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## INCONSISTENCIES IN PUBLIC UTILITY DEPRECIATION

*Robert D. Hawn\**

VOLUMES have been written<sup>1</sup> on the subject of public utility depreciation.<sup>2</sup> Involving, as it does, principles of accounting, economics, engineering and law, the subject is highly controversial. Certainly it is an important factor in public utility regulation. Annual depreciation,<sup>3</sup> which may be included in expenses to be covered by

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<sup>1</sup> The most recent addition to the field is MASON, *PRINCIPLES OF PUBLIC UTILITY DEPRECIATION* (1937) (American Accounting Association).

<sup>2</sup> Depreciation is defined in *Lindheimer v. Illinois Bell Telephone Co.*, 292 U. S. 151 at 167, 54 S. Ct. 658 (1933), as follows: "Broadly speaking, depreciation is the loss, not restored by current maintenance, which is due to all the factors causing ultimate retirement of the property. These factors embrace wear and tear, decay, inadequacy, and obsolescence."

Other definitions of depreciation are: (1) "Briefly, depreciation consists of the consumption of property in service." WISCONSIN PUBLIC SERVICE COMMISSION, *DEPRECIATION* 4 (1933). (2) ". . . depreciation is the loss in service value not restored by current maintenance and incurred in connection with the consumption or prospective retirement of property in the course of service from causes against which the carrier is not protected by insurance, which are known to be in current operation, and whose effect can be forecast with a reasonable approach to accuracy." Telephone and Railroad Depreciation Charges, 177 I. C. C. 351 at 422 (1931). (3) "Depreciation, as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be considered are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities, and, in some cases, the exhaustion of natural resources." Report of the Special Committee on Depreciation, 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMS. 441.

More concise definitions frequently used for depreciation are: "expired capital outlay," "an allocation of the entire cost of depreciable assets to the operating expenses of a series of fiscal periods," "the loss in total intrinsic value of a unit or item of structural property in its existing position and relationship as part of a utility plant," and "decline in value in use of fixed tangible assets, particularly buildings and equipment."

<sup>3</sup> Annual depreciation is the allowance charged by a utility against its operating expenses in order to retain, out of its profits, assets to provide for future retirement of property consumed in the public service. In *Lindheimer v. Illinois Bell Tel. Co.*, 292 U. S. 151 at 167, 54 S. Ct. 658 (1933), Chief Justice Hughes said: "Annual depreciation is the loss which takes place in a year. In determining reasonable rates for supplying public service, it is proper to include in the operating expenses, that is, in the cost of producing the service, an allowance for consumption of capital in order to maintain the integrity of the investment in the service rendered."

rates charged,<sup>4</sup> amounts to from twenty to twenty-five per cent of total operating expenses, exclusive of taxes, in the case of electric and telephone utilities.<sup>5</sup> Accrued depreciation,<sup>6</sup> which must be deducted for rate base purposes,<sup>7</sup> would amount to only slightly less than fifty per cent of the total depreciable value of the depreciating properties of a mature utility company if calculated by the straight-line method.

The interest of public utility operators in securing a large return for their investors leads them to seek the greatest possible annual allowance for depreciation and the smallest deduction for accrued depreciation which is permissible. In their efforts to increase the one and to minimize the other, they insist that the accrued depreciation in the utility's properties at any given date is determined by the per cent efficiency thereof, though this may be only a small fraction of the sum of past annual depreciation provisions on that property as shown by the depreciation reserve<sup>8</sup> on the books. Some courts have accepted this inconsistent view without any apparent reservation.<sup>9</sup> In other cases the inconsistency between past annual depreciation and present accrued depreciation is approved, but adjustment in future annual depreciation

<sup>4</sup> Knoxville v. Knoxville Water Co., 212 U. S. 1, 29 S. Ct. 148 (1909); Lindheimer v. Illinois Bell Tel. Co., 292 U. S. 151, 54 S. Ct. 658 (1933).

<sup>5</sup> 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMRS. 425.

<sup>6</sup> Accrued depreciation is the total amount of depreciation existing in a unit of property at a given time as a result of the accumulation of depreciation from the date of acquisition of the property. It has been defined as follows: "the amount of value which the property has lost in the *past*—or the difference between its 'brand new' and 'present fair' value." WELCH, CASES ON PUBLIC UTILITY REGULATION 493 (1932) [2d ed., 544 (1936)].

<sup>7</sup> Railroad Commission of Louisiana v. Cumberland Tel. & Tel. Co., 212 U. S. 414, 29 S. Ct. 357 (1909); McCardle v. Indianapolis Water Co., 272 U. S. 400, 47 S. Ct. 144 (1926); Southern Bell Tel. & Tel. Co. v. Louisiana Public Service Comm., 187 La. 137, 174 So. 180 (1937).

<sup>8</sup> In accounting for depreciation at the close of each fiscal period, the accountant makes an entry charging depreciation expense and crediting an account called reserve for depreciation. This depreciation expense account is then used in determining the net income and, to the extent that income is thus reduced, the amount which might otherwise have been paid in dividends is decreased. It is only in this way that the accounting for depreciation has any effect upon assets available to care for replacements. The reserve for depreciation account accumulates over the life of the depreciating asset as a result of these periodic entries for depreciation. On any given date the reserve for depreciation account will show the amount which it is estimated the depreciating property has declined in value and the amount of assets withheld from availability for dividends because of the depreciation accounting. For a more complete consideration of this matter, see MASON, PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION 27-46 (1937).

<sup>9</sup> State ex rel. Laclede Gas & Light Co. v. Public Service Comm., 341 Mo. 920, 110 S. W. (2d) 749 at 773 (1937).

is required in order to prevent excessive increases of the depreciation reserve in the future.<sup>10</sup> A few cases even go so far as to permit future annual depreciation only in such amounts as will provide a reserve at the time of retirement equal to the loss sustained at that time.<sup>11</sup>

Misled by their own loose use, in the field of rate regulation, of the term "value,"<sup>12</sup> which in the economic sense derived its meaning from unregulated transactions involving the sale and use of property, the courts have proceeded to draw a specious analogy between eminent domain and rate regulation in attempting to apply the unreal doctrine of "fair value" enunciated in *Smyth v. Ames*.<sup>13</sup> One result is that courts largely disregard past annual depreciation in determining accrued depreciation because such past allowances are conceived to have no effect on "present fair value." Such a view fails entirely to recognize the regulated nature of utility operations and leads to depreciation practices and policies inherent with injustice to the public where intentional or honest errors result in excessive annual depreciation allowances, or with injustice to the utility where too meager annual depreciation has been taken.<sup>14</sup> It would seem that some consistent principles of annual and accrued depreciation should be adopted to the end that these injustices may be eliminated.

Depreciation is a matter of valuation and of the determination of the cost of rendering public service.<sup>15</sup> It is only incidentally related to replacements,<sup>16</sup> and accounting for depreciation will not necessarily provide for replacements.<sup>17</sup> Since depreciation does have to do primarily with valuation and determination of the cost of rendering

<sup>10</sup> *Wisconsin Tel. Co. v. Public Service Comm.*, (Wis. 1939) 287 N. W. 167.

<sup>11</sup> *Re New York Tel. Co.*, (N. Y. Pub. Serv. Comm., State Div. 1936) 14 P. U. R. (N. S.) 443.

<sup>12</sup> Kauper, "Wanted a New Definition of the Rate Base," 37 MICH. L. REV. 1209 at 1215 (1939), points out the failure of the United States Supreme Court to give a satisfactory explanation of the meaning of fair value." See also NEW YORK COMMISSION ON REVISION OF PUBLIC SERVICE COMMISSIONS LAW, MINORITY REPORT 250 (1930) (N. Y. Leg. Doc. 75).

<sup>13</sup> 169 U. S. 466, 18 S. Ct. 418 (1898).

<sup>14</sup> In the first case the public will have contributed to the capital of the utility, but will have no claim therein. *Board of Public Utility Comms. v. New York Tel. Co.*, 271 U. S. 23, 46 S. Ct. 363 (1926). In the latter situation the utility must nevertheless deduct accrued depreciation as "found" at the date of the valuation though it far exceeds the balance of the reserve for depreciation account.

<sup>15</sup> COLE, *THE FUNDAMENTALS OF ACCOUNTING* 107-108 (1921). See also the dissent of Justice Brandeis in *United Railways & Electric Co. of Baltimore v. West*, 280 U. S. 234 at 255, 50 S. Ct. 123 (1930).

<sup>16</sup> MASON, *PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION* 27-40 (1937).

