such life expectancy which had elapsed, and have his customer compute by a bogus formula called 'straight line depreciation' the extent to which his fare should be reduced below that which he was entitled to charge when his cab was new.

"The owner of a fleet of ten cabs is under no obligation to increase the number of cabs he has in service. If he started with a fleet of ten cabs he would probably have a great deal of trouble during the first year in making both ends meet. Two or three years would elapse before his profits became great enough for him to set aside in the bank, at interest, a sum designed to maintain by replacements, when necessary, a cab which became obsolete or inadequate. By no stretch of the imagination can it be assumed that his ten cabs would become obsolete or inadequate simultaneously, or that they would all be subjected to identically the same vicissitudes of vehicular operation. Furthermore, he would control his impulse to replace his cabs in accordance with his ability to do so out of his earnings.

“The results of the actual operation of his fleet would probably spread his cab renewals over a period of several years, so that each year he would have to provide, out of his savings bank fund and out of current earnings, the amount necessary to replace a discarded cab, which would probably be sold to some one less fortunate and who operated in a less exacting district than he. With these financial problems which he has to solve the public has no concern. He performs his public obligation when he provides transportation at a rate not exceeding the statutory limit, with a cab which will hold together long enough to complete the trip. The fact that he has accumulated a sum in the bank toward the replacement of his equipment, which might be large or small accordingly as he is fortunate or unfortunate, provident or improvident, could not be used as an argument in favor of a diminution of the investment in the taxicabs upon which he is entitled to earn a return. If he has set aside any money for this purpose, it is in the nature of a sinking fund and the authorities are perfectly clear that a reserve created upon the sinking fund basis may not be deemed as a measure of depreciation for any purpose. It remains to be asserted by any one who speaks authoritatively, or understandingly, that taxicab fares should be adjusted to conform to so-called ‘theoretical depreciation’ computed on the so-called ‘straight-line’ method.

“In the case of a corporation such as a gas company, with plant and equipment made up of units whose life, except for obsolescence and inadequacy, would extend to infinity, no reason discloses itself—or ever has disclosed it-

self—for the creation and maintenance even of a sinking fund for the replacement of property. As has already been made clear, the incident of obsolescence and inadequacy furnishes no excuse for burdening the rates for the purpose of creating reserves against which the loss, due to obsolescence and inadequacy, may be charged. The reason is that the rates, without such a burden, are adequate to cover the operating expenses and maintain the property and pay a fair return on the investment indefinitely. The rates without such a burden are sufficient to take care of obsolescence and inadequacy as it occurs because the ultimate effect of replacement for obsolescence and inadequacy is to reduce the cost and, eventually, to reduce the rates.

“It cannot be alleged in respect of the various units of plant and equipment of the Consolidated Company that, taken collectively, they are in any worse condition physically than they were ten or twenty or thirty years ago, or at any other period in the company’s history. As a matter of fact they were never in better condition nor rendered more efficient and economical service than they are rendering to-day, and their productivity is greater per dollar of investment than it was thirty, or twenty, or ten years ago.

“It cannot be alleged in respect of the plant and equipment of the Consolidated Company, taken as a whole, that any calculable percentage of any determinable period of life expectancy has expired. Taken collectively, the plant will last forever. Its life may be perpetuated to infinity by the renewal and replacement of parts subject to wear and tear. Its life, like that of the franchise under which

it is operated, is perpetual. It cannot be alleged that the investment in the plant and equipment of funds obtained from whatsoever source is impaired by any physical or economical process, as for example by lack of newness. The plant as it is to-day is the plant in which the funds have been invested. It cannot be alleged in respect of the investment of the Consolidated Company that there has occurred what is termed by false theorists 'capital consumption.' Such a thing is not possible in the case of a public utility like the complainant. Unlike the wood-pile, the plant and equipment are not consumed. Units of plant and equipment are being withdrawn only to be replaced immediately by other units, by which means the investment is kept intact. It cannot be alleged that the Consolidated Company has accumulated a useless reserve disguised as a depreciation reserve or as a reserve for the maintenance of its property. It has been the Consolidated Company's contention throughout that no such reserve should be accumulated; that it is contrary to public policy; that the companies do not require or desire it and that there should not be permitted in the rates any such reserve, since it involves an unnecessary enhancement thereof over the actual cost of the service, at the expense of the consumer, from which he derives no benefit."

