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Construction Records and Accounts*

By H. C. HOPSON.

INTRODUCTORY.

The necessity for keeping books in connection with business is axiomatic. As has been frequently pointed out, accounting is very old, and a treatise was written on double-entry bookkeeping prior to the discovery of America, so what seems to many of us to be very new is really not that at all, but merely a rediscovery by us of what had been known to others possibly generations ago.

Books of account are necessary to record current operations, show the condition of the business at any given time and serve as a financial history of the enterprise. Speaking in simile, the statements made up from the books of account are a lens through which the complete operations of an enterprise may be seen, but, as with a lens in a camera or microscope, so with an accounting system, if it is faulty or incomplete, a distorted view must result. Likewise, as the first camera lens was merely a pin hole, and a very ordinary curved glass lens was considered satisfactory for eyeglasses, so at one time where we now have accounting systems, books were kept, the contents of which depended upon the vagaries and idiosyncrasies of the individual bookkeepers. Now, just as even the cheaper cameras are fitted with rectilinear or anastigmatic lenses to create a correct image on the plate or film, so no successful business is satisfactorily operated from the standpoint of the management, the investor or the public, unless the method of keeping accounts is reasonably standardized in accordance with certain known and generally accepted principles.

Formerly the plant and equipment account and earnings as stated, were notoriously unreliable, and any financial house which based its judgment upon such figures, without further detailed study, would have been laughed at. Frequently the earnings were overstated, and expenses understated and vice versa. At times such things were done with intent, but more often they were due to actual ignorance of fundamental principles by those who formulated the methods.

*A paper read before the Pennsylvania Electric Association.

In recent years, however, various associations, such as the American Association of Railway Accounting Officers, the accounting committee of the American Gas Institute, and the accounting section of the National Electric Light Association, have realized the necessity, for the improvement and welfare of the respective industries, of some standardization in methods of keeping accounts. This tendency has been accelerated by the establishment of commissions which, in many states, have prescribed uniform systems of accounts for public utilities. Formerly after an accountant had learned to understand the accounting system of one public utility corporation, unless he was a professional public accountant, he would have to begin all over again with another. Comparisons of the several corporations were worthless until the figures had been analyzed and restated on a common basis. Now, however, the financial statements of most corporations, as published in the various statistical reports and in the manuals of the commissions, are fairly comparable in a general way.

The accounts kept by public utility enterprises are usually classified into two general classes: balance-sheet or indicant accounts, which reflect the condition of the business at any given time, and income accounts, which record the results of conducting the business over a period of time, summarized for most purposes by fiscal years, but grouped by calendar months, for comparison with the corresponding months of the preceding year. The balance-sheet accounts, of course, are further subdivided into those usually shown on the assets side of the balance-sheet, representing fixed, current and deferred assets or temporary debits, and liability accounts composed of debts, reserves, capital evidenced by outstanding stock in the hands of the owners, and the excess, if any, belonging to the stockholders, of assets over liabilities represented by the surplus account, in which account are brought together the summated result of conducting the business since organization and the result of operations for the fiscal period. The debts of the company are further subdivided into fixed or permanent obligations, i. e., those having a period of maturity more than one year from the date of their creation, and current

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liabilities. The former combined with the outstanding capital stock form what is generally termed the capitalization of the company.

FUNDAMENTALS.

The subject-matter of this paper has to do with only a single class of the foregoing accounts, namely, that portion of the fixed assets which is directly used in rendering the service for which the enterprise exists. We commonly speak of the records of such accounts as the "construction records." They are kept in those books of accounts in which are recorded the expenditures made in acquiring the property, that is, land, franchises, rights of way, buildings, power plant equipment, distribution system and other facilities devoted to rendering the service to the public. A somewhat more representative term and one which has come into general use is "fixed capital."

The capital of any corporation, as distinguished from the securities issued to acquire it and called "capitalization," is that property which is employed in the rendering of the service. The fixed capital, as distinguished from floating or working capital, is that property which has a greater or less degree of permanence, having an expected period of life in excess of one year from the date of its acquisition.

