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## THE DETERMINATION OF WORKING CAPITAL IN RAILROAD AND PUBLIC UTILITIES VALUATIONS

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A great deal has been written concerning the various broad theories that may be applied in the valuation of railroads and public utilities for regulatory purposes. It is not the purpose of the present article to deal with any of these theories. It is concerned solely with the method of determining the amount of working capital used by railroads and public utilities in the performance of their services rendered to the public.

In an investigation into the value of a railroad or public utility, the purpose is generally to determine the "fair value of the property" used for the convenience of the public.<sup>1</sup> It is a relatively easy matter to ascertain the units of fixed property, though differences of opinion may exist as to the value of the units. But the ascertainment of the quantity and value of the fixed property does not complete the valuation. The railroad or utility must be valued as a live, going concern. So to function it must have cash to meet the expenses of operation and a quantity of material and supplies constantly on hand to take care of repairs, operation, etc., of the fixed property. Such cash and material and supplies must be included in the rate base along with the fixed or more permanent property of the railroad or utility.<sup>2</sup> Broadly speaking, these constitute its working

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<sup>1</sup> The Minnesota Rate Cases, 230 U. S. 352, 434, 33 Sup. Ct. 729, 754 (1913); *Smyth v. Ames*, 169 U. S. 466, 547, 18 Sup. Ct. 418, 434 (1898).

<sup>2</sup> In the case of *Mobile Gas Co. v. Patterson*, 293 Fed. 208 (N. D. Ala. 1923), which involved the valuation of a gas company's property for rate-making purposes, after setting out the cash and supply accounts of the company on its valuation date, the court said: "It is not difficult to understand that such investments are both proper and necessary to the continued conduct of such a business and they are not ordinarily included in the

capital. That it is essential to every business is, of course, apparent. What should properly be included, however, and the method for determining the amount in the case of railroads and public utilities, often have caused a great deal of confusion.

#### DEFINITION OF CAPITAL

Perhaps the first inquiry is: Is working capital capital, and if so, what is meant by capital? While the word "capital" may have a variety of meanings, ". . . . When used with respect to the property of a corporation or association, the term has a settled meaning; it applies only to the property or means contributed by the stockholders as the fund or basis for the business or enterprise for which the corporation or association was formed."<sup>3</sup> This clearly means "invested capital."

In figuring the rate base of a railroad or utility, however, the prime concern is with the value of the property which it furnishes for the public use. This property may represent either "invested capital" or "borrowed capital," or a combination of the two.<sup>4</sup>

If a railroad executes a mortgage on 20 new locomotives which

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inventory of property only because of the fluctuating nature of the investment, and may from time to time exceed the necessities of the business, so that the excess is not properly classable as used and useful. These properties, to the extent that they are reasonably necessary in order to enable the utility to serve the public, are just as much a part of their investment for the benefit of the public as property of a more permanent character. . . ."

<sup>3</sup> *Bailey v. Clark*, 21 Wall. 284, 286 (U. S. 1875). The statement quoted continues as follows: "As to them the term does not embrace temporary loans, though the moneys borrowed be directly appropriated in their business or undertakings. And when used with respect to the property of individuals in any particular business, the term has substantially the same import; it then means the property taken from other investments or uses and set apart for and invested in the special business, and in the increase, proceeds or earnings of which property, beyond expenditures incurred in its use, consist the profits made in the business. It does not, any more than when used with respect to corporations, embrace temporary loans made in the regular course of business. As very justly observed by the circuit judge, 'It would not satisfy the demands of common honesty, if a man engaged in business of any kind, being asked the amount of capital employed in his business, should include in his reply all the sums which, in the conduct of his business, he had borrowed and had not repaid.' . . ."

Substantially the same definition of capital was given by the court in *In re Desnoyers Shoe Co.*, 224 Fed. 372, 377 (C. C. A. 7th, 1915).<sup>1</sup> In *Malley v. Old Colony Trust Co.*, 299 Fed. 523, 528 (C. C. A. 1st, 1924), the court cited and followed the definition given in *Bailey v. Clark*, *supra*.

<sup>4</sup> The term "invested capital" is used to include capital furnished by leaving profits in the business instead of disbursing them as dividends. See, with respect to "invested capital" and "borrowed capital," *Hornbeck & Son v. Anderson*, 34 F. (2d) 800 (S. D. N. Y. 1929).

it uses in its business, the amount of the mortgage bonds so outstanding will not be deducted from the value of the locomotives in figuring the rate base, and neither will other indebtedness existing on the property furnished by the railroad or utility. The "capital" on which it is entitled to earn a reasonable return is a combination of its invested capital and its borrowed capital. In this sense, "capital" is taken to mean property, whether invested or borrowed.

The real test as to whether the property should be included in the rate base is whether it is furnished by the railroad or utility, or by the patron. If it is furnished by the utility, either through investment by its stockholders or by borrowing, it may be included in the rate base, but if it is furnished by the patron it cannot be so included. To take a concrete illustration: Assume a farmer is one mile distant from the telephone trunk line, and to secure service he is required to construct his own line from the trunk line to his home. The telephone company installs the instrument in his home and keeps it in repair, but the maintenance of the line from the trunk line to his home is at his own expense. That the telephone company uses this mile of line is apparent, but it would be obviously incorrect to value it as property of the telephone company, include it in the rate base, and compel the farmer, who furnished it, to pay a return on it to the telephone company. However, if the telephone company leased this private telephone line from a third party, itself paying the rental, it should clearly be included in the rate base. In this case it would be "borrowed capital."

Thus, in railroad and utility valuations, the "capital" to be determined is a combination of the "invested capital" and the "borrowed capital." This fact must also be borne in mind in dealing with working capital.

#### DEFINITION OF WORKING CAPITAL

The first mention of the nature of "working capital" appears in the case of *Kohler v. Agassiz*.<sup>5</sup> This was not a utility case. The court there said:

" . . . It is a matter of common knowledge that in this state corporations, and especially mining corporations, are in the habit of setting aside for sale at some established price a portion of their capital stock for the purpose of raising what is termed 'working capital,' or a fund to be devoted to the development of their property. Assessments must be uniform, and under our laws must be levied upon all the capital stock. . . ."<sup>6</sup>

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<sup>5</sup> 99 Cal. 9, 33 Pac. 741 (1893).

<sup>6</sup> *Ibid.* 15, 33 Pac. at 743.

This indicates that in the mind of the court working capital meant "invested capital" on the same basis as the investment in the fixed property of the corporation.<sup>7</sup>

The view expressed in the case of *In re Franklin Brewing Co.*<sup>8</sup> also indicates that the court considered working capital to be invested capital. This was also not a utility case.

The attempts by the courts in utility valuation cases to define working capital, however, have not been satisfactory. In the case of *Southwestern Telegraph & Telephone Co. v. City of Houston*<sup>9</sup>, which involved the valuation of a telephone company for rate-making purposes, the court gave the following definition:

"By working capital is meant the amount of cash and supplies necessary to be kept on hand, to meet current expenses and contingencies, as they arise, in the proper conduct of the business. . . ." <sup>10</sup>

This gives no indication whether the court thought working capital meant invested capital, borrowed capital, or whether it meant capital at all.

Perhaps the best definition of working capital given in any of the cases is that found in *Bronx Gas & Electric Co. v. Public Service Commission*.<sup>11</sup> The referee there said:

"The term 'working capital' is applied to the capital required, above the fixed capital, to carry on the business. Not all of the capital contributed by investors can be put into plant, land, mains, and the like. Some of the investment remains in current, mobile or floating assets, to carry on the business, and is as much entitled to receive a return as any invested in plant or mains." <sup>12</sup>

This brings working capital squarely within the limits of invested capital.

<sup>7</sup> Cf. *American Tube & Iron Co. v. Hayes*, 165 Pa. 489, 30 Atl. 936 (1895). In *Janney v. Pancoast International Ventilator Co.*, 122 Fed. 535, 537 (C. C. E. D. Pa. 1903), the court, construing the special question involved, considered the ordinary meaning of "working capital" to be "cash."

<sup>8</sup> 272 Fed. 828 (C. C. A. 2d, 1921). Commenting upon an agreement to purchase capital stock to provide working capital, the court said: "The term 'working capital' evidently meant money to be put into the business and to stay there. It would not follow that moneys advanced by Doscher from time to time and repaid by the company out of its earnings was to be regarded as working capital. Such transactions would be loans."

<sup>9</sup> 268 Fed. 878 (S. D. Tex. 1920), *aff'd*, 259 U. S. 318, 42 Sup. Ct. 486 (1922).

<sup>10</sup> 268 Fed. at 883. Of similarly unsatisfactory nature is the definition given by the court in *Okmulgee Gas Co. v. Corporation Commission*, 95 Okla. 213, 220 Pac. 28 (1923). See note 39 *infra*.

<sup>11</sup> P. U. R. 1923A 255 (Sup. Ct. N. Y. Co. 1922), *aff'd*, 208 App. Div. 780, 203 N. Y. Supp. 922 (1st Dep't 1924).