#### Other Decisions of Courts and Commissions

If further authority be needed for such a handling of this problem as has been hereinbefore proposed, in the railroad as well as the public utility field, it would seem to be afforded by *Kansas City Southern Railway Company vs. United*

*States*, 231 U. S., 423, already referred to on page 57, *ante*. A railroad had, according to the facts before the Supreme Court in that case, been constructed to meet the needs of a new country with the minimum investment necessary. As a result, there were steep grades. With the development of the country and increased traffic it was found more economical to build a new division with lower grades and to abandon parts of the old line. The company issued bonds, with the proceeds of which it made the new construction. The question was how the cost of the new line replacing the line abandoned should be provided for and paid. The Supreme Court said, at page 451:

“The road or structures have to be replaced with stronger or more efficient instrumentalities. *Abandonments occasioned by changes of this character are, therefore, chargeable to future earnings*, for the reason that the improved condition of the road is not only designed to meet the demands of the future, but presumably will result in economies of operation, and so the resulting benefits will be reaped by those who hold the stock of the company in the present and in the future. \* \* \*

“In case, however, the amount is so large that its inclusion in a carrier’s operating expenses for a single year would unduly burden the operating expense account for that year, the carrier may, if so authorized by the Commission, distribute the cost throughout a series of years.”

In the *Havre de Grace Bridge* case (*Havre de Grace and P. Bridge Co. vs. Towers*, 103 Atl., 319; P. U. R., 1918D, page 484), the Maryland Court of Appeals characterized as “*mere guess work*” all

attempts to foretell the period of useful life of engineering structures, such as the radical depreciationists would base an accounting system upon. The Court said in part:

“No item of depreciation, as such, appears in the tabulation, though it is probably intended to be covered under the so-called ‘main depreciation reserve.’ This was based not upon any direct ascertainment of actual deterioration in the bridge structure, but upon the basis of the estimated future life of the bridge. *It is difficult to characterize this by any other term than guess work.* The engineers gave the estimate of the probable duration of such bridge from the time of its construction. This was followed up by an estimated duration of the bridge in the condition in which it was at the time when the valuation was made, and which, if correct, would show a far longer period of durability than would have been anticipated at the time when first constructed. This is a factor which under the circumstances of this case is in the highest degree speculative and impossible to measure in terms of dollars and cents, as the Commission undertook to do.

Then superadded to all of the considerations thus far noted was the following: ‘We have given consideration to the circumstances therein set up and have construed them as creating substantial equities in the public with respect to the rates of toll proper to be charged over the bridge in question.’ Just what these supposed substantial equities were the opinion of the Commission throws no light upon, but having them in mind, and after the deductions already mentioned, an allowance, and apparently a substantial allow-

ance, was made for these equities, with the result that the value of the bridge was decreased \$100,000 and its value fixed at \$250,000, and the tolls attempted to be adjusted so as to yield to the stockholders of the Bridge Company a proper return upon such valuation.

*“By a similar process of reasoning, it would have been entirely possible to have reached any valuation which might have been desired. This is not intended as in any way reflecting upon the bona fides of the intent of those constituting the Public Service Commission, either in fixing the fair value of the bridge, or the rates promulgated by the Commissioner’s order but it is important as showing that the method adopted and result obtained <sup>were</sup> was unreasonable.*

*“It is not the function of this Court either to fix the valuation of the property or the reasonableness of the rates. Its sole power and duty is to examine those rates in the light of the method by which they were obtained, and say whether in our judgment the same were reasonable or unreasonable, and, after careful consideration, we are bound to hold the action of the Commission unreasonable, and the decree appealed from must, therefore, be reversed.”*