There are numerous divisions of fixed capital. The first—general capital—represents property which is devoted to rendering more than one class of service, as buildings housing both gas and electric equipment, office equipment, organization expenditures, etc. The second—departmental capital—represents property used solely or exclusively for rendering a single class of service, as the electric distributing system.

Fixed capital is also subdivided into landed and non-landed capital, the former covering lands and interests in lands, such as easements, flowage rights and leaseholds having a long period to run. Non-landed capital includes all other permanent property.

Another classification of fixed capital, which is more readily recognized, is that between tangible and intangible property. The latter covers property of a non-physical nature, i. e., property which is non-visible but for which there was an outlay, as franchises, patent rights and expenses of organization. Tangible

property includes not only the bare labor and material cost of construction, but the outlay for engineering and superintendence, taxes, insurance, accident and damage claims, contractor's profit, interest on funds used to pay for the construction of the property, as well as the cost of temporary structures, scaffolding, etc., erected and demolished during the course of the work. There seems to prevail a mistaken idea that because expenditures of this nature are non-visible and are referred to as "non-physicals," "related intangibles" or "overhead costs," they are intangibles as that term is usually employed in its wider sense. This is not correct. Any expenditure of this sort is as much an expenditure for tangible property as the amount paid to a carpenter as wages for work in constructing a building. This has always been recognized; but the difficulty has been that, with few exceptions, there has been a failure properly to record them in the accounts.

The fixed capital of any electrical corporation may also be subdivided into three general groups: original capital, additions and betterments.

Original capital includes all that capital placed in service at the outset of the enterprise. This is usually represented on the liabilities side of the balance-sheet by the original issue of securities. Original capital also includes the property purchased as a completed plant or system from other concerns which were in a similar business.

Additions include extensions to the original plant, i. e., the distribution system, generating apparatus, new buildings and structures made subsequent to the construction of the original plant and not taking the place of anything previously existing.

Betterments consist of enlargements or improvements to existing structures, facilities and equipment. When dealing with the subject of betterments in the accounts we are forced for uniformity to adopt as a possibly arbitrary fundamental that, even though a particular expenditure is an improvement or increases capacity, it will not be recorded in the accounts as a betterment unless it also represents an increase in the cost of the unit or group of units bettered.

In addition to these groups representing actual increases in the fixed capital investment, there are two more groups which must be considered but are separate and distinct from the above,

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because in a properly financed corporation their cost must be paid through operating expenses. This refers to renewals and replacements.

Renewals of capital include the cost of all extensions of term of corporate existence and franchises, extensions of life of rights, easements, interests in land, etc.

Replacements, as generally defined, include all substitutions for capital exhausted or become inadequate in service. They include equipment substituting or replacing apparatus of the same cost. The question arises at this point as to the treatment in the accounts of replacements in which the substituted property of the same capacity costs more than the property replaced, and as to the relation between replacements thus costing more and betterments. Here we follow, for the purposes of uniformity, the arbitrary rule that the excess cost of the substituted property over that replaced is classed in the accounts as a betterment and is chargeable to capital, and the funds therefor may be secured from an issue of securities rather than from income.

In steam railroad accounting, the proper treatment of items of this character became very pertinent in connection with the substitution, which is now going on, of steel rolling stock for wooden. It was long a principle of financing of American railroads that only property of a greater cost, which also represented an increase in capacity, should be included in the capital account and paid for from the proceeds of capital securities. Following this rule a school of steam railroad accountants held that the excess cost of steel equipment over the wooden equipment which was replaced should be paid from income and not charged to capital. This same school also believed that additions or betterments, such as elimination of grade crossings, which added little or nothing to the earning capacity of the road, should not be included in the fixed capital account and should be paid for from income. According to this school if such expenditures are entered on the balance-sheet at all they should be properly ear-marked and kept separate from the capital of the company which was paid for from issues of securities, free surplus or undivided profits. Though there is much to be said in favor of this theory, under the present system of fixing rates based on the fair value of the property, and considering the necessities of weaker corporations, it

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was finally decided by the Interstate Commerce Commission that the excess cost of the new should be included in the capital account even though the capacity or earning power was not materially increased.

The question no doubt arises as to whether or not substitutions of capital are not covered by repairs. Up to a certain point this is so. Repairs are merely minor replacements. Where a substitution does not amount to an actual change of identity in a structure or facility, and is caused by wear and tear or a casualty, such substitution should be treated in the accounts as repairs.