<sup>12</sup> *Ibid.* 282.

The view of the court in *Mobile Gas Co. v. Patterson*<sup>13</sup> is that working capital is capital, but its conception of capital is not clear.

That working capital is capital seems clear. Strictly speaking, it is invested capital. When used with reference to railroad and public utilities valuations, however, it may be said to include borrowed capital along with invested capital.

#### REVIEW OF COURT CASES

While it is obvious that working capital is essential to the conduct of any business, the court cases involving its determination have, for the most part, been very unsatisfactory. In some of them it is not even mentioned.<sup>14</sup> In others, it is merely mentioned without any statement as to what is included or how it is arrived at.<sup>15</sup> In no case is a complete, satisfactory method stated. A chronological review of some of the cases will, perhaps, assist in a clearer understanding of the problem. That the subject has been in a nebulous and most unsatisfactory state will be evident. A clear conception of the term and its significance does not exist in the minds of the courts.

In the case of *Smyth v. Ames*<sup>16</sup> the court mentioned as one of the elements to be considered in arriving at the value of a railroad "the sum required to meet operating expenses." The term "working capital" seems not yet to have become firmly fixed in legal terminology. The court in this case made no analysis of the subject. This language from *Smyth v. Ames* is quoted in the *Minnesota Rate Cases*.<sup>17</sup>

The first important public utility case in which a court was

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<sup>13</sup> *Supra* note 2, at 217: ". . . my understanding of an allowance for working capital is simply that the income which the company is permitted to make must include an income upon so much capital as the company in the ordinary course of its business is compelled to have and does use in the conduct of its business, but which is not included in the inventory of its physical properties. . . ."

<sup>14</sup> *Galveston Electric Co. v. Galveston*, 258 U. S. 388, 42 Sup. Ct. 351 (1922); *San Diego Land & T. Co. v. Jasper*, 189 U. S. 439, 23 Sup. Ct. 571 (1903).

<sup>15</sup> A few of the many cases are: *Brooklyn Union Gas Co. v. Prendergast*, 7 F. (2d) 628, 640, 650 (E. D. N. Y. 1925); *Village of Celina v. Public Utilities Commission*, 116 Ohio St. 596, 601, 157 N. E. 72, 75 (1927); *Chesapeake & Potomac Telephone Co. of Virginia v. Commonwealth*, 147 Va. 43, 56, 136 S. E. 575, 578 (1927); *Chesapeake & Potomac Telephone Co. v. Whitman*, 3 F. (2d) 938, 943 (D. Md. 1925); *City of Huntington v. Public Service Commission*, 101 W. Va. 378, 380, 133 S. E. 144, 145 (1926); *Iima Telephone & Telegraph Co. v. Public Utilities Commission*, 98 Ohio St. 110, 113, 120 N. E. 330, 332 (1918).

<sup>16</sup> 169 U. S. 416, 547, 18 Sup. Ct. 418, 434 (1898).

<sup>17</sup> *Supra* note 1, at 435, 33 Sup. Ct. at 754.

called upon to consider the constituent elements of working capital as such was that of *Consolidated Gas Co. v. City of New York*.<sup>18</sup> In the course of his opinion in this case, District Judge Hough said, under the heading "Working Capital":

"Upon this subject, I am unable to agree with the report, further than to express my belief that the complainant usually has on hand about \$3,000,000 worth of bills receivable and cash, and some \$616,000 worth of bills payable outstanding. But it does not follow that so large a proportion of its capital account should be entered as working capital. That phrase means the amount of cash necessary for the safe and convenient transaction of a business, having regard to the owner's ordinary out-standings both payable and receivable, the ordinary condition of his stock, or supplies in hand, the natural risk of his business, and the condition of his credit. . . ." <sup>19</sup>

This case is often cited as support for the inclusion of many extraneous items under the heading of working capital. The decision was rendered in 1907. At that time, about 23 years ago, the scientific valuation of public utilities was just in its infancy, and the conception of what constitutes the working capital of a public utility was still in the formative state. It should be noted, however, that Judge Hough refused to take all of the cash and the bills receivable and bills payable which the carrier had on hand as the measure of its working capital.

The case of *Bonbright v. Geary*<sup>20</sup> involved, *inter alia*, a valuation of the Pacific Gas & Electric Company, which supplied electricity and gas to the residents of Phoenix, Ariz. The method used to determine working capital is perhaps best stated in the following language of the court:

"We come next to the valuation of what is termed the working capital. The experts for the complainant value this item at \$50,000. The Corporation Commission valued it at \$23,500. We think the latter sum is too small for the current business of the corporation. The corporation must carry a certain amount of supplies and should pay its bills for repairs and supplies at the end of the week or month as they come due and should not be obliged to await the collection of its revenues from the rates collected by the company from its customers. There is always more or less delay in collecting rates. The company should therefore have constantly on hand what might be termed a revolving fund to pay its own current obligations and keep its credit good and enable it to transact its business promptly and satisfactorily to everybody concerned. We think that a working capital of \$50,000 is a reasonable capital for the corporation in this case and should be allowed as a valuation in its plant."<sup>21</sup>

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<sup>18</sup> 157 Fed. 849 (C. C. S. D. N. Y. 1907).

<sup>19</sup> *Ibid.* 859.

<sup>20</sup> 210 Fed. 44 (D. Ariz. 1913).

<sup>21</sup> *Ibid.* 54.

The court was evidently not very familiar with "what is termed the working capital." This was 17 years ago. It appears that the "opinion" or "judgment" method was used—in other words, the guess method.

The case of *Ann Arbor R.R. v. Fellows*<sup>22</sup> involved the question whether the Michigan two-cent passenger fare law was confiscatory. The fair value of the property of the Ann Arbor Railroad Company thus came into issue. The growing knowledge of the subject of working capital is evidenced by the following statement of the court with respect thereto:

"In this instance plaintiff's expert accountant has fallen into a serious and obvious error in computing the amount of such working capital. In his computation he has found the average 'excess of working liabilities over working assets,' 'exclusive of cash on hand and fuel, material and supplies on hand,' and has called such excess working capital. He has thus attempted to capitalize the debts of the company. From the annual reports of the company it appears that the cash on hand which is shown in the same table or schedule is not available for use in the operation of the railroad. Most of it consists of special deposits to meet interest and other obligations. It fairly appears, however, that the railroad company had material, fuel, and other supplies on hand in 1914 of the value of \$149,570, and in 1915 of the value of \$144,265."<sup>23</sup>

Considering the date of this case, the view of the court is exceptionally sound, but the decision throws no light on the method of determining cash working capital.

In *Southwestern Telegraph & Telephone Co. v. City of Houston*,<sup>24</sup> a case which involved the fixing of the valuation of a telephone company for rate-making purposes, the master "allowed" \$238,000 for working capital, this "being the proportion of the total estimated operating capital of the company at all of its exchanges in Texas allocated to Houston, as figured and estimated by one of the plaintiff's witnesses." With respect to this "allowance" the court said:

"The plaintiff renders bills in advance to its subscribers. Its average monthly expenditures are about \$80,000, so that, if every subscriber were a month and a half late in settling his bill, a working capital of \$80,000 would ordinarily suffice. Making due allowance for emergencies and unforeseen expenses, I think that \$120,000 would be a liberal allowance for working capital, and that the finding of the master should be reduced from \$238,000 to that sum."<sup>25</sup>

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<sup>22</sup> 236 Fed. 387 (E. D. Mich. 1916).

<sup>23</sup> *Ibid.* 394.

<sup>24</sup> 268 Fed. 878 (S. D. Tex. 1920), *aff'd*, 259 U. S. 318, 42 Sup. Ct. 485 (1922).

<sup>25</sup> 268 Fed. at 883, 884.

It is quite evident the guess method was used here. It should be noted that while the company rendered its bills in advance, the court, nevertheless, used one and one-half months' operating expenses as the company's working capital.

The case of *Okmulgee Gas Co. v. Corporation Commission*<sup>26</sup> involved an application of the gas company for an increase in rates, and, incidentally, a valuation of its property. The court's idea of working capital is stated in the following language:

" . . . (working capital means a sufficient amount of money to pay employees and pay for . . . repairs, and is based upon four to six weeks' actual operating expenses; this amount of time would usually expire before collections could be made from consumers). . . ." <sup>27</sup>

The court here approved substantially the same method of determining working capital for a utility which made its collections a considerable time after it furnished its commodity that the court in the preceding case adopted for a utility which collected in advance for perhaps the greater part of the service it performed. The two cases are clearly inconsistent.