The fundamental proposition has been stated with great clarity by the Supreme Court of Idaho in *Murray vs. Public Utilities Commission* (150 Pac., 57; P. U. R., 1915F, page 436), in reversing the ruling of a majority of the Idaho Commission and sustaining the contentions made in the minority opinion of Commissioner Ramstedt in the *Pocatello Water Company* case. The Idaho Supreme Court said in part:

“So far as the question of depreciation is concerned, we think deduction should be made only for actual, tangible depreciation, and not for theoretical depreciation, sometimes called ‘accrued depreciation.’ In other words, *if it be demonstrated that the plant is in good operating condition, and giving as good service as a new plant, then the question of depreciation may be entirely disregarded.*”

To the same effect see *Sandpoint vs. Sandpoint W. & L. Co.*, P. U. R., 1915F, page 464 (Idaho).

The Idaho Public Service Commission has subsequently rejected the “accrued depreciation” theory with great positiveness. The fair value of the property of the *Wood River Power Company*, an electrical corporation of Idaho, was fixed by the Commission, on January 10, 1921, at \$312,360.86. In arriving at this value, no deduction was made for accrued depreciation. The Commission gave its reports for this as follows (P. U. R. 1921 B, page 531):

“Depreciation is a general term used to cover all of the factors affecting the physical serviceability of a public utility property that cannot and need not be currently met, but which will ultimately force retirement or replacement. Service is not a thing of the moment, but includes the future, and the assurance that service will be continuous for so long as the users demand and are willing to pay for it. The assurance of continuance of service is of even more importance than is the service presently rendered. Business and living plans are made with regard to it. Community and district growth are affected by it, and it may be said that service to-day is a convenience, while the assurance of continu-

ous future service is a necessity. The physical serviceability of a utility's property means both its present ability to carry the load and its power of continuing in service in the future. When the property is all physically new its physical serviceability is at its highest point, but this new physical condition cannot be maintained. The passing of time—age; the development of new devices or better means of service—obsolescence; the growth of service needs in the community or district served—inadequacy—all of these contribute to the deterioration of the physical element of the property while in use. The effect of these cannot be met or offset from day to day or year to year, but in spite of repairs and upkeep cumulates to a point where retirement or replacement is necessary. When a public utility engages in the business of serving the public it assumes a responsibility for keeping its means of service in such condition that the service will not be interrupted or impaired. Its property cannot be removed and used elsewhere so long as it is needed in service, and it cannot be permitted to run down or get out of repair to a point where service is affected. Because it is not possible to meet the factor of depreciation from day to day or year to year, the full serviceability of the utility's property can be maintained only when there is a provision against the time when retirement or replacement must be made. This provision must necessarily be financial in its nature. It must be reasonably liquid so that its use, when needed, will not be unduly delayed; it must be reasonably adequate in amount, and it must be fully protected at all times. From the nature of the

obligation which rests upon the utility this provision is as much a part of the utility's property as any physical unit in it, and when present it makes the immediate physical condition of the property unimportant, as whatever may have gone from the physical through use is represented in a ready financial ability to retire or replace, when necessary. Serviceability of a going public utility is part physical and part financial, the relative importance of each factor being a matter of constant change under operation, but the total remaining unchanged."

In *Re Campbell Bros. Water Company* (case F-396; Order No. 752, February 25, 1921), the Idaho Commission made no allowance for "accrued depreciation" of a water company's property, where no "tangible depreciation" was observed and the property was in every respect in efficient "service condition."

The Wisconsin Commission in its recent cases has uniformly taken the position that depreciation should not be deducted in arriving at a rate base, lacking definite proof that the depreciation has been earned and that it has been appropriated to the investor. Notable among the decisions of this commission are those in the cases of *Milwaukee Electric Railway & Light Company, et al, vs. City of Milwaukee*, P. U. R. 1918E, page 1, and *Re Mineral Point Public Service Company*, P. U. R. 1919A, page 795, which made the following ruling:

"Rates or earnings should not be based merely on the estimated value of the property of the utility after deduction of accrued depreciation, where it does not appear that past earnings have been fully adequate to cover all proper charges."