The foregoing comments have to do mostly with charges or debits to the fixed capital account. The credits to that account are made up of withdrawals of property, or, as technically termed, "retirements." When any property, either tangible or intangible, is withdrawn from service, the capital account should be credited with the original cost of such property so withdrawn. If the original cost is not known and cannot be ascertained except at an undue expense, careful estimate should be made and the estimated amount credited. Credits should be made for property retired equal to the amount at which such property stood charged in the capital account at the time it was removed.

Because the consideration of credits in the past has been largely subordinated to that of debits and so much attention is now being devoted to them by many corporations, particularly those operating under public service commissions, with well-established accounting departments, the question of credits seems, if anything, more important than that of debits.

It has been the practice of many large corporations, even those using great care in the distribution of charges between capital and income, to overlook the fact that it is as necessary to credit the cost of property abandoned or destroyed as it is, in debiting the cost of property installed, to exclude from the amount so debited that portion of the expenditure which partakes of the nature of maintenance and repairs. When a No. 6 line, charged to capital account, is later removed and a No. 2/0 line installed in replacement, if a credit is not made to the fixed capital account when the No. 6 line is removed, and the full cost of the No. 2/0

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line is charged, it is obvious that there is reflected in that account the cost of two lines, whereas there is only one in service.

When additional capital stock or bonds are to be issued, the proceeds of which are to pay for the increase in the capital account, as in the new line, new securities will be issued for this new line, notwithstanding that securities are still outstanding for the original one. The new line is then forced to carry a heavier interest charge than should be expected of it. In a rate adjustment a return can, of course, be allowed in all but exceptional instances only on the line actually in service. Therefore, if the new line has been capitalized on top of the old one, both investors must share in the sacrifice due directly in the first instance to the improper accounting for changes in the property account.

Experience with capital accounting, however, indicates that most corporations are now careful in their accounting when replacements like the foregoing illustration are made, so that only the net increase in cost will be included in the capital account; but, on the other hand, if a steam generating station is entirely abandoned, or goes into complete disuse due to the taking of power from some outside source, sight seems to be lost of the necessity for recognizing, in the accounts the fact that it has been withdrawn and retired from service. While, in many instances, it is impracticable to charge off the entire cost at once, immediate recognition of the fact should be made in the accounts, and suitable provision made so that it will finally completely disappear from the statement of assets of the corporation.

It may seem that it is entirely unnecessary that such distinctions as the foregoing be considered. If the fixed capital account were simply one in which to record expenditures and then forget about them, granted, but that is not the purpose of keeping capital accounts. They are to record the use made of the funds contributed by the investors, the measure of their principal, the record of the security behind the secured obligations—mortgage bonds. The cost of the property devoted to rendering the service can be authenticated only in this account.

While, in the current keeping of the accounts, these distinctions, which may appear unduly refined, are not a matter of every-day use, without a thorough understanding of the principles

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which underlie them it will be impossible to distinguish correctly between those expenditures which are chargeable to capital and those which should be financed from income if there is to be compliance with the systems of accounts prepared by the various accounting associations and required by public utility laws and the commissions enforcing them.

PRACTICAL APPLICATION

All charges or debits to capital account should be made in such a manner as to enable the identification of the property the acquisition of which they record. In order to do this, it is necessary that some distinguishing number be assigned to each piece of construction work. The most satisfactory method of doing this is by work order, job or project system. Under such a system a number is assigned to every new piece of construction work. The order for the work should describe it in great detail and contain an estimate of the cost, with a description of the principal items of materials to be used therein. All records of charges and credits in connection with it thereafter should show this number. The project record can be operated as either a memorandum account or an auxiliary record. Where it is used as an auxiliary record, the projects are carried, pending their completion, in a construction "work in progress" account, and later closed into the fixed capital account.