An interesting case, showing the inexactitude with which working capital is sometimes arrived at is that of *City of Minneapolis v. Rand*.<sup>28</sup> The master stated that it was his "purpose and intention, reached after long deliberation, to fix a valuation of \$8,000,000 (including in this sum a fair allowance for working capital) on the properties of the Minneapolis Gaslight Company."<sup>29</sup> He finally decided to take the city's maximum rate base, \$6,022,220, "and build up from that point to \$8,000,000." He began by increasing this base 25 per cent. When the other items were added, the total was \$567,871.50 short of \$8,000,000. The master therefore denominated the \$567,871.50 "working capital" and secured his predetermined total of \$8,000,000. The city excepted to this "allowance" on the ground that the base of \$6,022,220 already included \$400,000 for working capital, which, as the total had been increased 25 per cent, made an "allowance" of \$500,000 for working capital plus the master's additional "allowance" of \$567,871.50, or a total of \$1,067,871.50 for working capital in a valuation of \$8,000,000. The master, not to be swerved from his original determination to find the total value \$8,000,000, overruled the exception and amended his report to read as follows:

"I find that the capital investment of the Minneapolis Gas-

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<sup>26</sup> *Supra* note 10.

<sup>27</sup> *Ibid.* 218, 220 Pac. at 33.

<sup>28</sup> 285 Fed. 818 (C. C. A. 8th, 1923).

<sup>29</sup> *Ibid.* 824.

light Company, as that term is defined in section 5 of the ordinance of 1910, as of January 1, 1920, was and is \$8,000,000, in which is included as a fair allowance for working capital \$567,871.50.”<sup>30</sup>

The court, however, expressed the following view regarding the city's exception:

“ . . . We think the city's exception to the amended report, because it embraces a double allowance for working capital, should have been sustained, and, as the master expressly states in his amended report that he allows the sum of \$567,871.50 as working capital, that valuation of \$8,000,000 should be reduced by the sum of \$500,000, which was at first allowed as an item for working capital.”<sup>31</sup>

The master, however, had refused to make a separate allowance for going concern value, something the court considered erroneous. It therefore stated:

“ . . . A reasonable amount for going value, apart from any allowance for good will, in accord with the general practice in valuation cases, should be added to the items allowed by the master, and that amount is fixed at the sum of \$500,000 . . . .”<sup>32</sup>

So the master's final valuation of \$8,000,000 stood. Circuit Judge Stone dissented on the ground that the master's valuation of \$8,000,000 should have been kept intact and \$500,000 for going value added to it, making a total value of \$8,500,000. The proper rate of return was considered by all to be 7½ per cent.

As a guide to scientific valuation the case requires no comment. It speaks for itself.

Another interesting case is that of *Bronx Gas & Electric Co. v. Public Service Commission*.<sup>33</sup> The referee, whose report was adopted by the court, began by giving what is perhaps the best definition of working capital so far attempted.<sup>34</sup> He then fell into one of the worst errors seen in any valuation case. Because of the nature of the error and the significance of the item involved, it is quoted below. The referee had already set out the amounts found for working capital:

“In reaching the above figures, I have made no deduction of the accounts payable, although such a deduction was urged by the defendants. Such a deduction seems to me unwarranted. If sustained, it would result in the amazing situation that a

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<sup>30</sup> *Ibid.* 825.

<sup>31</sup> *Ibid.* 825.

<sup>32</sup> *Ibid.* 830.

<sup>33</sup> *Supra* note 11.

<sup>34</sup> *Supra* note 11.

company which borrows, for example, \$10,000 for the express purpose of providing itself with working capital, and gives its notes therefor, nevertheless is absolutely without working capital the moment after the transaction has been completed. A company whose credit is poor, and which consequently has few accounts payable, would then be in a position to command a far greater working capital than a more prosperous company which enjoyed a liberal credit, and had a large number of accounts payable on its books. Company A, for example, might have accounts receivable in the amount of \$10,000 and accounts payable in the amount of \$9,000, which, under the defendants' theory, would produce a working capital under that item of \$1,000; while Company B, with exactly the same amount of accounts receivable, and no credit, and consequently no accounts payable, would be allowed under this heading for working capital the amount of \$10,000. This would produce an anomalous situation, resulting in a virtual confiscation of capital.

"In other words, all working capital, including amounts tied up in accounts receivable, is capital actually being employed in the service of the public, and as such is entitled to be included in the category upon which a return is to be computed. It matters not whether the company which owns this capital is heavily indebted, or whether or not it is solvent or insolvent. The amount of the plaintiff's capital devoted to the service of its consumers is not affected by the form or amount of the plaintiff's obligations. In determining what amount of capital is in use in the service, it is improper and unnecessary to deduct any sum of any kind on the opposite side of the balance sheet."<sup>35</sup>

The referee in effect permitted the capitalization of debts and assumed that the greater the amount of the debts of a company the greater its amount of working capital. The fallacy is markedly shown if it is assumed that Company A lets its collections and payments each lag \$10,000 further, to the point where the accounts receivable are \$20,000 and the accounts payable \$19,000. Under the theory of the referee, the company would be entitled to capitalize the \$20,000 without the investment of an additional cent.<sup>36</sup>

A more scientific view is expressed in *Kings County Lighting Co. v. Prendergast*,<sup>37</sup> although the court does not lay down any rules for determining the amount of working capital.

<sup>35</sup> *Supra* note 11, at 282, 283.

<sup>36</sup> The referee also assumed that a company which pays its bills promptly should not be treated as favorably as a company which enjoys a "liberal credit" and has a "large number of accounts payable on its books." In other words, he placed a premium on delinquency in payment of bills. That credit or lack of credit has absolutely no bearing upon value is well settled. See *Galveston Electric Co. v. Galveston*, *supra* note 14, at 397, 42 Sup. Ct. at 355; *Reno Power, Light & Water Co. v. Public Service Commission*, 298 Fed. 790, 796 (D. Nev. 1923).

<sup>37</sup> 7 F. (2d) 192 (E. D. N. Y. 1925). In the course of its opinion the court stated: "The company is entitled to have an adequate working capital to provide, promptly, materials and supplies, current maintenance,

A survey of the illustrative cases discussed above is sufficient to show that there has generally been no careful attempt to ascertain how much working capital the corporation was actually using, and no test made to see whether the amounts denominated working capital were actually working capital.

#### STATE COMMISSION METHODS

Replies to inquiries sent to all of the state commissions indicate a wide variety of methods for determining working capital. Not all of these, however, are reflected in the court decisions. In a great many cases the amount of working capital is considered to be largely a matter of judgment.<sup>38</sup> In others some arbitrary part of the annual operating expenses is taken as the cash working capital.<sup>39</sup> In these cases, material and supplies are generally considered separately.

A detailed discussion of the methods used in any one of these state cases would serve no useful purpose, for the reason that a discussion of the method now employed by the Interstate

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and repairs chargeable to operating expense, and other contingencies, so as to permit the company to carry on its operation as a going concern without delay or extra expense. It must have an adequate cash and credit standing. The proper allowance may be deduced from the actual experience of the company, supplemented by opinion evidence. . . ."

That working capital should be determined from a careful analytical study of the facts also appears to be the view of the United States Supreme Court. See *Ohio Utilities Co. v. Public Utilities Commission*, 267 U. S. 359, 363, 45 Sup. Ct. 259, 261 (1925).

<sup>38</sup> For example: *Brooklyn Borough Gas Co. v. Prendergast*, 16 F. (2d) 615, 618 (E. D. N. Y. 1926); *Brooklyn Union Gas Co. v. Nixon*, 2 F. (2d) 118, 120 (S. D. N. Y. 1921); *Capital Water Co. v. Public Utilities Commission*, 44 Idaho 1, 262 Pac. 863 (1926); *Consolidated Gas Co. of New York v. Newton*, 267 Fed. 231 (S. D. N. Y. 1920), on appeal, 258 U. S. 165, 42 Sup. Ct. 264 (1922) (but no change in connection with working capital); *Consolidated Gas Co. v. Prendergast*, 6 F. (2d) 243, 257, 260 (S. D. N. Y. 1925); *Cumberland Telephone & Telegraph Co. v. City of Louisville*, 187 Fed. 637, 646 (W. D. Ky. 1911); *Pioneer Telephone & Telegraph Co. v. Westenhaver*, 29 Okla. 429, 435, 118 Pac. 354, 356, 38 L. R. A. (N. S.) 1209, 1216 (1911).

<sup>39</sup> In *Bluefield Telephone Co. v. Public Service Commission*, 102 W. Va. 296, 299, 135 S. E. 833, 835 (1926), one-twelfth of the annual operating expenses plus an allowance for supplies was used; in *People v. Public Service Commission*, 200 App. Div. 268, 276, 193 N. Y. Supp. 186, 194 (3d Dep't 1922), one-eighth of the annual operating expenses, less taxes and uncollectible bills, plus materials and supplies on hand; in *Pacific Coast Elevator Co. v. Department of Public Works*, 130 Wash. 620, 633, 228 Pac. 1022, 1026 (1924), one-sixth of the actual operating expense for the preceding year, with special additional allowance in some cases; in *Okmulgee Gas Co. v. Corporation Commission*, *supra* note 10, at 218, 220 Pac. at 33, "from four to six weeks' actual operating expenses" was considered proper.

Commerce Commission will comprehend the features involved in the methods of the various state commissions.