A similar position has been taken by commissions in other states, the New Jersey Board of Public Utility Commissioners having decided, on July 17, 1919, *Re Medford Gas Company*, P. U. R. 1919E, page 707, that

“Accrued depreciation should not be deducted from the value of utility property for rate making where the net earnings have not been sufficient to provide for it together with a fair return.”

The Washington Public Service Commission in the case of *Public Service Commission of Washington vs. Kelso Water Company*, P. U. R. 1919E, page 206, recently said:

“We believe there is thought worthy of consideration in an article entitled ‘Theoretical Depreciation,’ by George N. Webster of New York, wherein he states:\*

‘The method of unsound valuation against which this article is directed may be described briefly as the “cost less depreciation” method. The “cost” may be “original cost,” “average cost,” or “present cost.” The depreciation which is deducted therefrom, and which may be said to have its origin in the concept that used property is less valuable than new property, is based upon the assumption that used property becomes uniformly less valuable during the period of its alleged life expectancy, starting at 100 per cent. value and ultimately reaching zero value. The amount to be deducted is computed by finding the ratio of the expired life to the assumed total life, and by applying that

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\*See note on page 10, ante.

ratio to the "cost;" the amount thus obtained, deducted from the "cost," is supposed to represent the "present value"

\* \* \*

'It is not conceivable that anyone could give the subject of depreciation of the kind here illustrated serious consideration without discovering its utter fallacy. That so few have raised their voices in protest against it must be attributed to the fact that few have really considered it seriously. These, who are unalterably opposed to the theory, include some economists, some members of the judiciary, a few of the Public Service Commissions, some executives of corporations, and some members of the legal, engineering and accounting fraternities. They have discovered that the question is not one of engineering, nor of accounting, but one of economics and finance and the legal protection of property rights.' "

In *Re Arkansas Light & Power Company* (P. U. R. 1920 D, page 775), the engineer testifying before the Arkansas Commission, in behalf of the municipal authorities, had filed a physical valuation of the company's electric light and power plant, based upon original cost where the figures thereof were obtainable from inquiry, and upon a ten-year average of prices prior to 1917, where original cost data was not available. The engineer then arrived at a "depreciated value" by assuming a 50-year life for the plant, and a 17-year depreciation thereof, at two per cent. a year, on a "straight-line" basis. Quoting with approval the decision of the Washington Public Service Commission in the *Kelso Water Company* case (see page 99, *ante*) and its excerpt from the Webster

monograph, the Commission concluded: "This method of valuation cannot be accepted by the Arkansas Corporation Commission," adding, significantly: "An unwise administration of regulatory law will drive capital from this field and bring on public calamity by causing the utilities to cease to function."

In *Re Gardiner Electric Light & Water Company* (P. U. R. 1920 D, page 821), the Montana Public Service Commission refused to make any deduction from a valuation based on actual investment, where no reserve had been created out of earnings and the earnings had been inadequate. The Commission intimated that a deduction for "depreciation" would be made only if the company sought to claim a return based on "appreciation," in the form of the present reproduction cost of its property.

#### Summary of Conclusions from Foregoing Decisions

X The conclusions to be drawn from the foregoing decisions may be summarized and paraphrased as follows:

If a utility's patrons have received its service at a fair price based upon *actual cost* including a *fair return on its investment*, and *not* at a price *inflated* by the arbitrary inclusion therein of a provision for *theoretical depreciation*, no deduction for depreciation should be made from the value of its property. If on the other hand, it has been so misguided as to accrue "reserves" on the "theoretical depreciation" basis and has *exactd* from its patrons an additional charge therefor, the amount thus exacted is commonly *deducted* from the value of its property.

## Basic 'Objections' to the "Accrued Depreciation" Theory

It is of course true that the practice of requiring reserves for "accrued theoretical depreciation" based on "tables of estimated lives" of railroad and public utility property, has found a measure of adherence on the part of some public officials charged with regulatory duties and also, in some instances, on the part of executives of railway and public utility enterprises. Particularly at times when public sentiment was adverse to allowing enterprises of this character to earn a rate of return really adequate, and the obtaining of money for new construction has in consequence been difficult, regulatory officials have preferred to permit utilities to fix their rates on a basis of accruing large "reserves" for so-called "depreciation" and allowing perhaps a very meager return on the property, over and above the amount of such reserves. Utility managers have short-sightedly been willing to avail themselves of this method of securing *from their patrons* a fund which can be invested in new construction, especially where the net effect is to allow the utility to exact from its patrons, over and above *actual* operating charges (including the actual cost of repairs and the retirement of property) a much more liberal sum than the regulatory officials would feel it politically prudent to allow in any other guise.