<sup>17</sup> *Ibid.*, 44-46.

service, and since capital devoted to public utility use is subject to regulation, it would seem that consistency in principles is not only desirable but attainable. It is the purpose of this article to examine the cases decided by the courts and by the regulatory commissions of the various jurisdictions to determine the manner in which this consistency may be achieved.

#### DEPRECIATION ACCOUNTING PRIMARILY A COMMISSION PROBLEM

There is evidence in the early cases of a complete lack of understanding of depreciation and an unwillingness to consider it as an element of operating expense except as renewals might be charged thereto.<sup>18</sup> Even so late as 1903 we find the United States Supreme Court, speaking through Justice Holmes, saying:

“We will say a word about the opposite contention of the appellant, that there should have been allowance for depreciation over and above the allowance for repairs. From a constitutional point of view we see no sufficient evidence that the allowance for six per cent on the value set by the supervisors, in addition to what was allowed for repairs, is confiscatory.”<sup>19</sup>

The six per cent allowance was for return on capital and therefore no depreciation was allowed. Such a view could only be maintained on a theory that the property, so long as it remains in service, is worth as much as when new. Proponents of this theory are cited by Bonbright and the fallacies of their arguments exposed.<sup>20</sup>

With the development of the commission system of regulation, the necessity for consideration of depreciation has gradually attained full recognition. Affecting, as it does, both the operating expenses and the rate base, it cannot be disregarded. It was therefore inevitable that the regulatory commissions should assume or be given control over the depreciation practices and policies of public utilities.<sup>21</sup> In the exercise of this control two legal issues arise. First, has the commission authority to prescribe methods of depreciation accounting? This may depend upon the statute under which such action is attempted and upon judicial decisions concerning the exercise of such authority under the due process clause. Federal statutes quite generally authorize the federal com-

<sup>18</sup> WISCONSIN PUBLIC SERVICE COMMISSION, DEPRECIATION 69 (1933).

<sup>19</sup> San Diego Land & Town Co. v. Jasper, 189 U. S. 439 at 446, 23 S. Ct. 571 (1903).

<sup>20</sup> 2 BONBRIGHT, THE VALUATION OF PROPERTY 1128 (1937).

<sup>21</sup> MASON, PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION 41 (1937).

missions to prescribe accounting methods.<sup>22</sup> State statutes have also authorized their commissions in similar respects.<sup>23</sup> Justice Brandeis, in his dissenting opinion in the *United Railways* case<sup>24</sup> cites numerous state commissions which have prescribed rules of depreciation accounting procedure requiring the maintenance of book records of cost of property and the calculation of depreciation on the basis of such book cost. Commissions long ago discovered that effective regulation of rates requires supervision over accounting methods, and depreciation accounting particularly requires this. As appears elsewhere in this article,<sup>25</sup> depreciation and maintenance are closely related, and duplication of charges in the accounts for these may easily occur in the absence of clear-cut rules as to what items must be charged to repairs and what treated as replacements. The latter involve an adjustment of the reserve for depreciation account after removal of the original asset from the property account with an addition thereto of the new item. Likewise the requirement that annual depreciation be calculated on original cost of the property has seemed essential in view of the impossibility of an adequate annual revaluation of the utility property.<sup>26</sup>

The courts have seen no cause to deny jurisdiction to the commissions to prescribe reasonable accounting regulations.<sup>27</sup> It is true that

<sup>22</sup> Interstate Commerce Act, 49 U. S. C. (1935), § 20 (5); Federal Communications Act, 48 Stat. L. 1064 (1934), 47 U. S. C. (1935), § 220.

<sup>23</sup> See the brief of the United States, Amicus Curia, in *Driscoll v. Edison Electric Co.*, 307 U. S. 104, 59 S. Ct. 715 (1939), for citation of state statutes, Appendix D, p. 139.

<sup>24</sup> *United Railways & Electric Co. of Baltimore v. West*, 280 U. S. 234, 50 S. Ct. 123 (1930).

<sup>25</sup> *Infra*, page 170.

<sup>26</sup> See NEW YORK COMMISSION ON REVISION OF PUBLIC SERVICE COMMISSIONS LAW MINORITY REPORT 353-355 (1930) (N. Y. Leg. Doc. 75).

<sup>27</sup> In *New York Edison Co. v. Maltbie*, 271 N. Y. 103, 2 N. E. (2d) 277 (1936), the New York Court of Appeals seems to throw doubt on this issue by upholding a lower court order to the New York commission to change certain rules, including that for straight-line depreciation, prescribed in its "Uniform System of Accounts for Gas, Electric, Steam, Water and Bus Companies." The court held that under the statute providing that the Public Service Commission should "have power, in its discretion, to prescribe uniform methods of keeping accounts, records, and books" to be observed by public utility corporations, the commission could not prescribe that straight-line depreciation methods be followed, and that accounts be rewritten on the basis of original cost and excess of book cost over original cost be transferred to a suspense account and written off against income or surplus. This, it is said, would be prescribing uniform methods of management rather than uniformity as to book entries in respect to what the company may do. This applies to the writing off of the suspense account. As to the requirement of straight-line depreciation, the argument was that the regulation was ultra vires. Following this case, the New York Supreme Court, Appellate Division, Third Department, held in two cases, *Long Island Lighting Co. v. Maltbie*,

the Supreme Court in *Board of Public Utility Commissioners v. New York Telephone Co.*<sup>28</sup> sustained an injunction against rates prescribed by the New Jersey commission in a case where the commission had found an excessive depreciation reserve and had attempted to remedy the situation by limiting depreciation charges to an amount less than accruing depreciation so as to cause a gradual disappearance of the excess in the reserve. Likewise it is true that in the *United Railways* case the United States Supreme Court seemed, temporarily at least, to establish the rule that annual depreciation must be calculated on present fair value and not upon cost. However, these were confiscation cases and the question of a commission's jurisdiction to prescribe accounting regulations was not a basic issue. In 1913 the Supreme Court upheld the power of commissions to require amortization of losses from abandonment of property as an accounting regulation.<sup>29</sup> Mr. John E. Benton, General Solicitor for the National Association of Railroad and Utility Commissioners, at the 1938 convention of that association quoted from three United States Supreme Court cases<sup>30</sup> to indicate support for the view that the courts will not attempt to compel state commissions to fit their depreciation accounting regulations to the particular rule respecting depreciation which the Court follows in determining whether rates are confiscatory.<sup>31</sup> These cases, and the comment

249 App. Div. 918, 292 N. Y. S. 807 (1937), and *Yonkers Ry. v. Maltbie*, 251 App. Div. 204, 296 N. Y. S. 411 (1937), that the straight-line method was not erroneous where there is factual foundation for its adoption in a rate case. The earlier case seems to go strictly on statutory grounds.

<sup>28</sup> 271 U. S. 23, 46 S. Ct. 363 (1937).

<sup>29</sup> *Kansas City Southern Ry. v. United States*, 231 U. S. 423, 34 S. Ct. 125 (1913).

<sup>30</sup> *Norfolk & Western Ry. v. United States*, 287 U. S. 134, 53 S. Ct. 52 (1932); *State Corporations Comm. v. Wichita Gas Co.*, 290 U. S. 561, 54 S. Ct. 321 (1933); *Los Angeles Gas & Electric Co. v. Railroad Commission of California*, 289 U. S. 287, 53 S. Ct. 637 (1933).