#### INTERSTATE COMMERCE COMMISSION METHOD

When one considers the tremendous amount of valuation work the Interstate Commerce Commission<sup>40</sup> has been called upon to perform in the past few years, it is not surprising that it should have evolved what is up to the present time the most scientific and accurate method of determining the working capital of railroads. Before discussing the method, however, it would be well to take a brief view of the process of evolution leading up to it. In *Texas Midland Railroad*<sup>41</sup> the Commission refused to include cash and material and supplies in stating original cost to date, cost of reproduction new, and cost of reproduction less depreciation.<sup>42</sup> In figuring the final value, however, the value of the material and supplies and the cash on hand were included without analysis.<sup>43</sup>

In *Ann Arbor R. R. and Menominee & St. Paul Ry.*,<sup>44</sup> a case in which the tentative valuation had taken the material and supplies and cash on hand on valuation date as the measure of working capital, the Commission, disapproving this method, stated:

"The working capital necessary for the proper operation of its property is not in all cases to be determined by the amount of cash and materials and supplies held by a carrier on the date of valuation . . . ." <sup>45</sup>

On the same date, in a supplemental report in *Texas Midland*

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<sup>40</sup> Referred to hereinafter simply as the Commission.

<sup>41</sup> 75 I. C. C. 1, 34 (1918).

<sup>42</sup> The same view was expressed in *Atlanta, Birmingham & Atlantic R. R.*, 75 I. C. C. 645, 654 (1923).

<sup>43</sup> *Supra* note 41, at 75, 79, 102. In *Atlanta, Birmingham & Atlantic R. R.*, *supra* note 42, at 670, in figuring the "final single sum value" of this carrier the tentative valuation had included working capital in the amount of \$617,090, this consisting of material and supplies of a value of \$433,502 and cash on hand to the amount of \$183,588. The Commission considered this sum excessive and reduced it to \$410,000.

<sup>44</sup> 84 I. C. C. 159 (1924).

<sup>45</sup> *Ibid.* 169. Shortly thereafter, in *Artesian Belt R.R.*, 84 I.C.C. 481, 486 (1924), the Commission stated: ". . . We believe that in no case should the amount stated as working capital be in excess of the actual cash and material and supplies on hand on date of valuation, since we are making a valuation of property. . . ." Mr. Commissioner Lewis dissented from this limitation. *Ibid.* 487.

In *Flint River & Northeastern R.R.*, 114 I.C.C. 142, 143 (1925), the Commission adhered to its holding in *Artesian Belt R.R.*, *supra*. In this case Mr. Commissioner Lewis rendered an interesting dissenting opinion, pointing out cogent reasons for disagreeing with the majority. *Ibid.* 144-150.

*R. R.*,<sup>46</sup> the Commission decided the same as in the *Ann Arbor* case, and further stated:

“ . . . . Our experience with the actual operating needs of individual carriers indicates that, as a rule, the requisite amount of working capital for carrier purposes is substantially less than 20 per cent of annual operating expenses and in some cases is as low as 6 per cent. See *Florida East Coast Ry. Co.*, 84 I. C. C. 25.”<sup>47</sup>

In its report in *Elgin, Joliet & Eastern Ry.*,<sup>48</sup> the Commission refused to take the value of the material and supplies and cash on hand, \$5,389,385, as the measure of working capital. Instead, it stated:

“ . . . In our judgment the amount of \$1,000,000 will be sufficient to meet the needs of the Elgin, which is the operating carrier, for working capital. We shall modify our supplemental tentative valuation accordingly . . . .”<sup>49</sup>

It does not appear, however, that any scientific analysis of accounts was made on which to base the “judgment” that the amount of \$1,000,000 was correct.

The inaccuracy of these early methods gradually became apparent. As a result of long and careful study there has finally been evolved what is known as the “Field” method<sup>50</sup> for determining working capital. It is not set out in detail in any of the Commission’s reports, but an outline of the method may be found in the leading case of *Northampton & Bath R. R.*<sup>51</sup> The substance only will be given here.<sup>52</sup>

Working capital is considered to include material and supplies

<sup>46</sup> 84 I. C. C. 150 (1924).

<sup>47</sup> *Ibid.* 154.

<sup>48</sup> 84 I. C. C. 587 (1924).

<sup>49</sup> *Ibid.* 616.

<sup>50</sup> Named for Dr. Arthur S. Field, Assistant Supervisor of Accounts, Bureau of Valuation, Interstate Commerce Commission, under whose supervision the method was devised. Substantially the same method is now used by the state commissions of New Jersey and Oregon.

<sup>51</sup> 149 I. C. C. 244, 263-272 (1928). In determining the amount of working capital to be used in the base value of a railroad or utility, neither the greatest amount used at one extreme nor the least amount used at the other extreme should be taken. The equitable method, both to the public and to the utility, is to take the average amount used. This practice is followed in the Commission’s method. In this connection, the fact that a great many carriers receive interest on their bank balances should not be overlooked. This tends to act as an equalizer.

<sup>52</sup> In outlining the method in this article the language of the report will be followed rather closely, sometimes verbatim. Some changes will be made, however, in the interest of clarity to those unfamiliar with the subject.

and cash.<sup>53</sup> Whether owned or merely used is considered to be immaterial. That is, whether it represents "invested capital" or "borrowed capital" is immaterial. The process can perhaps best be understood by outlining separately the method used for determining material and supplies and that for determining cash.

*Material and supplies.* The investment in a stock of material and supplies reasonably held for common carrier operations is determined on the basis of the carrier's recorded stock from month to month during a period, usually of five years, preceding the date of valuation. These data are obtained partly from a questionnaire submitted to the carrier and partly from the carrier's annual reports to the Commission.<sup>54</sup> The average recorded amount is adjusted by deducting any scrap or obsolete material included in the stock; by deducting any part of it that was drawn upon for additions and betterments and for supplying other concerns, and for any purpose other than for repairs, main-

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<sup>53</sup> In the following court cases working capital was taken to mean cash only: *Janney v. Pancoast International Ventilator Co.*, 122 Fed. 535, 537 (C. C. E. D. Pa. 1903); *Pioneer Telephone & Telegraph Co. v. Westenhaver*, *supra* note 38, at 435, 118 Pac. at 356; *Cumberland Telephone & Telegraph Co. v. City of Louisville*, 187 Fed. 637, 646 (C. C. W. D. Ky. 1911); *Valparaiso Lighting Co. v. Public Service Commission*, 190 Ind. 253, 260, 129 N. E. 13, 15 (1920); *Reno Power, Light & Water Co. v. Public Service Commission*, 300 Fed. 645, 672 (D. Nev. 1921); *Van Wert Gas-light Co. v. Public Utilities Commission*, 106 Ohio St. 170, 173, 140 N. E. 137, 138 (1922); *Duluth St. Ry. v. Railroad & Warehouse Commission*, 4 F. (2d) 543, 547, 549 (D. Minn. 1924) (appeal dismissed per stipulation, 269 U. S. 591, 46 Sup. Ct. 11 (1925)); *Southern Bell Tel. & Tel. Co. v. Railroad Commission of S. C.*, 5 F. (2d) 77, 84 (E. D. S. C. 1925); *McCardle v. Indianapolis Water Co.*, 272 U. S. 400, 412, 47 Sup. Ct. 144, 149 (1926); *Waukesha Gas & Electric Co. v. Railroad Commission*, 191 Wis. 565, 568, 211 N. W. 760, 761 (1927). In these cases material and supplies were included in the valuation as a separate item.

In the following cases the term working capital was used to include both cash and material and supplies: *Southwestern Telegraph & Telephone Co. v. City of Houston*, *supra* note 9, at 883; *Public Service Ry. v. Board of Public Utility Com'rs*, 276 Fed. 979, 983 (D. N. J. 1921); *City of Winona v. Wisconsin-Minnesota Light & Power Co.*, 276 Fed. 996, 1001, 1004 (D. Minn. 1921); *People v. Public Service Commission*, *supra* note 39, at 276, 193 N. Y. Supp. at 194; *United Fuel Gas Co. v. Railroad Commission*, 13 F. (2d) 510, 522 (E. D. Ky. 1925), *aff'd*, 278 U. S. 300, 311, 49 Sup. Ct. 150, 153 (1929); *Middlesex Water Co. v. Board of Public Utility Commissioners*, 10 F. (2d) 519, 530 (D. N. J. 1926); *United Fuel Gas Co. v. Public Service Commission*, 14 F. (2d) 209, 215 (D. N. J. 1926), *aff'd*, 278 U. S. 322, 49 Sup. Ct. 157 (1928); *Idaho Power Co. v. Thompson*, 19 F. (2d) 547 (S. D. Idaho 1927). This latter view seems preferable. It is followed by the Commission. It recognizes the distinction between the fixed capital of a corporation and its "mobile" or working capital. In this article, unless otherwise specified, the term will be taken to include both cash and materials and supplies, though the two items will and must be analyzed separately.

<sup>54</sup> *Northampton & Bath R. R.*, *supra* note 51, at 265.

tenance and the supplying of its own operating requirements. Any abrupt variations in the stock due to special conditions are appropriately adjusted.