Taking advantage of this short-sighted view on the part of these utility managers, propagandists of radical views, who are often found in the staffs of regulatory commissions and sometimes in their membership, urge and advocate the accrual of still larger "reserves" on this hypothetical basis. They know that, in addition to giving them a pretext for keeping the rate of return down to a

point deemed politically prudent, it also gives them a basis, *sooner or later*, for asserting two contentions that accord fully with their radical tenets:

(1) That the railway or utility having accrued a large "reserve" for "depreciation" on the theory that a corresponding part of the "useful life" of its property has "expired" and been reduced by the flight of time, and the amount of such "depreciation" in "value" having been collected, year by year, *from the rate-payers*, the company cannot be heard to claim that its property has not "depreciated" in "present value" to that extent, and the amount of such "reserve," invested usually in existing property of the railway or utility, must be deducted from the aggregate amount on which the company would otherwise be entitled to have a fair return computed.

(2) For similar reasons, whenever these radical propagandists feel that public opinion is favorable to their peculiar views, they loudly advocate governmental acquisition and operation of the property, claiming that the government can secure the same more cheaply because *the rate-payers* have been contributing annually to a *piecemeal purchase* of the property, through the creation of a "reserve" that has been collected from them, over and above operating expenses and a fair return.

Thus the utility and railway managers who countenance the "accrued theoretical depreciation" concept, and the regulatory officials who acquiesce in its adoption, are lending themselves

to the confiscation of property and the overthrow of regulation. We submit, on the basis of the general American experience:

(1) That the setting up of "depreciation reserves" based on "life tables" leads inevitably to an unjust and burdensome inflation of the rate charged to patrons and to the accrual of reserves vastly greater than are actually necessary to make provision for the retirements of property as and when they occur.

(2) That when reserves are 'set up and accrued on this basis, the amount of such reserves constitutes the minimum amount which is sooner or later deducted from the sum on which the company would otherwise have its fair return calculated, and would in any event be deducted from the sum which the government would pay for the property upon any acquisition of the same.

(3) That this deduction is made in complete disregard of the fact that even including the net balance in such reserves as a part of the sum earned by the enterprise over and above actual operating charges, the aggregate figures still constitute less than the fair return which the enterprise was constitutionally entitled to earn upon the fair value of its property.

(4) That where the matter of retirement expense is treated in a sound way, on the basis of actual outlays therefor, charged against operating expenses, none of these confiscatory consequences rise up to plague the enterprise and deprive its investors of their constitutional rights.

The Brooklyn Borough Gas Company Case and Other  
Recent New York Rulings

The foregoing views may be fortified by the examination of other judicial decisions, in addition to those already quoted from. The decision of Ex-Justice Charles E. Hughes, as Referee in *Brooklyn Borough Gas Company vs. Public Service Commission for the First District* (17 State Dept. Rep., 81, 103, 104), is sometimes cited as a claimed precedent for a deduction of "accrued depreciation" from the reproduction cost of property. In that case, the distinguished Referee simply deducted from the reproduction cost of the property, as found by the Public Service Commission and *as entered by the Company in its fixed capital account as the book cost of its property*, the amount which the company itself carried in the general reserve account entitled "Accrued Amortization of Capital," representing the "total extent of accrued depreciation according to the *plaintiff's* estimate."

The Referee observed that:

"There is *no evidence whatever to impugn* the correctness of this estimate of the accrued depreciation or of the propriety of the annual additions to the depreciation reserve, or the correctness of the total estimate of accrued depreciation by the account known as 'accrued amortization of capital' as it stood on December 31, 1917."