<sup>31</sup> The latest word of the Supreme Court on the judicial function in cases of this sort is as follows: "When the rate-making agency of the State gives a fair hearing, receives and considers the competent evidence that is offered, affords opportunity through evidence and argument to challenge the result, and makes its determination upon evidence and not arbitrarily, the requirements of procedural due process are met, and the question that remains for this Court, or a lower federal court, is not as to the mere correctness of the method and reasoning adopted by the regulating agency, but whether the rates it fixes will result in confiscation." *Railroad Commission of California v. Pacific Gas & Electric Co.*, 302 U. S. 388 at 393-394, 58 S. Ct. 334 (1938). In interpreting this as respects depreciation, the three-judge statutory court to which this case was returned for findings said: "Notwithstanding the decision of the Supreme Court in that case [*Board of Public Utility Commrs. v. New York Tel. Co.*, 271 U. S. 23, 46 S. Ct. 363 (1937)] that an excessive depreciation reserve belonged to the

of the Court in *American Telephone & Telegraph Co. v. United States*<sup>32</sup> appear adequately to warrant the statement of Mr. Benton that a commission, in order to insure against its rate order being set aside by the Court as the result of its action in prescribing depreciation accounting rules, must

“fix rates upon a level which will yield a total revenue large enough to cover operating expenses, as the court may compute them, including depreciation, as the court may compute depreciation, plus a return at such rate as the court may consider fair, upon a value which the court may fix as the reasonable minimum upon which a return should be permitted.”<sup>33</sup>

It is this fixing of rates at an adequately high level which raises the second legal issue of commission control over depreciation policies and practices. While it may be true, as has just been pointed out, that due process is not violated by reasonable regulatory measures respecting depreciation, the commissions must not lose sight of the fact that the courts have the final word as to what may properly be included as operating expense and what is to be considered the rate base in cases involving the constitutional issue of confiscation through inadequate rates. It is therefore requisite that, in fixing rates in reliance on such

Company and could not be utilized by the Board of Public Utilities to eke out its estimate of income in later years, the Supreme Court has recently in a number of cases recognized the use of a sinking fund to take care of the annual and accrued depreciation. *Clark's Ferry Bridge Co. v. Public Service Commission*, 291 U. S. 227, 54 S. Ct. 427 [(1934)]; see also *Dayton Power & Light Co. v. Public Utilities Commission*, 292 U. S. 290, 54 S. Ct. 647 [(1934)]. . . . The court held that there was no confiscation of property inherent in such a plan and that the question of whether or not the allowance of depreciation thus made was reasonable was one of fact to be determined, in the first instance, by the rate making body. . . . This method, it will be observed, takes no account of the fluctuating value or cost of the various elements entering into the property but assigns to each a value (its cost when acquired by the Utility Company, if prudently acquired) which remains constant during its entire life. There is no place in such a rate making plan for use of the present value of the property, or average value, as determined from cost of reproduction new or otherwise. It follows that, as the costs decrease, thus decreasing the present value of the property, the depreciation allowance fixed by the Commission would be too high, and as the reproduction costs increase the allowance will be too low. But the task of the court to determine whether or not a rate is confiscatory relates to the value of the property at the particular time when the rates under attack are to be effective. The question of confiscation is determined for this period by the return on the present value, notwithstanding the fact that a different method may have been used by the rate making body in arriving at its conclusion.” *Pacific Gas & Electric Co. v. Railroad Commission of California*, (D. C. Cal. 1938) 26 F. Supp. 507 at 522-523.

<sup>32</sup> 299 U. S. 232, 57 S. Ct. 170 (1936).

<sup>33</sup> 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMRs. 266.



accounting regulations as may be prescribed, the commissions give due regard to judicial opinion as to the amounts to be allowed for annual depreciation and to be deducted for accrued depreciation. In any case they must of course afford an opportunity for full hearing with the privilege of offering evidence and making argument if the issue of inadequacy is raised. A sufficiently high rate may overcome an inadequate depreciation allowance in operating expenses or an excessive deduction for accrued depreciation resulting from particular accounting procedures prescribed, but the rate will be sufficiently high only when the commission recognizes the error in the procedure and takes it into account when setting the rate. It is necessary, therefore, to consider what rules, if any, the courts apply in regard to depreciation.

One further point is to be noted concerning the character of public utility depreciation as essentially a problem for the regulatory commissions. If a utility contends rates prescribed by a regulatory body in its quasi-legislative capacity are unconstitutional, the courts place the burden on the utility to show in what way the rate is unconstitutional.<sup>84</sup>

The above factors, together with the fundamental fact that the legislatures have quite generally given plenary authority to the commissions to regulate, give to the cases reported from the various regulatory commissions and which present the views of competent, fair-minded officials based upon direct contact with the practical problems involved in rate regulation, an importance for our purposes second only to the decisions of the United States Supreme Court on the constitutional issues involved. They may even in some ways show the direction in which future decisions of the Court may be expected to go.

## THE ANNUAL DEPRECIATION ALLOWANCE

### *Justification of Inclusion in Operating Expenses*

As has been said, the *Knoxville* case<sup>85</sup> established the right of the utility to include depreciation in the determination of the total return to be provided by consumers. Justice Moody, speaking for the Court in that case, said:

“It [the utility company] 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 stock-

<sup>84</sup> *Lindheimer v. Illinois Bell Tel. Co.*, 292 U. S. 151, 54 S. Ct. 658 (1933).

<sup>85</sup> *Knoxville v. Knoxville Water Co.*, 212 U. S. 1, 29 S. Ct. 148 (1909).

holders, and, in the case of a public service corporation at least, its plain duty to the public.”<sup>36</sup>

The Court here seems to rest this duty on the need to provide for replacements, and says if the utility does not make this provision and does not exact sufficient returns to cover it “whether this is the result of unwarranted dividends upon overissues of securities or of omission to exact proper prices for the output, the fault is its own.”

Several issues raised by the above quotations remain unanswered by the words of the Court. The Court does not make clear whether the “original investment” to be kept unimpaired is the dollar investment or the real capital represented by the dollars originally invested in particular property. In other words, it does not indicate what is to be used as the basis for the annual depreciation allowance. Neither does it appear clearly just what is meant by the “duty” of the utility to provide for depreciation, nor what elements are to be included in annual depreciation. The basis for annual depreciation and the “duty” to provide for depreciation will be considered later. At present we are concerned with what the courts say as to the nature of depreciation, whatever the basis for its computation may be. Nothing in the *Knoxville* case indicates that anything more than lack of “newness” of the properties was involved in the meaning there attached to the term. Certainly the Court had in mind, however, more than deferred maintenance, since it speaks of provision for replacement. In the vast majority of cases in the courts, the issue of accrued depreciation receives almost exclusive attention, and one must search for crumbs of wisdom concerning the annual depreciation allowance. As a result of the prevailing inconsistencies, it is impossible to imply any applicable rule for annual depreciation from what may be said concerning accrued depreciation.

The United States Supreme Court in the *United Railways* case did consider specifically the matter of the annual allowance, though particularly from the point of view of the proper “basis” for the computation of the charge. It seems of little help, however, on the question of just what elements are involved in the allowance. The court stated:

“One of the items of expense to be ascertained and deducted is the amount necessary to restore property worn out or impaired, so as continuously to maintain it as nearly as practicable at the same level of efficiency for the public service. The amount set aside periodically for this purpose is the so-called depreciation allowance. . . .

<sup>36</sup> *Ibid.*, 212 U. S. at 13-14.

The utility '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.' . . . This naturally calls for expenditures equal to the cost of the worn out equipment at the time of replacement."<sup>37</sup>

The Court thus reaffirms the *Knoxville* case decision and adds a basis for the annual allowance. It is not difficult to construe this terminology as applying only to loss of physical efficiency, or at most to this plus deferred maintenance. But utility attorneys concede no such limitation on *annual* depreciation allowances, and the commissions appear always to have admitted depreciation in an amount larger than deferred maintenance.

An Oklahoma case gives a better statement of the purpose of the annual depreciation allowance:

"As to the amount of expenditures made to take care of current repair and maintenance, there is no controversy; but appellant contends that it should be permitted to earn annually, in addition to the amount necessary to make current repairs, a sum sufficient to make good the annual depreciation, and to replace the parts of property when they become so deteriorated as to be no longer usable. All the evidence is to the effect that there is at all times going on in a plant of this character a depreciation that cannot be overcome by repair. It is rare that any physical property impaired by time and use can be so repaired as to be equivalent to the same property new."<sup>38</sup>

This comment clearly leaves room for the inclusion of all loss of service life through use, whatever the cause. It emphasizes the fact that while the plant as a composite of changing parts of varying ages may continue in service, nevertheless its parts suffer from deterioration and depreciation in the lessening of their service life, so that the plant as a whole suffers depreciation.

In laying down the definition of depreciation in the *Lindheimer* case<sup>39</sup> the United States Supreme Court was speaking particularly of annual depreciation. This definition clearly embraces loss of service value through operation of obsolescence factors. Where the effect of

<sup>37</sup> *United Railways & Electric Co. of Baltimore v. West*, 280 U. S. 234 at 253-254, 50 S. Ct. 123 (1930), quoting from *Knoxville v. Knoxville Water Co.*, 212 U. S. 1 at 13-14, 29 S. Ct. 148 (1909).

<sup>38</sup> *Pioneer Tel. & Tel. Co. v. Westenhaver*, 29 Okla. 429 at 451, 118 P. 354 (1911).

<sup>39</sup> *Lindheimer v. Illinois Bell Tel. Co.*, 292 U. S. 151 at 167, 54 S. Ct. 658 (1933).

such factors in terminating service life can be foreseen with reasonable certainty, a utility need have no fear of exclusion of provision therefor in the annual allowance.<sup>40</sup> Clearly such allowance may be taken when retirement has been made necessary by any of these factors.