Where it is used as a memorandum record, the charges are made concurrently to the fixed capital accounts and to the work order or project account. These are balanced monthly, the total of the monthly charges in the project record agreeing with the debits to fixed capital for the month. This enables the corporation to have in its fixed capital account at all times all the expenditures for construction work regardless of whether the work is complete or incomplete. These projects are the supporting data of the capital account, and the reference to them goes directly back to the original voucher. When a project is finished, all the charges thereto should be promptly summarized both by classes of work from an engineering standpoint, as excavation, foundation, concrete, steel and the various classes of apparatus, and to show the make-up of the distribution of the total charge to the project between the various accounts into which the fixed capital is subdivided in either the general or the fixed capital ledger.

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It is well here to call attention to a practical rather than a theoretical subdivision of fixed capital which is of great use, and should be borne in mind in laying out the system of accounting for fixed capital. There are two general classifications of expenditures for fixed capital. The first is the so-called inventory or group classification, which classifies the property acquired according to its general character, regardless of the particular project or extension in connection with which it was made.

This inventory classification is that which is used by the Interstate Commerce Commission in classifying the road and equipment accounts of the railways, and it is also the classification which is used by the National Electric Light Association and the public service commission in classifying expenditures for fixed capital, that is general structures, distribution system, power plant buildings, meters, furniture and fixtures, etc. These are of little interest when we consider the changes therein over a short period of time. For example, it is not particularly significant to know the amount which has been expended for poles and fixtures, or transformers, or electric generators within a particular month or even a year; but at the end of a ten-year period it is very significant to know the relative amount of the expenditures subdivided into these general classes. To give an operating executive a statement of the amounts expended by inventory accounts as shown in the usual classification means little to him. What interests him are the various projects or jobs which you have been engaged in or have in contemplation, such as an additional unit in the power station or an extension to a neighboring community, or the development of a water power. Taken over a long period of years, however, the number of such projects becomes so great that any detailed consideration of them is impossible, and it is necessary to analyze or classify them by the character of the property which was acquired. When, however, it is necessary to make an examination of the company to verify the integrity of the entire capital account, the inventory accounts obviously fall into three groups.

First. Those covering apparatus in the power plant, the several separate buildings, etc. It is necessary to go through the charges and credits and assign expenditures to particular units so that it may be ascertained whether the units to which the

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charges relate are still in service, and to determine the total cost of them as shown in the accounts compared with their value. This group of accounts may be commonly designated as "analytical accounts," for the only way in which any opinion can be formed about them is by analyzing in detail the charges made therein.

Second. Those which are homogeneous within themselves, being made up of a large number of similar units, the principal point of differences between the various units being in the size or type. Included in this group, which may be termed "statistical accounts," are meters, transformers, poles, wire and street lamps. With these a consideration of the individual items is impossible and unnecessary, and to verify their integrity it is necessary only to ascertain the number acquired, the number retired and credited, and compare the remainder with the number in service and in stock by sizes and types. This work is merely clerical after it is once laid out.

Third. Those in which the expenditures usually represent individual units, but the units are so varied in character as to make it impossible to classify them by sizes and kinds, as is true of the statistical accounts. Furthermore, the expenditures for most items are so small that the result is not worth the time and expense necessary to ascertain their original cost. Included in this group of accounts are furniture and fixtures, stable equipment, large tools, other than small hand tools, chargeable to materials and supplies, etc. The best way to maintain their integrity is by having the property charged thereto annually inventoried at the time that the materials and supplies inventory is taken, and priced in the same way. The total investment represented by these accounts is not considerable, and the result will be as accurate as if elaborate records were kept so as to make possible a detailed analysis at some future time. Furthermore, if depreciation is recognized in the accounts, as is desirable, none need be accrued for this class of property if it is currently valued at its present worth rather than its original cost.

It is only as to the first of this group of accounts that a detailed project or work order system must be scrupulously maintained. Many companies group all of the purchases of meters under a single project number, and make similar disposition of transformers, arc lamps, etc. The same thing is done with

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the equipment accounts, i. e., by using a general project number for office equipment, which is charged with all purchases included under that head, and adjusted at the end of the year as required, to agree with the annual inventory.