The percentage that this adjusted average amount bears to the average annual operating expenses for the same period is ascertained. The trend of the annual operating expenses for this period, usually five years, is then ascertained, in order to determine the annual rate of operating expenses as of the date of valuation that reflects such trend.<sup>55</sup> This may be either greater, equal to, or less than the average rate. The percentage that the average amount of material and supplies on hand during the period bore to the average annual operating expenses is then applied to this annual rate of operating expenses as of date of valuation. The result is taken to indicate the amount of material and supplies reasonably held on hand on date of valuation for common carrier operations. If, however, the actual operating expenses for the calendar year of valuation seem to be more representative of the carrier's normal experience these are taken as the amount to be used in preference to the amount indicated by the trend for the preceding five years. When the data are obtainable, the percentage that the average amount of material and supplies on hand, determined as above, bears to the average amount issued annually for common carrier operations is applied to the average amount of such issues as of date of valuation determined according to the trend of these issues during the period.

The results obtained as above outlined are taken as a basis for a finding of the reasonable stock of usable material and supplies owned and used for common carrier service as of date of valuation, based on the carrier's actual experience for the period, usually five years, preceding valuation date.<sup>56</sup>

*Comment.* That the actual quantity of material and supplies used by the carrier during a five year period, or similar period, preceding valuation date should be given prime weight in determining the quantity reasonably held on hand as of date of valuation seems wholly reasonable. It must be borne in mind at all times that the purpose of the study is to determine the reasonable capitalization on which the public should be called upon to pay a reasonably compensatory return, and not the amount which the

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<sup>55</sup> By fitting a straight line to the curve for operating expenses for the period.

<sup>56</sup> "When a carrier draws for its operating uses wholly or partly upon the stock of another carrier, a similar analysis of the stock of that carrier and a consideration of the comparative amounts drawn from its own stock and from that of the other carrier afford a basis for a finding of the reasonable stock of usable material and supplies used, but not owned, for common carrier purposes." Northampton & Bath R. R., *supra* note 51, at 265.

caprices of the management might lead it to desire to have on hand.

*Scrap.* The total exclusion of scrap or obsolete material hardly seems justifiable. To exclude it completely is to assume that the management sells it promptly the day of its retirement from service, so that there is never any on hand at the close of the day. Prudent management would not dictate such action. To include all junk that the management might permit to accumulate and compel the public to pay the carrier a return on it would be clearly unfair to the public. To exclude all unusable material on hand would be unfair to the carrier. That the amount should be kept within some small percentage of the stock of usable materials on hand would seem to be more within reason, for prudent management would not call for or permit its disposition at the close of each day.

*Additions and Betterments.* Material and supplies used for additions and betterments are excluded from working capital for the reason that these are not used for operations, but ultimately are charged to capital account; that is, they augment the fixed capital of the carrier. When it is finally placed in service, a certain allowance is made for what is termed "interest during construction" of the addition or betterment, and this is assumed to compensate the carrier for the expense of keeping the material and supplies on hand prior to the date of their use. The adequacy of the carrier's compensation under this method may be questioned. Spur tracks and side tracks, for example, must be constructed from time to time. When these are constructed their cost is added to the fixed capital account, it is true, but "interest during construction," as figured by the Commission, does not justly compensate the carrier for holding material and supplies in stock prior to their use. Material and supplies for additions and betterments, however, must be kept on hand. There is a constant demand for them.

The more equitable procedure would be to ascertain for the five-year period preceding date of valuation the amount of material and supplies used for additions and betterments in the same way the amount is determined for carrier operations. The amount so carried should be classed as working capital until such time as it is transferred to the job and charged to the fixed capital of the carrier. This would work justice to the carrier and would be equally just to the public. It is capital in either case, and whether working capital or fixed capital is wholly immaterial.<sup>57</sup>

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<sup>57</sup> Apparently, however, the view of the Commission is that as the interest period is increased three months in figuring cost of reproduction in Account 76 (Interest During Construction) because cash and construction materials must be provided in advance of their actual use, when the addition or

Amounts of material and supplies on hand to be used in large construction projects, however, should, naturally, not be included in working capital. This was recognized by the court in *Bluefield Telephone Co. v. Public Service Commission*.<sup>58</sup> Such would and should be taken care of in the item of interest during construction in figuring the investment in or cost of the project.<sup>59</sup>

The amount to be included in working capital should be that which experience has shown to be necessary to keep on hand to take care of additions and betterments which are continually being made, perhaps in much the same manner and ratio as such materials used for ordinary operating purposes.<sup>60</sup>

Abrupt variations in the stock due to special conditions are given special consideration. No hard and fast rule can be laid

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betterment finally is included in the inventory of the carrier's property in bringing it down to a later date, the carrier will then be compensated adequately. According to this theory, the entire burden and risk of keeping the material and supplies on hand ready to furnish these additional facilities which the public continually demands should rest solely on the carrier. Thus, depreciation, risk of loss, risk of not using within three months from the date of purchase or at all, etc., are placed on the carrier, which is supposed to render these services gratuitously to the public. The argument in favor of this view is substantially as follows:

If material and supplies held for additions and betterments are included as working capital in the rate base, patrons pay a return thereon before the resulting service benefits. If interest on these materials, while carried in stock in reasonable anticipation of need, be added to the total cost of the project in which they are used, the carrier is compensated in the form of an addition to its investment, and the public bears no burden until it begins to benefit from the use of the completed project. Moreover, this practice better conforms to the distinction between "capital cost" and "return on the investment" which is observed in good cost accounting. In effect, material and supplies held for additions and betterments do not become "capital" until actually placed in service.

If the theory stated is correct, what of material and supplies held in stock for repairs? The Commission's theory may, to it, seem just, but if, for example, the carriers should refuse to keep on hand material and supplies for constructing spur tracks and should compel applicants for spurs to wait until the necessary material and supplies can be ordered from the manufacturer, the unfairness of the present system would at once become apparent. Yet, if the material and supplies which carriers keep on hand for just such purposes are to be excluded from their investment for carrier purposes, there seems to be no good reason why they should not refuse to keep such material and supplies on hand and compel applicants to wait.

<sup>58</sup> *Supra* note 39, at 300, 135 S. E. at 835.

<sup>59</sup> See *Reno Power, Light & Water Co. v. Public Service Commission*, *supra* note 53, at 667, 668.

<sup>60</sup> *Other concerns*. The amounts of material and supplies carried on hand for supplying other concerns are now, and should properly be, excluded from the working capital of the carrier valued. They are in no way essential to or connected with the proper functioning of the carrier under consideration.

down here, for each such condition demands its own appropriate treatment.

*Cash working capital.* In determining cash working capital, the Commission proceeds apparently to ascertain the carrier's "investment" in this element. It makes no distinction, however, between cash provided by the stockholders and cash borrowed in some manner, that is, between strictly "invested capital" and "borrowed capital." What really is attempted is to ascertain whether it is capital, in the comprehensive sense of property furnished by the carrier and devoted to maintaining common carrier service.

There is ascertained from the carrier's accounts and operating statistics<sup>61</sup> for a period, usually of three years, preceding date of valuation the amount of cash received from various sources in connection with its common carrier service and the elapsed time from the beginning of each class of such service to the receipt of the cash in the treasury.<sup>62</sup> From these data there is computed the weighted average elapsed time from the beginning of the various common carrier services to the dates when the cash received in connection with such services comes to hand and is available to meet payments.

There is also ascertained for the same period the amount of cash paid out for various purposes in connection with common carrier service and taxes, and the time elapsed from the beginning of each class of service until the payments fall due.<sup>63</sup> From these data there is computed the weighted average elapsed time from the beginning of the various common carrier services to the dates when the payments are made.

A comparison of the average delay in the receipt in hand of all cash from common carrier operations and the average delay

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<sup>61</sup> These data covering both receipts and expenditures are gathered from a questionnaire sent to the carrier and also from its annual reports to the Commission.

<sup>62</sup> The sources of cash received which are inquired into include ordinarily prepaid charges on freight forwarded, charges and advances collected on freight received, both local and interline, interline balances receivable on freight forwarded collect or freight carried intermediately between forwarding and delivering lines, the sale of passenger tickets, both local and interline, interline balances receivable on interline passenger tickets issued by foreign lines, and other forms of passenger transportation. If in any particular case other sources of receipts in connection with common carrier service are relatively important these also are included.

<sup>63</sup> The payments ordinarily inquired into are those for purchase of material and supplies for current use in operations or for replenishing the stock of material and supplies, the payment of wages and salaries, the payment of advances on freight forwarded, the settlement of interline balances payable, and the payment of taxes. If in any particular case other disbursements in connection with common carrier services are relatively important these also are included.

in the making of all payments in connection with such service is then made to ascertain whether the cash was received in hand, on the average, before the maturity of payments to be made, or whether payments had to be made for a period before the cash receipts from common carrier operations reached their full volume. This shows the number of days by which cash receipts anticipated the due dates of payments or lagged behind them. This number of days multiplied by the average daily amount paid gives for the three year period, in the one case, the average amount of cash received applicable to payments that was in excess of the payments made, or, in the other case, the average amount of cash that had to be obtained from some source other than receipts to pay expenses until cash receipts came to hand in sufficient volume. In the one case, it is the average daily surplus of current receipts applicable to these payments over the amount of such payments currently falling due. In the other case, it is the average amount of cash supplied from other sources and spent. It is no part of the cash on hand.