The Referee stated the basis of his action to be that:

"There is simply deducted the amount of *its own estimate* of the accrued depreciation in its plant (17 State Dept. Rep., 81, 103)."

The New York Public Service Commission for the Second District, while following Judge Hughes' view that the reserve must be deducted where the company has itself created such a reserve, ruled recently that *when no "depreciation reserve" has been created by the company, no deduction for depreciation should be made from fixed capital*. If the company has itself created and carries on its books such a reserve, the Commission held that the amount thereof is of necessity deducted by the State regulatory body in arriving at the *quantum* of property investment upon which the company is entitled to earn a return. In *Complaint against Binghamton Light, Heat & Power Company* (24 State Department Reports, 651, at page 655), the Public Service Commission for the Second District, in a unanimous opinion by Commissioner Irvine, held:

"The company has failed to set aside as a depreciation reserve as much as was recommended by the Commission in a capitalization case in 1916. Its books now show a reserve of \$170,830.67. The books indicate that this has all been reinvested in plant and should, therefore, be deducted from fixed capital in obtaining a rate base. It is claimed that the deduction should be on the basis recommended. While the Court of Appeals has, in a case relating to this very company, emphatically declared the necessity of such a reserve (*People ex rel. B. L. H. & P. Co. vs. Stevens*, 203 N. Y., 7), it has also declared that the Commission is without power to impose upon a corporation any specific requirement therefor (*People ex rel. N. Y. R. Co. vs. P. S. C.*, 223 N. Y., 373). As the Commission may not directly impose such a requirement it would seem that it may not indi-

rectly do so by charging arbitrarily against the fixed capital a non-existent reserve sufficient to meet its ideas of what should properly have been set up. Nothing has been taken from the public on this account beyond the amount actually set up and there has been no obsolescence or retirement decreasing the efficiency of the plant or not reflected in credits to fixed capital."

See, also, *Hoffman vs. Elmira Water, Light & Railroad Company* (N. Y. Pub. Serv. Comn, 2nd Dist.; January 22, 1920; P. U. R. 1920 D, page 266; *Ibid*, P. U. R. 1921C, page 409); *Re New York State Railways* (N. Y. Pub. Serv. Comn, 2nd Dist.; P. U. R. 1921C, page 496). In both the cases last cited, the Commission refused to deduct "accrued depreciation" from the "original cost" of the utility property, but based such action, at least in part, on a finding that the "present value" of the property was at least the investment therein, without deduction.

### In Conclusion

The adoption of *theoretical* depreciation as the basis of the provision to be made by common carriers for the "depreciation" referred to in the Act, finds no justification in sound principles of economics or finance. Its adoption would be contrary to public policy and would do more to destroy public confidence in railroad securities than any other suggestion that has come from the camp of those at heart opposed to private ownership and operation under adequate public regulation. If enforceable, it would wickedly burden railroad rates with a fictitious expense when they are already overburdened with legitimate operating expenses compelling rates so high as to menace

the industries and commerce of the country. It would in effect, be to play into the hands of Federal ownership fanatics at a time when the people have unqualifiedly placed their disapproval on governmental ownership and have retired its strongest advocates from office. We protest, therefore, that the Interstate Commerce Commission would have no right or reason to put the seal of its apparent approval upon a *theory*, which, if carried to its logical conclusion, would result in the virtual confiscation of billions of dollars invested in railroad property, this being the real aim and purpose of the proponents of this theory. Nor would the Commission be warranted in adopting a theory against which virtually every Court, regulatory commissioner, economist and financier, who has given it careful and thorough consideration, has ruled unqualifiedly, and which the Commission may not legally enforce after it has adopted it. We protest against any action by this Commission giving to this obsolete and discredited theory any manner of support.

When the question of the form and substance of the regulations to be prescribed under Section 20 reaches the stage of discussion and hearing by and before the Commission, we shall be glad to be advised of any opportunity to participate in such a discussion, to the end that no fictitious inclusions in the operating expenses of carriers may be permitted to augment avoidably the transportation costs which our companies must in turn pass on to their many consumers.

Respectfully submitted,

ROBERT A. CARTER,

WILLIAM L. RANSOM.

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