As to the first group—analytical accounts—the individual charges to which are varied in character from a few cents to thousands of dollars, a project system is absolutely essential. It can readily be used in preparing or maintaining a perpetual physical inventory. The project system is elastic enough to provide for any work the corporation may undertake. If detailed engineering costs are desirable, as they usually are, sub-projects can be maintained for the various parts of the work, as desired, by the engineers, such as excavation, concrete, etc., or if a new building is being erected, and new equipment is being installed, several projects can be used, each with a different number, each project to cover a different portion of the work. If the work consists of the construction of new lines or replacement of old lines, a project may be made of each line and a project assigned to cover the cost of removing the old line. In this way the cost of the new lines will be kept separate, as well as the expense of removing the old one, which is chargeable to operating expenses or a reserve for depreciation after applying the salvage received from the line which was taken down.

As already stated, the project system can also be applied to the purchase of meters, transformers and office and shop equipment accounts. The description of the meters, transformers and tools is shown in the projects, making not only a permanent inventory record but obviating the necessity of referring to the original voucher later on. Likewise, any such property retired can be fully described on the project, and, if it is property which was covered by a project at the time it was installed, the original cost can be ascertained. This appears to be the only satisfactory method of compiling a complete statistical record of the property of the company, and one that will clearly show not only the amount of the investment, but a full description of what property is represented by the capital account.

Comparison of the results of the summation of the construction records kept in accordance with the foregoing methods with

physical inventories taken in the most elaborate manner shows that it is only by properly recording the acquisition of property in the first instance, and correctly accounting for it thereafter, that physical inventories can be made from the books with reasonable accuracy. The project system is, of course, only a means to an end, that end being a full description of the debits and credits representing the changes in the capital account.

It makes little difference whether the expenditures are charged direct to fixed capital, treating the project record as a memorandum, or the projects are carried in work in progress and closed out into capital when the work has been completed. The latter method is the more common, though the former seems to be clearly preferable. It has been erroneously assumed that it is less expensive to carry a work in progress account on the general ledger than it is to keep the inventory classification as the sole record of fixed capital in the general books and the project classification as a separate and distinct memorandum record, but in balance, of course, at all times with the general ledger.

So much for the machinery of recording the debits and credits.

ELEMENTS OF COST

The next point is as to what elements are to be considered as part of the cost of the property. The principal and obvious elements are labor and material.

The cost of labor includes the wages, salaries, fees or other compensation paid to employes engaged in the construction work, and it includes such of their personal expenses as are borne by the corporation while they are so engaged. In addition, it includes the labor of the engineers in planning and laying out the work, the cost of transportation of employes to the work, the insurance of employes engaged on the work, and in fact all the expenditures incurred directly on account of the construction. As to the time of engineers and superintendents who have to do with operation and construction, and are paid monthly, a report should be made out either daily or weekly showing the distribution of time devoted to construction work, and the project number covering the work. Likewise the insurance and other items should be computed, and the actual amounts charged to the project.

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A great deal of discussion has taken place of late as to the propriety of charging to capital any portion of the time of superintendents who are also in charge of operation. The safe rule to follow is to charge such cost to operating expenses if the amount of construction work is not unduly burdensome and the supervision is only incidental. If, however, the construction work requires a large portion of the superintendent's time, such time should be reported and charged.

Included in the cost of the materials charged to capital should be the expenditures for freight and cartage. These should be applied directly to the items of equipment which they cover. Where the project system is fully followed, the freight and cartage can be charged to the project on which the material which is covered was used. The advantage of a general project for meters or transformers, in this respect, enables the full cost of each item in the particular period to be shown properly.

If the freight and cartage cannot be charged direct, it can be handled through a clearing account, by charging all expenditures for freight and cartage to such an account, and clearing it out monthly in the proportion which the material used for capital purposes bears to the material used for operating purposes. A combination of the two methods is probably the best, namely, to charge freight and cartage on large items direct on the voucher, but for the miscellaneous fittings and small materials, where the amount per unit is insignificant to run the charges through a clearing account and from there into the capital account.

The construction materials should, of course, bear a proportion of not only the store-room handling but also the cost of operating the store-room. This also is best handled through a clearing account, and the amount cleared out monthly, proportioned between capital and income on the basis of the material issued. If funds have been borrowed, or if the work runs into a large sum of money and the earnings of the company are used to pay for such construction work, the interest thereon during the period of construction should be charged to the project and credited to interest account. In this way the project charges are all assembled and the expenditures charged so as to identify the

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purposes for which such expenditures were made. The desirability of this as to items included under the so-called analytical accounts is obvious, as it is always extremely difficult afterwards to establish by estimate the existence of such expenditures to the amount which they actually have cost.