By applying this difference in delay to the average daily payments instead of to the average daily gross receipts, the result is made to represent solely the relation between the payment of cash outlays arising in the performance of common carrier service and taxes and current receipts properly assignable to those payments.

The result thus far indicates the average "invested cash,"<sup>64</sup> if any, used throughout the period to supplement lagging collections in order to meet maturing disbursements connected with carrier operations. The relation between collections and disbursements is not uniform throughout the month. At certain times the collections flow in more slowly than disbursements must flow out, and vice versa. At certain times of the month, therefore, the amount of cash necessary to supplement inflowing collections in order to meet maturing payments is greater than the average throughout the period. While collections may be in hand in time to meet disbursements on the average, there may be certain times of the month when they are not. It is thus necessary to ascertain how much cash is required to supplement collections on that day of the month when collections lag most behind disbursements. The method of doing this is involved in determining what the Commission calls the "buffer fund," or fund of reserve cash.

*Buffer fund.* The maximum lag in receipts behind payments, or the minimum surplus of receipts over payments, is found by comparing from day to day the accumulated daily receipts with the accumulated daily payments during the average month's

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<sup>64</sup> As a matter of fact, it may be all or partly "borrowed" cash.

experience and noting on what day of the month the deficiency, if any, was the greatest or the surplus was least. This result indicates by how much on the date indicated the receipts in hand had to be supplemented by cash from some other source in order to meet all payments due by such day and still have a sufficient buffer fund of reserve cash on hand. How much of a buffer fund is used is found from a consideration in detail of the frequency with which collections from various sources are made and payments for the various purposes are disbursed and of the stability of such a composite inflow and outflow. The amount of "invested cash" may never be all paid out and at certain times of the month may all be on hand. Whatever part is not paid out must be kept on hand to cover the peak requirements each month with an adequate margin of safety. A concrete example taken from a case before the Commission will, perhaps, best illustrate the method.

*Illustration.* A study of the records and questionnaire of the X Railroad showed that, on the whole, this carrier experienced a delay of 20 days in its receipt of cash and a delay of 30 days in its payment of cash in connection with its common carrier operations. In other words, on an average 20 days time elapsed from the date the carrier performed a service to the date it received payment for the same; and 30 days time elapsed on an average from the date it received materials, services, etc., in connection with its common carrier operations to the date it was called upon to pay for the same. The receipts thus anticipated the payments by 10 days. The average daily payments during the period under consideration were found to have been \$3,600. By multiplying the 10 days by the \$3,600, the average actual amount by which the receipts anticipated the payments was arrived at. This was \$36,000.

A study of this carrier's experience showed that, excepting the payments for taxes, the receipts of cash and the payments of cash in connection with common carrier service ran in cycles of one month or less, so that the relation between receipts and payments repeated itself each month in much the same manner. A comparison was made between the cumulated collections from day to day throughout the month and the cumulated payments for the same period that arose from the common carrier service rendered during the 36 months preceding valuation date. This disclosed by how much the cumulated receipts up to each day had exceeded the payments falling due up to that time. The day of the month on which this excess of cumulated receipts over payments was least, disclosed the most unfavorable position the carrier found itself in during the month with respect to cash available from its collections with which to meet its maturing payments. In the case of this carrier, this minimum excess of

receipts over payments was found to occur about the first day of each month, and averaged an amount equal to about six days' payments. The six days multiplied by the \$3,600 gave \$21,600, the average of the actual minimum monthly excess of receipts over payments. It thus appeared that this carrier, at the average most unfavorable time in each month, had on hand from that portion of its receipts applicable to operating payments an average of \$21,600 of receipts in excess of payments due in connection with its common carrier services. It should be borne in mind that this figure is average only.

The Commission, from an analysis of the distribution over the month of the collections and payments, and from the stability of this inflow and outflow as grounded in fixed business customs controlling thousands of transactions each day, concluded that the cash which a carrier properly should keep on hand as working capital, in addition to such amount as may be actually working, is an amount equal to ten days' operating expenses at the average most unfavorable day of each month. This sum, which on the average is never expended, but is kept on hand as a margin of safety, is called the buffer fund. In the case of the carrier under consideration this ten-day buffer fund amounted to \$36,000. Of this amount, however, \$21,600 represented excess of cumulated receipts over payments received in connection with common carrier service rendered—that is, money received by the carrier for service rendered prior to the time it had to pay for the service.<sup>65</sup> As the \$21,600 did not represent an "investment" by the carrier, it was deducted from the \$36,000, leaving \$14,400 as the amount in the buffer fund which the carrier itself had to furnish or invest. The round figure of \$15,000 was used as this carrier's cash working capital.

*Special items.* The cash which a carrier may have on hand on valuation date or which it may have carried on hand throughout the period is excluded from consideration in the above method, as in no way indicative of its investment in working capital. Money used to pay interest and dividends, to pay rent for leased property, to be used for the construction of additions and betterments, to cover casual operating deficits due to the temporary falling off of traffic, or to cover chronic operating deficits, is excluded.

Cash in addition to current collections, necessary to meet extraordinary expenditures on account of floods, hurricanes, and such casualties, unusual as to occurrence or degree, is not necessarily considered working capital. To the extent that such calam-

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<sup>65</sup> For example: *A* buys a horse from *B* on Monday. On Tuesday he sells the horse to *C* and receives payment. On Wednesday *A* pays *B*. *A* has not been compelled to invest a cent of his money. It was furnished by *C* to *A* prior to the time *A* had to pay *B*.

ities did occur within the three-year period analyzed in the Commission's computations, the cash required to take care of them is taken into consideration in the calculations made. But the fantastic and problematical calamities of the future, which may never occur, are not included. The more frequent casualties, such as wrecks, damage to property, and personal injuries, being a part of the regular operating expenses, are included. The Commission recognizes that on extreme occasions additional working capital may be necessary.<sup>66</sup>

Taxes are included in operating expenses for the purpose of determining working capital.<sup>67</sup>

#### COMMENT

While the Field method above outlined is not perfect, it is the most scientific and accurate method so far devised for determining the actual working capital of a common carrier. With suitable modifications as to accounts it is adaptable to any utility.

There are several elements considered in the Field method, and, in fact, in any attempt to arrive at actual working capital, which deserve special separate treatment.

*Cash on hand.* The contention is often made that cash working capital is to be determined by the simple process of ascertaining the amount of cash which a railroad or utility has on hand on valuation date.

The cash on hand at any particular time, however, cannot be taken as the criterion by which to determine working capital. If two-thirds of the railroad's working capital is out working—for example, taking care of the necessary expenses of furnishing transportation prior to the receipt of payment therefor, etc.—the amount of cash on hand will represent only one-third of its investment in working capital. In such a case it would be mani-

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<sup>66</sup> With respect to this it states: ". . . . . To the extent that the amount found to be regularly invested as cash working capital may need to be supplemented on extreme occasions, whether by temporary loans or by diverting cash from other corporate uses, that is, for the time being, an additional investment of cash working capital. But the addition to the working capital otherwise found to be continuously used would be only the equivalent of this extra contemporary demand after it were spread over all the years between the probable recurrences of such casualties, according to the reasonable risk disclosed by a carrier's experience. Where suitable data from actual experience permit the determination of such an additional amount, it will be included in our finding." *Northampton & Bath R. R.*, *supra* note 51, at 270.

<sup>67</sup> The correctness of their inclusion is obvious. *Cf. Municipal Gas Co. v. Public Service Corporation*, 113 Misc. 748, 186 N. Y. Supp. 541 (Sup. Ct. Albany Co. 1920); *Consolidated Gas Co. of New York v. Newton*, *supra* note 38.

festly inaccurate to say that the railroad had invested in working capital only the amount of cash which it had on hand. Under such a method only the cash which was never actually employed would ever be classed as working capital.

On the other hand, a railroad may have accumulated large reserves of cash on hand, representing in part other railroads' proportions of freight and passenger charges that it has collected, money for paying dividends, interest on debts, etc. To class all of this cash on hand as working capital, under such circumstances, would be inaccurate and unfair to the public in that it would be required to pay a return on the railroad's unproductive accumulated profits and other cash collected from the public, a portion of which belonged to other railroads. The public would thus also be called upon to pay to the carrier a profit on its profit.