What has been said here concerning depreciation and the foreseeability of retirement does not completely answer the questions as to the nature of the annual depreciation charge and factors included in its determination. Further light will be thrown upon this problem when we consider the "duty" to provide for depreciation, and the procedure permitted when unexpected retirements are necessitated for one cause or another. Also, in discussing the methods of calculating annual depreciation, further thought is given the matter of prediction of retirements.

### *Depreciation and Maintenance Closely Related*

There is a close relationship between repairs and depreciation. No absolute line can be drawn between repairs, which in effect are simply minor replacements, and the major replacements which occur only at longer intervals and for which annual depreciation expense allowances are made. It is certain, however, that the same theory as to the dividing line must underlie both repair and depreciation treatment. Otherwise, duplication of expense charges may occur and the depreciation reserve may increase unduly because charges thereto for retirements will not be as great as assumed at the outset when the predictions underlying the annual depreciation provision were made. This principle is recognized by the United States Supreme Court<sup>41</sup> together with other bodies.<sup>42</sup> In addition, it is readily seen that the span of life which may be expected of any depreciating property may be extended, within limits, by a progressive policy in the handling of repairs and mainten-

<sup>40</sup> *Simpson v. Shepard* (Minnesota Rate Cases), 230 U. S. 352, 33 S. Ct. 729 (1913); *Kansas City Southern Ry. v. United States*, 231 U. S. 423, 34 S. Ct. 125 (1913); *Denver v. Denver Union Water Co.*, 246 U. S. 178, 38 S. Ct. 278 (1918); *Lindheimer v. Illinois Bell Tel. Co.*, 292 U. S. 151, 54 S. Ct. 658 (1933); *Public Service Comm. v. United Railways & Electric Co. of Baltimore*, 155 Md. 572, 142 A. 870 (1928), appeal dismissed *United Railways & Electric Co. of Baltimore v. West*, 278 U. S. 567, 49 S. Ct. 79 (1930); *Cheltenham & Abington Sewerage Co. v. Public Service Comm.*, 122 Pa. Super. 252, 186 A. 149 (1936).

<sup>41</sup> *Lincoln Gas & Electric Light Co. v. Lincoln*, 223 U. S. 349, 32 S. Ct. 271 (1912); *Dayton Power & Light Co. v. Public Utility Comm.*, 292 U. S. 290, 54 S. Ct. 647 (1934); *Lindheimer v. Illinois Bell Tel. Co.*, 292 U. S. 151, 54 S. Ct. 658 (1933).

<sup>42</sup> *In re Rates of Queens Borough Gas & Electric Co.*, 2 N. Y. Pub. Serv. Comm. Rep. 544 (1911); *Printing Co. v. Madison Gas & Electric Co.*, 4 Wis. R. R. Comm. Rep. 501 (1910).

ance. It was on the basis of this fact, and the company's claim that it had always kept its property in a high state of repair, that the Court in the *Lindheimer* case was brought to deny the company's concurrent claim that its annual depreciation charge, taken during the period of controverted rates, should be allowed though it exceeded the amount allowed by the Court in the prior appeal and had produced a reserve greater than the observed depreciation as estimated by the company.

In view of the intimate relationship existing between depreciation and maintenance, the suggestion has been made that consideration be given to a joint provision for the two.<sup>43</sup> Under such a plan, repairs would be charged to the depreciation and repairs reserve and no attempt would be made to relieve the property account of the cost of any minor replacements involved. Major replacements would continue to be handled by adjusting the asset and reserve accounts. Cost of the new item would be added to the asset account. Such treatment would not only give full recognition to the relationship between depreciation and maintenance. It would also lead to a fuller consideration of the propriety of what otherwise appears to be an excessive depreciation allowance in the early years of the life of a given property, while repair costs are slight, as compared with the charge in later years when repairs have become heavier. Perhaps some such plan is required to avoid the dilemma of the utility in *Galveston Electric Co. v. Galveston*,<sup>44</sup> where the company was denied permission to charge off over a future period deferred maintenance which had accumulated during the war because of the government's request that materials and labor be released for war purposes.

Further consideration of increasing repair costs as offsets to early heavy charges for depreciation will appear under the discussion of methods of calculating the annual depreciation allowance. While considerable merit may be found in a joint provision for depreciation and maintenance, Mason himself points out that it is little used and only one state commission has used it as a matter of general policy, though others have prescribed it in isolated cases.<sup>45</sup>

So long as the provision for annual depreciation and that for repairs are kept separate, it is essential that the regulatory commission prescribe clear-cut rules concerning treatment of replacements. Other-

<sup>43</sup> MASON, PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION 82 (1937).

<sup>44</sup> 258 U. S. 388, 42 S. Ct. 351 (1922).

<sup>45</sup> MASON, PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION 82 (1937). A related plan was allowed in *Dayton Power & Light Co. v. Ohio Public Utility Comm.*, 292 U. S. 290, 54 S. Ct. 647 (1934), in which a reserve for maintenance and a special maintenance fund was given approval.

wise the opportunity mentioned above for duplication of charges exists. Steps in this direction have been taken by the National Association of Railroad and Utility Commissioners, the Federal Power Commission and the Federal Communications Commission.<sup>46</sup> The Interstate Commerce Commission has long recognized this close relationship between depreciation and maintenance and has applied rules governing the handling of repairs and replacements. Of course the recommendations of the National Association of Railroad and Utility Commissioners amount to nothing more than recommendations to the various state commissioners, but they are given considerable weight by the state commissioners and they do indicate the trend of commission opinion.

### *The Basis for the Annual Depreciation Charge*

The methods by which the annual depreciation charge is calculated and the bases for computation of the charge have given rise to extended discussion. So far as the Supreme Court of the United States is concerned, it seemed that the base to be used had finally been determined in the *United Railways* case.<sup>47</sup> It is difficult to see just what the Court means by "expenditures equal to the cost of the worn out equipment at the time of replacement,"<sup>48</sup> since the replaced property is not being acquired at the time the annual depreciation allowance is computed. Moreover, the ultimate replacement may not in fact be identical or even similar in nature to the old property. Of course, the determination of the depreciation under such a rule involves all the difficulties that arise in determining fair value for rate base purposes, except that these difficulties must now be dealt with each year by the commissions and the utilities.

<sup>46</sup> 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMRS. 447.

<sup>47</sup> *United Railways & Electric Co. of Baltimore v. West*, 280 U. S. 234, 50 S. Ct. 123 (1930).

<sup>48</sup> *Ibid.*, 280 U. S. at 253-254. The Court said, in answer to the Maryland commission's contention for original cost which the lower court had denied: "One of the items of expense to be ascertained and deducted is the amount necessary to restore property worn out or impaired, so as continuously to maintain it as nearly as practicable at the same level of efficiency for public service. The amount set aside periodically for this purpose is the so-called depreciation allowance. Manifestly this allowance cannot be limited by the original cost, because, if values have advanced, the allowance is not sufficient to maintain the level of efficiency. The utility 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. . . . This naturally calls for expenditures equal to the cost of the worn out equipment at the time of replacement; and this for all practical purposes means present value. It is the settled rule of this Court that the rate base is present value, and it would be wholly illogical to adopt a different rule for depreciation."

In the *United Railways* case Justice Brandeis gave a vigorous dissenting opinion supporting original cost as the basis for the annual depreciation allowance. Justice Holmes joined in this dissent and Justice Stone wrote a separate dissenting opinion agreeing with Justice Brandeis on the method of ascertaining depreciation. Justice Brandeis admittedly opposed the fair value rule for rate purposes.<sup>49</sup> However, he said that acceptance of that doctrine does not require that the depreciation charge be based on present value of plant:

“For, an annual depreciation charge is not a measure of the actual consumption of plant during the year. No such measure has yet been invented. There is no regularity in the development of depreciation. It does not proceed in accordance with any mathematical law. There is nothing in business experience, or in the training of experts, which enables man to say to what extent service life will be impaired by the operations of a single year, or of a series of years less than the service life. . . . The depreciation charge is an allowance made pursuant to a plan of distribution of the total net expense of plant retirement.”<sup>50</sup>

The purposes of the annual depreciation allowance, he said, are three in number: (1) to preserve the integrity of the investment, (2) to distribute equitably over service life the only expense of plant retirement which is capable of reasonable ascertainment—original cost less salvage, and (3) to facilitate determination of financial results of the period's operations.