This method can be followed whether the charges all pass first through projects, which are later distributed by journal entry, or if no journal entries are used but all expenditures are double posted, first into the fixed capital ledger and later into the project record. If a columnar voucher record is used, the columns should be headed up for the fixed capital accounts as needed. Particular care should be exercised that the proper reference to the voucher is shown on the voucher record. Most of the difficulty in connection with examinations of utilities is due to the lack of proper reference to the vouchers and original invoices, destruction of original invoices, and very often the failure of the bookkeeper to follow strictly and accurately the accounting system which has already been installed. With the refined subdivision of accounts which is now being followed, a columnar voucher record is not recommended. A combined cashbook and voucher record with columns for fixed capital, operating expenses, and sundries, and the later posting of the vouchers by accounts to a loose-leaf fixed capital sub-ledger is believed to be superior, the total during the month debited in the fixed capital column in the cash voucher record being the same as the total debits to the fixed capital accounts as evidenced by a trial balance of the fixed capital ledger. This total will, of course, also balance with the total increase in fixed capital as shown by a trial balance of the project record.

INHERITED PROPERTY ACCOUNTS

If all public utilities were in a position where they could dispense with all reference to the accounts now on their books which cover accumulations of charges for a number of years, it would be a simple matter to begin with a new set of construction records scientifically arranged. Many of these old construction accounts are composed of property taken over at securities' par value and lump sum contracts covering the installation of large

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amounts of equipment. In many instances, such accounts have been a burial ground for all sorts of charges. Where such accounts appear, two methods may be followed.

The property may be inventoried and appraised on the basis of the estimated original cost, and such appraisal be used as the basis for a distribution or allocation over the new set of fixed capital accounts. The inventory and appraisal may be less than the book value of the construction accounts. The difference would then be charged to the account "intangible capital."

A better method, however, is to make an examination of all the charges to such property accounts and redistribute each voucher in accordance with the new classification. When the examination has been finished a complete statement of all fixed capital which stands charged to the property accounts will be available. All charges found therein which should have been made to operating expenses should be eliminated and charged against the corporate surplus account. In examining the vouchers, all charges assignable to analytical accounts as well as to inventory accounts should if possible be classified by projects and properly detailed.

An actual physical inventory should then be made of the property in service. This inventory and the statement from the accounts should be compared and reconciled, and a list be made of the property still charged which cannot be located, representing, of course, property which has been retired. Considerable property will be found which has never been charged to the capital accounts, but to operating expenses instead. The net of these two should either be credited to surplus, if there is an excess, which is not usual, or charged against the reserves for renewals and replacements or depreciation, if there are such, and if not to corporate surplus. The fixed capital account will then cover only the property in service, supported by an actual inventory of such property and a schedule showing the actual original cost of each item of equipment. Such an inventory should thereafter be kept up-to-date, and once every five years it should be compared with an actual physical inventory and adjusted as necessary.

Where the corporation is large enough to maintain an engineering department, it is more than probable that this department will have records of the inventory accounts, such as

meters, transformers, etc. Active co-operation between this department and the accounting department will result in keeping the capital accounts for such equipment accurate.

It is probably quicker to start off with the physical inventory, but the tendencies of public service commissions are such that less and less attention is being paid to valuations which are not supported by actual data from the books of account, and therefore in the long run it will be found much more satisfactory to go at the job in a whole-hearted fashion and find out exactly what the capital accounts contain. Such a cost inventory will prove invaluable in many ways. It will set at rest any doubt that may exist in the minds of the stockholders and directors as to what the capital account really represents. It will furnish an inventory of the property priced at cost, which can be utilized in tax, rate or capitalization cases. It will furnish the directors and officers with information as to how much intangible is represented in the capitalization, for use in case of attacks made through the press claiming that the corporation is over-capitalized and watered. It will show the age and cost of all the property when considering the subject of depreciation.