Take the following illustration: John Doe buys a passenger ticket from a point on a small railroad in New England to San Francisco and pays \$150 for it. The \$150 immediately becomes a part of the cash which the railroad has on hand. The proportion of this \$150 which belongs to the railroad selling the ticket may be only \$5. The remaining \$145 is money which it has collected and holds for the other railroads which perform the major portion of the transportation purchased. These other railroads will not receive their share of the compensation until a month or so later when there is an accounting between the railroads. It is thus manifest that it would be inaccurate to classify this entire \$150 as working capital of the railroad which sold the ticket and permit it to earn a return on the entire amount.

That the cash on hand is not determinative of the amount of working capital has been recognized by the courts in several cases.<sup>68</sup>

*Profits returned to the business.* The exclusion of the cash on hand from designation as working capital does not mean that money obtained from operations may not become working capital. Profits of the business may be retained in the business instead of being distributed as dividends or otherwise. When these prof-

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<sup>68</sup> Consolidated Gas Co. v. City of New York, 157 Fed. 849, 859 (S. D. N. Y. 1907); Ann Arbor R. R. v. Fellows, 236 Fed. 387, 394, P. U. R. 1917B 523 (D. Mich. 1916) (dismissed on appeal, 248 U. S. 588, 39 Sup. Ct. 5 (1918)); Southwestern Telegraph & Telephone Co. v. City of Houston, *supra* note 9, at 883; New York & Richmond Gas Co. v. Prendergast, 10 F. (2d) 167, 208 (E. D. N. Y. 1925). See also 33 Cyc. 547.

That receipts from operations might make unnecessary the inclusion of an amount for working capital seems to be the view of the court in Cedar Rapids Gaslight Co. v. Cedar Rapids, 144 Iowa 426, 120 N. W. 966, 48 L. R. A. (N. S.) 1025 (1909), *aff'd*, 223 U. S. 655, 32 Sup. Ct. 389 (1912). But see in this connection Pacific Coast Elevator Co. v. Department of Public Works, 130 Wash. 620, 633, 228 Pac. 1022, 1026 (1924).

its are invested in material and supplies, or cash used for common carrier operations, or in fixed plant devoted to common carrier use, they become just as much a part of the capital of the corporation as cash furnished directly by the stockholders themselves. This was set forth clearly by Mr. Justice Butler in *Board of Public Utility Commissioners v. New York Telephone Co.*, when he said, "Property paid for out of moneys received for service belongs to the company just as does that purchased out of proceeds of its bonds and stock."<sup>69</sup>

This fact is given full consideration in the method used by the Commission, for this method determines how much working capital the carrier *actually uses*, and not simply the part thereof which represents investment direct by the stockholders.

*Dividends.* It is quite generally contended that money to take care of dividends should be included in the amount used as working capital. The law is so clear on this point, however, that it is surprising the contention should ever be made. That dividends cannot lawfully be paid out of capital is an old and well-established rule of law.<sup>70</sup>

In *Mobile & Ohio R. R. v. Tennessee*<sup>71</sup> Mr. Justice Jackson, in delivering the opinion of the court, said:

"Again, dividends can be rightfully paid only out of the profits. Corporations are liable to be enjoined by shareholders or creditors from making a distribution in dividends of its capital. Taylor Priv. Corp. Sec. 565, and authorities cited.

"The term 'profits,' out of which dividends alone can properly be declared, denotes what remains after defraying every expense, including loans falling due, as well as the interest on such loans. *Corry v. Londonderry & E. R. Co.*, 29 Beav. 263."<sup>72</sup>

It has been shown heretofore that working capital is a part of the capital of a corporation. Dividends cannot be paid out of capital. Therefore working capital cannot be used to take care of the dividends which a corporation may desire to declare. Such dividends must be taken care of out of profits.

*Interest.* It is often contended that money for the payment of interest should be included in calculating the amount of working capital which a carrier or utility uses. The Commission excludes

<sup>69</sup> 271 U. S. 23, 32, 46 Sup. Ct. 363, 366 (1926); *cf.* *Re Rates and Charges of Telephone Companies*, F. U. R. 1920B, 411, 452 (Ariz. Corp. Comm. 1920).

<sup>70</sup> See 14 C. J. 800, and cases there cited.

<sup>71</sup> 153 U. S. 486, 14 Sup. Ct. 968 (1894).

<sup>72</sup> *Ibid.* 496, 497, 14 Sup. Ct. at 971. In *Idaho Power Co. v. Thompson*, 19 F. (2d) 547, 564 (S. D. Idaho 1927), the court, after taking a sound view of the subject generally, falls into the error of assuming that dividends are to be considered in determining working capital.

this item.<sup>73</sup> A consideration of the effect of including it will clearly show that it should be excluded.

Assume the physical property of a utility has been inventoried and the fair value as of the time of valuation found to be \$1,000,000. Assume that it is unencumbered by any mortgages. The fair value upon which the utility would be entitled to earn a reasonable return would be \$1,000,000. The working capital properly included would be that necessary to operate the \$1,000,000 plant.

Now assume the utility should finance the construction of its plant by the issuance of \$500,000 of first mortgage bonds and \$500,000 of stock, instead of using \$1,000,000 of stock, as assumed in the preceding case. The value of the plant would be \$1,000,000 as before. The same amount of working capital would be required to operate the plant. But those who contend that money to take care of interest payments should be included in working capital would say that the working capital under this financial arrangement should be that necessary to operate the plant, plus that necessary to take care of the interest on the bonded indebtedness. Merely by increasing the indebtedness the amount of working capital could be increased. It certainly cannot be held that the "fair value"<sup>74</sup> of the property has been increased by mortgaging it. It is the same regardless of mortgages. It cannot be said that mortgages are used for the convenience of the public. They are instruments used for the convenience of the utility, and they neither add to nor subtract from its value.

In *Galveston Electric Co. v. Galveston*,<sup>75</sup> the court stated that:

"It has for a long time been recognized that the interest which complainants pay upon their bonds, or for the securing of money, has no part in a rate controversy."<sup>76</sup>

*"Financial arrangements."* Money to take care of various financial arrangements which the utility may enter into in obtaining property, such as cash for brokerage fees, cost of obtaining money, etc., cannot properly be included among the items for which working capital should be provided. It cannot be added to the capital of the utility. This is clearly set forth in

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<sup>73</sup> See *Northampton & Bath R. R.*, *supra* note 51, at 263, 264.

<sup>74</sup> *Supra* note 1.

<sup>75</sup> 272 Fed. 147 (S. D. Tex. 1921), *aff'd*, 258 U. S. 388, 42 Sup. Ct. 351 (1922). See *supra* note 14.

<sup>76</sup> *Ibid.* 157. A similar view with respect to money set aside for interest payments was apparently held by the court in *Ann Arbor R. R. v. Fellows*, *supra* note 68, at 394, P. U. R. 1917 B at 533.

*Reno Power, Light & Water Co. v. Public Service Commission*,<sup>77</sup> where the court makes the following statement:

" . . . . One man, with abundant capital or excellent credit, may be able to construct a plant without employing brokers or issuing bonds; another, with little capital and but indifferent credit, may be obliged to pay large fees for marketing his securities, and realize from them much less than their face value. This cost of obtaining capital to erect a public utility plant is not property which will be used in serving the public. It is not basic value. It is an index of the promoter's lack of credit and capital, rather than of reasonable value. *Galveston Electric Co. v. Galveston*, 258 U. S. 388, 397, 42 Sup. Ct. 351, 355 (66 L. Ed. 678). In that case the court said:

" 'As the base value considered is the present value, that value must be measured by money; and the customary cost of obtaining the money is immaterial.' "<sup>78</sup>

*Rent for leased property.* Cash expended in payment of rent for leased property is excluded by the Commission.<sup>79</sup> This is obviously correct. The fair value of the property itself is included with the fair value of all other property devoted by the railroad or utility to the public use. It obtains the same return on the value of this property regardless of its ownership. It should not, therefore, be entitled to an additional return on the property merely because it does not own it; that is, it is not entitled to a return on the property itself and also a return to cover its rental.

*Cash for additions and betterments.* The Commission excludes from its consideration cash kept on hand or used by a railroad to facilitate the construction of additions and betterments to meet the growing demands of traffic. The reason given for this is that:

" . . . . The carrying charges for such cash and material and supplies are, in their nature, capital costs, and not service costs,<sup>80</sup>

<sup>77</sup> *Supra* note 36.

<sup>78</sup> *Supra* note 36, at 796. To like effect see also *Reno Power, Light & Water Co. v. Public Service Commission*, *supra* note 53, at 667, 668; *Galveston Electric Co. v. Galveston*, *supra* note 14, at 397, 42 Sup. Ct. at 355; *Monroe Gaslight & Fuel Co. v. Michigan P. U. Commission*, 292 Fed. 139, 150 (E. D. Mich. 1923). In this last-named case the court stated: "We reject entirely the whole subject of capitalization, stocks, and bonds. We fail to see how it can have any pertinence. The Utility is entitled to an opportunity to earn a reasonable minimum return upon the proper rate base. How many securities are outstanding is of no importance. Cases may be conceived where the stock and bond history may have evidential value, but its bearing at the best will be remote."

<sup>79</sup> See *Northampton & Bath R. R.*, *supra* note 51, at 264.