It should be pointed out that Justice Brandeis' views as to annual depreciation are hardly compatible with a complete acceptance of fair value as a rate base. Presumably the same principles and theories apply to the determination of depreciation for whatever purpose it is made, and if depreciation based on present fair value cannot be reasonably ascertained for annual depreciation purposes it cannot be for purposes of deduction from fair value new for rate base purposes. Preservation of the integrity of the investment, as has been seen,<sup>51</sup> depends solely upon what is meant by “investment,” and ascertainment of financial results of operation is no more important than determination of finan-

<sup>49</sup> See the dissenting opinions by Brandeis in *Missouri ex rel. Southwestern Bell Tel. Co. v. Public Service Comm.*, 262 U. S. 276 at 289, 43 S. Ct. 544 (1923); and in *St. Louis & O'Fallon R. R. v. United States*, 279 U. S. 461 at 488, 49 S. Ct. 384 (1929).

<sup>50</sup> *United Railways & Electric Co. v. West*, 280 U. S. 234 at 262, 264, 50 S. Ct. 123 (1930).

<sup>51</sup> *Supra*, p. 168.

cial condition. Thus, it appears how inconsistent it is to use fair value for rate base purposes and accrued depreciation, while cost is used in calculating annual depreciation. Justice Brandeis' dissenting opinion is, therefore, as much a criticism of the fair value rule for rate base and accrued depreciation purposes as it is of the use of fair value in determining annual depreciation. There would appear to be no sound reason for saying that a return is to be allowed *on* one investment and at the same time provide for a return *of* another investment to the utility investors. This is giving two different meanings to what is obviously the same factor in two phases of rate determination.

The Virginia Supreme Court took the view<sup>52</sup> that the Supreme Court of the United States in the *Lindheimer* case impliedly overruled the *United Railways* case on the necessity of basing the annual depreciation allowance on present fair value. Others have expressed the same view.<sup>53</sup> Original cost had been used by the company in calculating the annual depreciation allowance in the *Lindheimer* case under rules laid down by the Interstate Commerce Commission in its "Uniform System of Accounts for Telephone Companies." The Supreme Court of the United States compared the accumulation in the reserve resulting from this calculation with what was considered to be the amount of accrued depreciation, and in view of the disparity between the two figures held that the company had not, with such depreciation charges included in the operating expenses, shown the prescribed rates to be confiscatory.<sup>54</sup> This case is not clear authority for cost as the base for annual depreciation. The matter of the proper base was not an issue. However, the Virginia court specifically relied upon the case in allowing annual depreciation based on cost while using present fair value as the rate base. In contrast, the Missouri Supreme Court held in 1937 that the

<sup>52</sup> *Alexandria Water Co. v. Alexandria*, 163 Va. 512, 177 S. E. 454 (1934).

<sup>53</sup> MASON, PRINCIPLES OF PUBLIC UTILITY DEPRECIATION 107 (1937); 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMRS. 460.

<sup>54</sup> Chief Justice Hughes, speaking for the Court, says: "If the predictions of service life were entirely accurate and retirements were made when and as these predictions were precisely fulfilled, the depreciation reserve would represent the consumption of capital, on a cost basis, according to the method which spreads that loss over the respective service periods. But if the amounts charged to operating expenses and credited to the account for depreciation reserve are excessive, to that extent subscribers for the telephone service are required to provide, in effect, capital contributions, not to make good losses incurred by the utility in the service rendered and thus to keep its investments unimpaired, but to secure additional plant and equipment upon which the utility expects a return." *Lindheimer v. Illinois Bell Tel. Co.*, 292 U. S. 151 at 168-169, 54 S. Ct. 658 (1933).



annual allowance must be on fair value.<sup>55</sup> The *United Railways* case was cited as authority and no mention of the *Lindheimer* case was made.

Justice Brandeis in his dissenting opinion in the *United Railways* case said a depreciation charge based on original cost had been uniformly applied by the public utility commissions of the several states when determining net income, past or expected, for rate-making purposes.<sup>56</sup> For this he cited authority from eleven states. The classifications of accounts of many states require cost to be used. In addition to the eleven states whose commissions were said by him to require cost, Justice Brandeis listed ten others whose classifications of accounts required it.

The *United Railways* case has influenced some state commissions. The year before the Virginia case, and before the decision in the *Lindheimer* case, the Maryland Public Service Commission had ruled that it was bound by the *United Railways* case to use present fair value as the base for annual depreciation.<sup>57</sup> Likewise the New York (State Division),<sup>58</sup> the Montana,<sup>59</sup> and the Washington<sup>60</sup> commissions have all accepted fair value in recent cases.<sup>61</sup> In so doing the New York Commission said:

“Reproduction cost is not capital. It is equivalent to investment only in rare cases; so rare there seem not to have been any instances of record. When prices have risen to a higher level or have fallen to a lower level than existed at the time the various parts of the property were built, reproduction cost departs from the

<sup>55</sup> State ex rel. Laclede Gas Light Co. v. Public Service Comm., 341 Mo. 920, 110 S. W. (2d) 749 (1937).

<sup>56</sup> *United Railways & Electric Co. of Baltimore v. West*, 280 U. S. 234 at 273, 50 S. Ct. 123 (1930).

<sup>57</sup> *Re Chesapeake & Potomac Tel. Co.*, (Md. Pub. Serv. Comm. 1933) 1 P. U. R. (N. S.) 346. The Rhode Island Commission in a case decided January 7, 1939 ruled that prudent investment was to be used for both annual and accrued depreciation purposes and for the rate base (*Division of Pub. Utilities v. Naragansett Elec. Co.*, 27 P. U. R. (N. S.) 106 (1939)). Massachusetts has followed this view for years and California has used historical cost. Wisconsin is also said to have followed one or the other of these theories. Kauper, “Wanted: A New Definition of the Rate Base,” 37 MICH. L. REV. 1209 at 1231, note 58 (1939).

<sup>58</sup> *Re Long Island Lighting Co.*, 18 P. U. R. (N. S.) 65 (1936).

<sup>59</sup> *Re Big Horn Oil & Gas Dev. Co.*, (Mont. Pub. Serv. Comm. 1938) 27 P. U. R. (N. S.) 41.

<sup>60</sup> *Department of Public Works v. Oregon-Washington Water Service Co.*, (Wash. Dept. Pub. Works 1934) 8 P. U. R. (N. S.) 293.

<sup>61</sup> New York and Montana are among the states listed by Brandeis as requiring cost to be used. Washington is not. Arizona, another state not listed by Brandeis, required fair value to be used in *Re Central Arizona Light & Power Co.*, (Ariz. Corp. Comm. 1934) 6 P. U. R. (N. S.) 49.

basis of investment. So far as reproduction cost is an element in determining the value of the property upon a given date, that value departs from investment; and any depreciation charge computed upon reproduction cost or rate base under such circumstances does not meet the requirements laid down by Mr. Chief Justice Hughes, namely, "to maintain the integrity of the investment."<sup>62</sup>

The commission uses the "base cost" (apparently the New York equivalent for present fair value) in spite of this comment. It says there is little difference in this case between the depreciation calculated on original cost and on base cost and adopts base cost. Presumably it felt bound to do this regardless of the amount of the difference.

Just what position the majority of the commissions will take in view of the *United Railways* case and the interpretation placed by the Virginia court on the *Lindheimer* case is difficult to predict. Many commissions still appear to follow cost. In reading the cases one gets the impression that the commissions see nothing inconsistent in the use of a rate base conforming to the rule in *Smyth v. Ames* (with a deduction for accrued depreciation supposedly in conformity therewith) and at the same time the allowance of annual depreciation on original cost. It was to be expected that the *United Railways* case would awaken them to this problem, but the cases do not indicate any difficulty in many states on this score. Apparently any inconsistency that arises here is permitted to merge into the more obvious inconsistency that arises between annual depreciation, on whatever basis it is taken, and the accrued depreciation claimed by the utilities on an "observed depreciation" basis. It may be the commissions feel that progress toward a sound treatment of depreciation can best be reached one step at a time, and that an insistence upon the calculation of the depreciation reserve on a reproduction cost basis for deduction as accrued depreciation is at present simply more than they can hope for.<sup>63</sup> While this is a possible explanation of the refusal to observe and remedy this inconsistency in bases for annual and accrued depreciation, the more potent reason may be the reluctance of the commissions to concede the validity of the present fair value theory itself in rate regulation. Any support to be

<sup>62</sup> Re Long Island Lighting Co., 18 P. U. R. (N. S.) 65 at 190-191 (1936).

<sup>63</sup> What is said here has to do with necessary increase of a depreciation reserve accumulated on a cost basis to an equivalent percentage of reproduction cost new. Obviously in any case where present prices were above cost, conversion of the reserve in this manner would result in an increase, thus establishing more dollars of accrued depreciation than shown by the reserve.

found for cost as a basis for the annual allowance in the *Lindheimer* case seems likewise to rest upon an unexpressed distaste for the fair value doctrine.