METHODS

In the foregoing it was not the intention to treat of any special method to be used for keeping construction records, but to cover more particularly the character of the items which should make up such debits and credits. Necessarily, of course, in explaining the desirability of utilizing both the inventory and the project classification, some matters of method have been gone into with particularity.

To the larger companies, there is probably little which will be of interest, as nowadays the auditor or comptroller of a public utility corporation must necessarily be a first-class accountant or his incapacity will be obvious to all. Hence, as a general proposition, there is no keener class of accountants than those who are now engaged in keeping the accounts of companies in places of reasonable size. As to such companies, the detailed methods of achieving these results are dependent on the book-keeping system in use, which is governed by the size of the company and the available accounting force.

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It is desirable for a small company to use a cash voucher record with separate columns for fixed capital accounts, wherein the charges are made direct from the vouchers, which in turn contain the invoices showing the details of the items. The totals of such columns are then posted monthly to the fixed capital accounts in the general ledger. Any adjustment comes through the journal, a book which has largely been discontinued in the accounting of larger corporations, but is still valuable in the accounting system of a small concern.

When any property is removed from service it should be credited out of the capital account by journal entry at its original cost, and charged to materials and supplies at its salvage value. The difference between the two should be charged to depreciation reserve, or, if there is none, to corporate surplus. If material is purchased for future construction, or not assignable to any specific work, it should be charged to materials and supplies. When it is taken out of the store-room, a record should be made describing the material and showing the work on which it is to be used. This should then be priced and distributed to the proper fixed capital account. If the company is large enough, it should keep a materials and supplies record arranged in columnar form, showing the amount to be credited to materials and supplies in the first column and in other columns the charges distributed among the other accounts for both construction and operation. If the company is quite small, the store-room issue slips can be accumulated and attached to a voucher back, the distribution made thereon, and then posted in the voucher record. This should be done weekly or semi-monthly, depending on the number of slips.

Practically the same method should be used in handling the payroll. The distribution should be made on the payroll voucher by assembling the daily time reports by accounts to be charged. The proportion of superintendence, store-room handling, insurance, etc., should be computed as accurately as possible and the charge made by journal entry, which should refer to the record showing the computations and supporting data. Percentages are always subject to criticism, and should not be used if they can be avoided.

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A good rule to follow in order to maintain the integrity of the capital account is always to "credit out the old" and "charge in the new." If this is followed, there is little danger of large errors creeping into the capital account.

CONCLUSION

The question is inevitable whether or not the capital account is of sufficient importance to require such special treatment apparently entailing a large amount of accounting work. The answer is that the uses to which the capital account is put are so numerous and varied that unless its integrity is maintained, it may result in an actual loss to the stockholders through the establishment by the directors or a regulatory body of a lower rate than is warranted; an erroneous statement of property value in tax matters; and an over-issue of securities, resulting in an undue burden of interest and dividend charges, and loss to the present owners by reason of their lack of knowledge of the real financial condition of the property in which they are from time to time investing their capital. Probably this last possibility is the most serious, resulting, as it does, from the misstatement of earnings through improper charges to capital which should be made to operating expenses, and the failure to charge against income a sufficient amount to cover the renewal, replacement and retirement of property worn, obsolete or inadequate for the production of the commodity and the rendering of the service.

Public service corporations which have adjusted their construction accounts, and are now keeping them on a scientific basis, find that careful observations of proper principles of accounting, and keeping the cost inventory up-to-date, give beneficial results that greatly outweigh the labor and expense of the work, which is slight after the first cost has been met. Furthermore, the first cost will not be nearly so great as otherwise, if the head of the financial and accounting department of the corporation handles the work upon a plan laid out by some one familiar with how to do it, and what is to be accomplished, who will also generally supervise its subsequent execution. Once completed, the corporation is on a more substantial basis to deal with the public through regulatory bodies; doubt is removed as to the cost of the property; the creditor has an actual statement

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of the cost of the equity supporting his securities; and the stockholders receive an accurate statement of the results of conducting the enterprise.

The statement by the former chairman of the New York upstate public service commission, F. W. Stevens, that "proper accounting is the basis of all successful regulation," cannot be over-emphasized. The keystone of proper accounting is the correct statement of capital expenditures.