<sup>80</sup> The distinction sought to be made between capital costs and service costs is immaterial. It disregards the fact that working capital is capital. But see *supra* note 57.

and should be compensated by being carried forward with the expenditures made, or material used, into the cost of the addition or betterment rather than be charged against the income by including the amount of such funds and material on hand in the value of property used in the performance of service. . ."<sup>81</sup>

It is further stated that as to property in place on valuation date this item is taken care of in the inclusion of interest during construction. In other words, whenever an addition or betterment is completed, the cost of keeping cash on hand to facilitate its construction will be taken care of in the form of interest during construction. The same criticism applies here as in the case of material and supplies heretofore discussed. It is by no means certain that this method will work justice to the utility, and for ordinary additions and betterments which proceed in perhaps much the same rate as repairs, etc., the item could with more justice be included in working capital. It is capital in either case.

*Accidents.* Expenditures incident to wrecks, damage to property and personal injuries are included in operating expenses by the Commission and are therefore taken into account in determining the working capital which a carrier uses.<sup>82</sup> They are natural incidents of the business and cannot be overcome completely. Obviously, they should be taken care of in operating expenses and be taken into account in determining working capital.<sup>83</sup>

*Extraordinary calamities.* To the extent that extraordinary expenditures for the restoration of carrier property destroyed through floods, hurricanes, fires and other such casualties have taken place within the three year period analyzed by the Commission, they are included in the calculations for working capital.<sup>84</sup> As the period of time required for restoration will increase with the magnitude of the project or extent of the damage, the assumption is that the funds necessary for this

<sup>81</sup> Northampton & Bath R. R., *supra* note 51, at 264.

<sup>82</sup> *Ibid.* 269.

<sup>83</sup> That the expenses of taking care of personal injuries may properly be included in operating expenses was stated by Judge Trieber in *In re Arkansas Rate Cases*, 187 Fed. 290, 306 (C. C. E. D. Ark. 1911), in the following language: "It is also claimed that complainants are not entitled to 'charge in the expense of operation the sums they paid for injuries to persons.' This claim cannot be treated seriously. It is true, as claimed by counsel, 'that the people of Arkansas are not insurers of the risks of the railroad business;' but, on the other hand, such accidents cannot be wholly avoided, and, as there is no pretense that they were wilful or intentional on the part of the officials of the companies, they must be considered as unavoidable risks of operation of the business. . ."

The court also pointed out that insurance to cover such risks would properly be chargeable to operating expenses.

<sup>84</sup> Northampton & Bath R. R., *supra* note 51, at 269.

restoration can be obtained largely out of current receipts and the buffer fund. It is admitted that if additional funds are required for this purpose they will represent an additional investment in working capital for the time being, but it is stated that when spread out over the years between such occurrences the average additional amount will be insignificant. It is stated in conclusion that "where suitable data from actual experience permit the determination of such an additional amount, it will be included in our findings."<sup>85</sup> This seems to mean simply that if the carrier has suffered extraordinary calamities in the past it may include cash to take care of such expenditures in figuring working capital, whereas if it has not suffered such extraordinary calamities in the past it will not be permitted to include any cash for such expenditures in its working capital. This seems to mean that if a carrier has suffered a calamity in the past it will suffer one in the future, and if it has suffered none in the past it will suffer none in the future—an entirely illogical assumption.

The fact that calamities and extraordinary expenditures may possibly occur in the future should be taken into consideration in all cases, particularly in figuring the size of the buffer fund. This does not mean, of course, that large sums of money should be carried idly to take care of the accidental possibility of some future calamity which may never occur. It means simply that the buffer fund should be swelled sufficiently to provide a sum that, stretched over the years, will allow a reasonable return on the possibility of having to assume a large expenditure.<sup>86</sup>

*Casual and chronic operating deficits.* The holding of the Commission that "cash required to cover casual operating deficits due to the temporary falling off of traffic is not working capital, any more than is the steady supply of cash, as by a parent company, to cover a chronic operating deficit"<sup>87</sup> seems well supported. That past losses cannot be capitalized is well settled.<sup>88</sup>

When losses cannot be capitalized certainly cash to take care of such losses cannot properly be denominated working capital.

That past losses should be given consideration in determining what is a fair rate of return was, however, pointed out by the court in the *Galveston* case.<sup>89</sup>

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<sup>85</sup> *Ibid.* 270.

<sup>86</sup> That extraordinary requirements should be taken into consideration in estimating working capital was pointed out by the court in *Queens Borough Gas & Electric Co. v. Prendergast*, 31 F. (2d) 339, 350, 351 (E. D. N. Y. 1928).

<sup>87</sup> *Northampton & Bath R. R.*, *supra* note 51, at 269.

<sup>88</sup> See *Galveston Electric Co. v. Galveston*, *supra* note 14, at 394, 395, 42 Sup. Ct. at 354; *Georgia Railway & Power Co. v. Railroad Commission*, 262 U. S. 625, 632, 43 Sup. Ct. 680, 683 (1923).

<sup>89</sup> *Supra* note 14.

*Seasonal deficits.* The seasonal deficit might be likened to the unprofitable day in the course of a profitable month. In calculating seasonal deficits the Commission uses the year as a basis. If the deficit occurs at the beginning of the year so that cash must be advanced by the carrier to take care of its operating expenses, such money is included in the working capital estimate. But if the deficit occurs during the latter part of the year the accumulated surplus from the profitable business of the first part of the year is presumed to take care of this deficit. Whether working capital is or is not included in such a case depends upon when the year under consideration is started. If the starting point is during the beginning of the unprofitable season the carrier will be considered as using working capital, whereas if the starting point is at the beginning of the profitable season no working capital will be considered as being used. This is illogical. The situation in such a case should be considered over a period of years. Each case of this nature demands its own special study. It is believed, however, that prime consideration should be given the relative delay from the performance of service to the receipt of payment therefor and the receipt of material and supplies and services and the payment therefor.

*Cash for credit standing.* The contention is often made that there should be included in the working capital of a railroad or utility an amount of cash over and above all other requirements for the purpose of giving the company "credit standing." The method outlined above assumes the payment by the railroad of its bills in the same manner it has been accustomed to pay them, that is, with no change in its credit standing. It can, by the simple process of paying its bills more promptly, increase the amount of its working capital, but this would, of course, increase the amount of its own cash that it would have to use.

That the financial arrangements entered into by the railroad, its credit or lack of credit, have no place in a valuation of the property devoted to the public use has been shown heretofore.<sup>90</sup>

*Reserve funds.* It is sometimes thought that money carried in reserve funds should be included in working capital. The distinction between working capital and a reserve fund was brought out by the court in the case of *Bassett v. United States Cast Iron Pipe & Foundry Corp.*<sup>91</sup> Under the charter of the corporation the board of directors had the power to "fix the amount to be reserved as the working capital." The corporation started out with an original working capital of \$1,720,000. From time to time, out of accumulated profits, it set aside the sum of \$2,459,-

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<sup>90</sup> See cases under "Financial arrangements," *supra* note 78. See also *Reno Power, Light & Water Co. v. Public Service Com'n*, *supra* note 36, and cases there cited.

<sup>91</sup> 74 N. J. Eq. 668, 70 Atl. 929 (1908).

896.64, which it designated as a "reserve for additional working capital." The directors of the corporation proposed to reduce this sum to \$2,250,000 and disburse the difference of \$209,896.64 in the form of a dividend to the preferred stockholders. Bassett sought to enjoin this action. The \$2,459,896.64 had been invested by the corporation in securities which could be liquidated on short notice. In commenting upon the nature of the fund, the court said:

" . . . This fund never became actual working capital. It was never actually employed in the business in which the company was engaged. It has always remained in cash or securities. . . . I understand from the case that the original working capital of \$1,720,000 was actually invested in the purchase of materials or plant, or invested in book accounts, and that it has been and is treated as actual working capital. It is quite manifest that there is a wide difference between the original actual working capital invested in property necessary for the company's business and the reserve of \$2,250,000 which is merely held as an investment of the surplus moneys belonging to the corporation."<sup>92</sup>

The court thus clearly distinguishes between working capital, which is *capital* that is actually used in conducting a business through investment in material and supplies or in "book accounts," and a reserve fund. That the reserve fund should not be included in working capital is obvious.

#### CONCLUSION

While the Field method cannot be said to possess the unattainable virtue of mathematical accuracy, it is the most scientific method so far devised for determining working capital in railroad and public utilities valuations. So long as "the basis of calculation is the 'fair value of the property' used for the convenience of the public,"<sup>93</sup> the quantity and value of that property should be determined by some method more accurate than "judgment" or "guesswork," and also more accurate than a mere taking of some arbitrary part of the annual operating expenses. Such methods have long since been superseded in valuing the fixed property or "capital" of a railroad or utility. The time has come for their elimination when the mobile assets or "working capital" of such a company are being determined.

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<sup>92</sup> *Ibid.* 674, 675, 70 Atl. at 932.

<sup>93</sup> See *supra* note 1.