The commissions are not alone in favoring original cost as a basis for the annual depreciation charge. As pointed out by Justice Brandeis in the *United Railways* case, original cost is followed for income tax purposes, it is the practice of public accountants to use it, the Chamber of Commerce of the United States has approved it, and corporate securities are issued, bought, and sold, and vast loans are made daily, in reliance upon statements which use original cost as the depreciation base. In addition, it is recognized and applied by many other official agencies besides the regulatory commissions.

### *Methods of Determining Annual Depreciation*

It is not the writer's purpose to consider all the many different methods of calculating the annual depreciation charge for the various periods during service life of an asset. Proponents of different plans have brought forth theories for increasing annual charges, for decreasing annual charges, for charges varying with revenue or with operations, charges based upon interest calculations, charges dependent wholly upon observation and appraisals, and many other theories. In public utility regulation only four methods have received any real consideration. These are: the renewal or replacement method, the retirement reserve method, the sinking-fund method, and the straight-line method. Only the last two of these are true depreciation accounting methods. The renewal or replacement method takes no account of loss of service value except upon replacement of property, while the retirement reserve method provides retirement expense charges in advance of replacement solely as a means of equalizing and providing for replacement costs and not because of any recognition of depreciation. These four methods will be explained and considered from the point of view of their relationship to the problem of consistency in depreciation theories.

The renewal or replacement method treats the cost of equipment purchased for replacement as an operating expense and preserves the original record of the first cost in the property account. If no replacement is made, no expense appears for retirement of property. No advance provision is made for loss of service value as the property is used. Obvious defects exist in such a method. The periods benefited by use of property are not charged with the consumed value thereof; replacements may not be in kind and may be made at costs materially

higher or lower than the cost of the original property; some property may never be replaced, thus becoming a permanent part of the rate base though no longer in effective use. The matter of consistency is irrelevant to this method, since the rate base is not made to depend in any way upon what has been charged to operating expenses. It does show full value of property for rate base purposes and allows no charge to operating expense for old property now in use. Its only consistency lies in its complete disregard of depreciation accounting, both for rate base purposes and for operating expense purposes.

The retirement reserve method, which is advocated by the utilities today, is predicated upon the theory that depreciation is a replacement problem and that the reserve is necessary merely as a means of equalizing retirement costs and not as a means of recording exhausted service capacity or value.<sup>64</sup> It has been adopted by a number of state commissions for certain types of utilities in accordance with the uniform system of accounts adopted by the 1922 convention of the National Association of Railroad and Utility Commissioners. This method, of all the four methods mentioned above, approaches most closely the engineer's theory of depreciation. Under it, charges to operating expenses are irregular, often depending upon the amount of earnings, and additions to the reserve may be made from surplus.<sup>65</sup> In the words of the Wisconsin Public Service Commission:

“the provision for retirement losses under retirement accounting becomes largely a matter of financial expediency, only by accident represents the actual consumption of property, misstates the current cost of production and may inequitably shift depreciation cost among customers in different years, and affords no reliable standards for commissions to judge the adequacy or reasonableness of the amounts recovered for consumption of property.”<sup>66</sup>

On the grounds of consistency, the retirement reserve method has in its favor that the *amount* of the retirement reserve is more nearly in line with the observed depreciation which the utility will claim as accrued depreciation than the amount of the reserve under straight-line or sinking-fund accounting for depreciation. This result, however, can be traced to the utility's anticipation of small replacement requirements

<sup>64</sup> MASON, PRINCIPLES OF PUBLIC UTILITY DEPRECIATION 72 (1937).

<sup>65</sup> Nash, “Depreciation Accounting Methods for Public Utilities,” 1929 PROC. INTERNAT. CONG. ON ACCTG. 307. See also, Nash, “The Forgotten Man in the Depreciation Controversy,” 14 PUB. UTIL. FORTN. 506, 569 (1934).

<sup>66</sup> WISCONSIN PUBLIC SERVICE COMMISSION, DEPRECIATION 34 (1933).

and is due to chance rather than recognition by the utilities of any need for consistency in theories of annual and accrued depreciation.

As strict accounting methods of dealing with annual depreciation, the straight-line method and the sinking-fund method are the two most prevalent, and the only ones which have received consideration by either the courts or the commissions to any great extent. Straight-line accounting is the more common with utilities using true depreciation accounting.<sup>67</sup> On the score of consistency between annual depreciation and accrued depreciation, the sinking-fund method would, if handled as the authorities in the past have almost uniformly treated it, appear to have the advantage. Practically all the authorities, until very recently, have agreed that where this method is followed for annual depreciation no deduction need be made from the rate base for accrued depreciation.<sup>68</sup> The deduction of accrued depreciation for rate base purposes under the newer sinking fund method<sup>69</sup> is due to the altered amount taken as annual depreciation, as compared with that taken under the older form of this method, and not because of disagreement with the refusal to make the deduction under the older form.

According to the sinking-fund method in its older form, which is the usual conception of the method, there is determined the equal annual amount of money which, invested at the close of each year during the use of the property, with compound interest at an assumed rate, will yield a total sum at the expected date of retirement equal to the depreciation base (total depreciable value on whatever theory of value is adopted for depreciation purposes). This amount is then considered the annual depreciation, and the reserve is increased periodically by this amount with offsetting charges to depreciation expense. However, this amount would be insufficient in itself to accumulate a reserve equal to the depreciable value of the property by retirement date because the interest is not included in this entry. An additional credit is therefore made to the reserve each year in the amount of the interest at the assumed rate on the theoretical fund accumulated from past annual depreciation and interest thereon. The offsetting charge for

<sup>67</sup> Report of the Special Committee on Depreciation, 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMRS. 448.

<sup>68</sup> WISCONSIN PUBLIC UTILITIES COMMISSION, DEPRECIATION 85 et seq. (1933); MASON, PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION 87 et seq. (1937); Clark's Ferry Bridge Co. v. Pennsylvania Public Service Comm., 291 U. S. 227, 54 S. Ct. 427 (1934); Kooker v. Perkasio Sewer Co., (Pa. Pub. Util. Comm. 1938) 27 P. U. R. (N. S.) 461. A contrary view is taken in Idaho Power Co. v. Thompson, (D. C. Idaho, 1937) 19 F. (2d) 547.

<sup>69</sup> *Infra*, page 180.

this credit is to operating net income or to surplus. Since the assets retained from net income by these charges are the property of the utility and since the earnings on these assets belong to it, there is need to permit the utility to maintain the entire value of the depreciating property in the rate base in order to allow a return sufficient to offset the addition to the reserve which it must make out of its earnings or surplus.

The consistency in the sinking fund method on the score that no deduction for accrued depreciation is made for rate base purposes would not exist under the procedure recently recommended to be followed in applying the sinking-fund method. According to this view, the rate of interest used for sinking fund calculations would be the same as that allowed as a rate of return and there would be included in the annual depreciation charge the amount of the so-called interest on the reserve balance instead of requiring the utility to provide this part of the addition to the reserve out of operating net income or surplus.<sup>70</sup> Obviously there is no justification for failure to deduct the accrued depreciation for rate base purposes here, and the question of consistency arises as it does in the straight-line method.

Even under the earlier form of the sinking-fund method, the depreciable value, which is used to define the aggregate amount of the accumulation from the annual depreciation, must be in agreement with the property value used for rate base purposes (less salvage, of course); otherwise the inconsistency emphasized by the United States Supreme Court in the *United Railways* case exists. To make these two bases agree it would be necessary, under the fair value rate base doctrine, to recompute the annual depreciation annuity each time the rate base changed because of a change in prices. The same applies to the straight-line method, of course.

Under the straight-line method of accounting for annual depreciation, the total depreciable value of the property is divided by the number of periods in the estimated service life of the property and the resultant figure is the periodic depreciation. It is called "straight-line" because when the depreciating value of the property is plotted on a time chart it declines in a straight line from original depreciable value when purchased to scrap value at estimated retirement date. Under

<sup>70</sup> Report of the Special Committee on Depreciation, 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMRs. 440-441. This report does not clearly explain the reasons for the adoption of this procedure. For further explanation of the reasons which apparently induced the recommendation of change, see MASON, PRINCIPLES OF PUBLIC UTILITY DEPRECIATION 87 et seq. (1937).

either the straight-line or sinking-fund methods the reserve for depreciation will, at estimated retirement date, just equal the depreciable value of the property.<sup>71</sup>

So far as the annual depreciation is concerned, both the straight-line and the sinking-fund method have received approval by the commissions,<sup>72</sup> and by the courts.<sup>73</sup> The great majority of the commissions have adopted the straight-line method.<sup>74</sup> The reasons for its approval, as given in the Report of the Special Committee on Depreciation of the National Association of Railroad and Utility Commissioners, are as follows: (1) it is simpler and easier to apply than the sinking-fund method, which really requires a unit basis of calculation because of the importance of the time factor in this method; (2) excessive and deficient accruals of depreciation are not so serious as under the sinking-fund method; (3) later years are not burdened more than earlier years as under the sinking-fund method which fails to take into account

<sup>71</sup> This would be true for an individual unit of property. The sinking-fund reserve would grow by smaller amounts than the straight-line reserve in early years, and by larger amounts than the straight-line reserve during late periods of use. It would always be less than the straight-line reserve until the close of the last period of predicted use.

<sup>72</sup> Straight-line: *Re Bronx Gas & Elec. Co.*, (N. Y. Dept. Pub. Serv., State Div. 1937) 24 P. U. R. (N. S.) 65; *Re Brooklyn Borough Gas Co.*, (N. Y. Dept. Pub. Serv., State Div. 1937) 21 P. U. R. (N. S.) 353; *Re Wisconsin Power & Light Co.*, (Wis. Pub. Serv. Comm. 1938) 24 P. U. R. (N. S.) 136; *Department of Public Works v. Oregon-Washington Water Service Co.*, (Wash. Dept. Pub. Works, 1934) 8 P. U. R. (N. S.) 293; *Blytheville v. Blytheville Water Co.*, (Ark. Dept. Pub. Util. 1936) 15 P. U. R. (N. S.) 177; *Telephone and Railroad Depreciation Charges*, 177 I. C. C. 431 (1931). See also citations by Reis in 1934 *PROC. NAT. ASSN. R. R. & UTIL. COMMRS.* 227-236, for both commission and court cases pro and con on straight-line depreciation.

Sinking-fund: *Kooker v. Perkasio Sewer Co.*, (Pa. Pub. Util. Comm. 1938) 27 P. U. R. (N. S.) 461; *Los Angeles v. Southern California Tel. Co.*, (Cal. R. R. Comm. 1936) 14 P. U. R. (N. S.) 252; *Re Union Elec. Light & Power Co.*, (Mo. Pub. Serv. Comm. 1937) 17 P. U. R. (N. S.) 337; *Municipal Gas Co. v. Wichita Falls*, (Tex. R. R. Comm. 1935) 9 P. U. R. (N. S.) 33.

<sup>73</sup> Straight-line: *Lindheimer v. Illinois Bell Tel. Co.*, 292 U. S. 151, 54 S. Ct. 658 (1933); *American Tel. & Tel. Co. v. United States*, 299 U. S. 232, 57 S. Ct. 170 (1936) (an accounting case); *Long Island Lighting Co. v. Maltbie*, 249 App. Div. 918, 292 N. Y. S. 807 (1937); *Cheltenham & Abington Sewerage Co. v. Public Service Comm.*, 122 Pa. Super. 252, 186 A. 149 (1936); *Michigan Bell Tel. Co. v. Odell*, (D. C. Mich. 1930) 45 F. (2d) 180; *Southern Indiana Tel. & Tel. Co. v. Indiana Public Service Comm.*, (D. C. Ind. 1932) 1 P. U. R. (N. S.) 285.

Sinking-fund: *Clark's Ferry Bridge Co. v. Pennsylvania Public Service Comm.*, 291 U. S. 227, 54 S. Ct. 427 (1934); *Los Angeles Gas & Elect. Co. v. Railroad Commission of California*, 289 U. S. 287, 53 S. Ct. 637 (1933); *Railroad Commission of California v. Pacific Gas & Electric Co.*, 302 U. S. 388, 58 S. Ct. 334 (1938).

<sup>74</sup> 2 BONBRIGHT, *THE VALUATION OF PROPERTY* 1133 (1937). See also the address by Reis, 1934 *PROC. NAT. ASSN. R. R. & UTIL. COMMRS.* 215.

increasing repair and maintenance costs on aging property; (4) greater security is offered to investors than under the sinking-fund method because the reserves accumulate faster and are invested, usually in the plant; (5) it is the more commonly used method for tax purposes, general accounting, etc.; (6) it is more flexible than the sinking-fund method.<sup>75</sup>

Usually the choice between depreciation methods is not presented to the courts squarely, and whatever method permits an adequate return to avoid confiscation is acceptable. Writers on this subject agree,<sup>76</sup> and the courts so hold,<sup>77</sup> that the determination of annual depreciation and of accrued depreciation prior to actual retirement of the property is a matter of estimate in which judgment and opinion must be exercised. These estimates must not permit appreciation or going value to offset the accruing depreciation,<sup>78</sup> and they must be made on the assumption that the property is being used by a going concern.<sup>79</sup>

The calculation of depreciation does, probably, require an engineer's determination (not factual solely, but as a combination of observed physical phenomena with conclusions resulting from the application of sound judgment and opinion as to probable causes of retirement other than physical exhaustion). This determination should have to do with elapsed service life and should recognize experience as a factor evidencing what may be expected as to causes and times of retirement,<sup>80</sup> in order that the portion of total service life already expired may be fairly estimated. Until this determination has been made, no sound attempt can be made to distribute the depreciable value of the property to past and future periods. Once this determination has been made, however, the problem of determining depreciation, annual or accrued, for a public utility becomes one of selecting the amounts which are fair to the utility investors and to the consuming public. With this in mind, the aim should be to apportion the total depreciable value (whether it be original cost, present fair value, or some

<sup>75</sup> 1938 PROC. NAT. ASSN. R. R. & UTIL. COMMRs. 453-454.

<sup>76</sup> MASON, PRINCIPLES OF PUBLIC-UTILITY DEPRECIATION 16 (1937).

<sup>77</sup> Minnesota Rate Cases, 230 U. S. 352, 33 S. Ct. 729 (1913).

<sup>78</sup> Columbus Gas & Fuel Co. v. Ohio Public Service Co., 292 U. S. 398, 54 S. Ct. 763 (1934).

<sup>79</sup> Goddard, "The Interest of Public Utility Ratepayers in Depreciation," 48 HARV. L. REV. 721 at 732 (1935).

<sup>80</sup> WISCONSIN PUBLIC SERVICE COMMISSION, DEPRECIATION 108 (1933); Lindheimer v. Illinois Bell Tel. Co., 292 U. S. 151, 54 S. Ct. 658 (1933); Telephone and Railroad Depreciation Charges, 177 I. C. C. 351 at 382 et seq. (1931).



other amount) over the anticipated periods included in the estimated service life in accordance with the benefits to be derived from the property in those respective periods.<sup>81</sup>

While property is new, repair costs on that property will be small and the use of the property in such periods confers a greater benefit than does its use in later periods when repair costs have increased because of age, assuming of course that the repair costs are offset against the gross benefits. On the other hand, service capacity presently consumed but which will not have to be replaced for, say twenty years, is obviously not fairly chargeable with as large a part of a joint cost as is similar service capacity consumed in the twentieth year, which will have to be replaced at the close of that year, because the recovered portion of the joint cost for the first year's use itself begins immediately to work for the owner of the property to aid in its later replacement. Supporters of the sinking-fund method of calculating annual depreciation rely upon this latter point. However, if the relative annual repair costs are taken into consideration in connection with the increasing value of the service capacity consumed as the date for replacement approaches, the net benefits from a given property may be seen to be much more equal from year to year under a straight-line method of depreciation than under the sinking-fund method because these repair costs offset the added value of the consumed service capacity in the later years of life. In addition to this, it may be pointed out that after a utility has matured and the age distribution of its properties has become spread more or less evenly from new to virtual retirement age, any errors which might result from charging too much to earlier periods for use in the case of new property would automatically be counterbalanced by errors in charging too little in the case of older properties. In view of these facts, combined with the further fact that straight-line depreciation is much simpler to apply than the sinking-fund method and gives less emphasis to errors in estimates of service life, the commissions and courts which have approved it seem to have followed sound policy. As said by Justice Brandeis "rate regulation is an intensely practical matter."<sup>82</sup>

<sup>81</sup> In any case this depreciation is not capable of mathematically accurate calculation. Goddard, "The Interest of Public Utility Ratepayers in Depreciation," 48 HARV. L. REV. 721 at 747 (1935). See also the dissenting opinion of Brandeis in *United Railways & Electric Co. of Baltimore v. West*, 280 U. S. 234 at 255, 50 S. Ct. 123 (1930).

<sup>82</sup> *United Railways & Electric Co. of Baltimore v. West*, 280 U. S. 234 at 280, 50 S. Ct. 123 (1930).

It is the contention of the writer that a consistent theory of depreciation, whereby original cost is distributed over estimated service life by a straight-line method on annual depreciation and the depreciation reserve thereby accumulated is deducted from original cost for rate base purposes, is the only sound and workable theory of depreciation for use in public utility regulation.<sup>83</sup> As has been said, "value" has a peculiar meaning in public utility regulation. What could be more equitable and "fair" than to establish a consistent, unified theory of depreciation under which depreciable value once recovered by the utility through annual depreciation charges is deducted (as accumulated) from total depreciable value of the depreciating property for rate base purposes? Once such a doctrine is approved by direct statutory legislation, or through regulations promulgated by regulatory commissions under legislative authority, there would appear to be no grounds for questioning the constitutionality of enforcement of depreciation requirements in accordance therewith. Utility investors thereafter would be bound by their knowledge of the regulations covering the field in which they invested their capital.<sup>84</sup> The straight-line method of determining annual depreciation would be included in this unified theory because of its inherent fairness as pointed out above.

Actually some commissions already hold that the utility is estopped to deny that the reserve accumulated by it from its annual depreciation charges represents the minimum accrued depreciation.<sup>85</sup> This is particularly important in the case of those utilities, like the telephone com-

<sup>83</sup> In the NEW YORK COMMISSION ON REVISION OF PUBLIC SERVICE COMMISSION LAW, MINORITY REPORT 358 (1930), it is said: "In our opinion the only feasible solution of the problem [of the weakness of the existing system of depreciation accounting] lies in a complete change in the present standards of rate control,—a change which will require a precise correspondence between annual depreciation charges and deductible depreciation in the rate base." They add, however, that this is impossible under the fair value doctrine, as the courts must logically, under that doctrine, make a distinction between depreciation *provided against* and that *actually sustained* in the property. So, they say, original cost must be used as the rate base and they suggest the law be worded to require deduction of the depreciation reserve accumulated on the basis of original cost on a straight-line, age-life basis.

<sup>84</sup> Cook, "A Statutory Definition of Fair Value: A Proposal," 7 GEO. WASH. L. REV. 475 (1939), has suggested that the rate base be set by statute at present fair value with all future additions to be included at cost. Regulations of commissions as to accrued and annual depreciation would, if in accord with legislative grant of authority, accomplish the same result so far as depreciation is concerned.

<sup>85</sup> In re Chesapeake & Potomac Tel. Co., (Md. Pub. Serv. Comm. 1933) 1 P. U. R. (N. S.) 346 at 373; In re Modovi Tel. Co., (Wis. Pub. Serv. Comm.) P. U. R. 1933B 319.

panies, which have adopted the straight-line method of depreciation for the annual allowance claimed. The reason for this is that under this method depreciation is charged to operating expense earlier in the life of the property than under either the renewal or the retirement reserve method which is now in use. To offset this increase in costs in the early years of use of the property, which of course must be covered by the rates the consumer is required to pay, the consumer should be entitled to have the decreased value of the property recognized in order that he be required to provide only a return on the capital remaining invested in that property. The utility should not be permitted to eat its cake and have it too.

A federal district court has taken a realistic view of depreciation in holding a utility estopped to deny deduction of the reserve accumulated by it in accordance with its agreement with the commission even though the agreement was not formal and by the court's admission could not have been enforced. The agreement is treated as evidence of what should be accumulated in order to keep the financial condition of the company safe for stockholders and patrons, and the company's consent to the amount set by the agreement and its charge to annual operating expense of that amount is held to create an estoppel to deny the correctness of the amount for accrued depreciation purposes.<sup>86</sup> The court says a contrary holding would induce the commission to cut depreciation allowances to the bone because the commissioners would feel the deduction for annual depreciation might turn out to be only another name for a credit to undivided profits. There is obviously more than a little truth in what the court says. If the regulations of the commission have the effect of restraining utilities from making inconsistent claims of accrued depreciation after having been allowed annual depreciation totaling a particular sum, the investors should have no complaint. They invested with knowledge of the restraint. The amount of depreciation occurring each year is impossible of accurate determination and the commission might, in order to prevent a part of the allowance being used in effect as a credit to undivided profits, limit the annual allowance to a very small figure. If, instead, the commission allows a larger annual charge under the assumption that it will be used both for annual and accrued depreciation purposes, no harm has been done by requiring deduction of the reserve accumulated when determining the rate base. Under such a policy both the public and the utility investors

<sup>86</sup> *Chesapeake & Potomac Tel Co. v. Whitman*, (D. C. Md. 1925) 3 F. (2d) 938.

are accorded "fair" treatment, which, according to Professor Goddard, is the end to be desired in depreciation accounting,<sup>87</sup> as is the case also in the determination of the rate base.

What has just been said is not meant to be a statement of the law as it stands today. Perhaps a majority of local utilities still insist upon the retirement reserve method of accounting,<sup>88</sup> and in rate cases it is not the object of the commission to show that more annual depreciation should be provided than the company claims. Such acceptance as is given to straight-line depreciation on the part of the commissions is perhaps attributable to an attempt to meet in a practical way the problems of regulation rather than to any clear convictions of its superiority over other methods. The commissions have not sought to justify straight-line depreciation on the ground that it makes for any greater consistency between annual and accrued depreciation than other methods. As has been seen, it is perhaps harder to secure consistency with it than with the earlier form of the sinking-fund method under which no deduction was made for accrued depreciation for rate base purposes. As for judicial treatment of the problem, recognition of the need for consistency between the amounts of annual and accrued depreciation under straight-line depreciation accounting (or for that matter under any true depreciation accounting method) is practically non-existent.

As has been seen, when straight-line depreciation has been claimed or required the courts have been willing to accept it in both accounting and in rate cases. The United States Supreme Court approved its use in the *Lindheimer* case though the issue was not squarely presented in that case. Approval on the part of the courts has, however, been a recognition by them of its agreement with what the court determines to be actual depreciation from all the evidence in the case. If the principles suggested by the writer were accepted it would be necessary, probably, to support the straight-line depreciation by current check upon the estimated service life of the property in order to satisfy legal requirements.

The use of original cost as a rate base, as suggested by the writer as a necessary part of a consistent depreciation policy, has certainly not yet been approved by the United States Supreme Court. It is not at all certain, however, that the Court as now constituted would not see fit to reconsider the fair value doctrine and adopt a more realistic approach

<sup>87</sup> Goddard, "The Interest of Public Utility Ratepayers in Depreciation," 48 HARV. L. REV. 721 (1935).

<sup>88</sup> Nash, "The Forgotten Man in the Depreciation Controversy," 14 PUB. UTIL. FORTN. 506 at 507 (1934).

to rate regulation if a case came before it squarely presenting the issue.<sup>89</sup> The doctrine is presently being barraged from all sides.<sup>90</sup>

*[The second part of this article dealing with accrued depreciation will appear in a subsequent issue.]*

<sup>89</sup> Note the dissenting opinions of the named justices in the following cases: Brandeis—Missouri ex rel. Southwestern Bell Tel. Co. v. Missouri Public Service Comm., 262 U. S. 276, 43 S. Ct. 544 (1923); Black—McCart v. Indianapolis Water Co., 302 U. S. 419, 58 S. Ct. 324 (1938); Frankfurter—Driscoll v. Edison Light & Power Co., 307 U. S. 104, 59 S. Ct. 715 (1939); Stone—United Railways & Electric Co. of Baltimore v. West, 280 U. S. 234, 50 S. Ct. 123 (1930). Brandeis, Black and Frankfurter all voice disapproval of the doctrine. Stone opposes it for annual depreciation for much the same reasons the others give for disapproval of it as a rate base. In his concurring opinion in St. Joseph Stockyards Co. v. United States, 298 U. S. 38, 56 S. Ct. 720 (1936), Justice Brandeis repeated his earlier objection to the Smyth v. Ames doctrine. In a separate concurring opinion, Justices Stone and Cardozo said: "We think the opinion of Mr. Justice Brandeis states the law as it ought to be, although we appreciate the weight of precedent that has now accumulated against it." Justice Brandeis' retirement, and the death of Cardozo, make the reconsideration of the doctrine of Smyth v. Ames no less likely.

<sup>90</sup> Kauper, "Wanted: A New Definition of the Rate Base," 37 MICH. L. REV. 1209 (1939).