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The subject of my paper is stated in the program to be "Billing and Clerical Problems of a Small Utility." I should like to amplify this title a little by adding the words "And What Can Be Done About Them." You all know that the problems exist; the important thing is to be aware that others have found satisfactory solutions to many of your difficulties and that progress is being made toward solving even those that appear most stubborn. Obviously, solutions vary depending upon circumstances and conditions; however, I have selected for discussion some of the problems which I feel are most common and intend to present solutions which may be adaptable to most situations.

First, perhaps, we should determine what is meant by the term "small utility." No utility serving the public is small to its employees and customers nor is it small in the rendition of service; it is only by comparison with the giants of the industry that a difference in physical size would result in one being called "large" and the other "small." Obviously, any utility in this area, whether municipally owned or privately owned, would be considered small when compared to, say, Detroit Edison with a million and a quarter customers or to Commonwealth Edison or Consolidated Edison, both substantially larger than the Detroit firm. Under the circumstances it is probably best to set an arbitrary upper limit to the size of the typical utility with whose clerical problems we will deal – say, 15,000 or 20,000 meters or other stations. I am sure that many of the organizations represented at this convention will fall within the defined limit. Parenthetically, it might be wise to point out here that my remarks will deal primarily with such services as electricity, gas, water, and telephone; although municipal transportation systems have similar problems with respect to the control of stores, property, preparation of payrolls, etc., they do not have to contend with meter-reading, billing, accounts receivable, and credit problems.

MUNICIPAL OWNERSHIP VS. PRIVATE OWNERSHIP

Municipal utilities are distinguished from privately owned utilities by the fact that every customer is a part-owner or at least so considers himself.

Freedom from rate regulation by a state or federal agency is generally considered as advantageous to a municipal utility but experience shows that public opinion is just as effective a deterrent to rate increases as any state public service commission.

Most of the present municipal utilities originated through the purchase of the assets of an already established, privately owned concern, though a few were built from the ground up to supply an area not previously served. Of the major reasons for the creation of a municipal utility, one usually stands above the others and that is the matter of rates. In approving bond issues for the acquisition of utility properties, the voter is balloting for a decrease in rates or, at least, no increase in the foreseeable future. From this fact, it follows that the management of a municipal utility will remain acceptable to the city or village government only so long as service is supplied to the voter-customer at a reasonable cost. This requires the practice of economy in all departments of the operation and most particularly in clerical and other non-operating duties, which are frequently designated as overhead. How, then, may clerical costs be kept to a reasonable figure, commensurate with the size of the operation?

CLERICAL PROBLEMS

Possibly the most pressing clerical problem (although by no means the only one) is that of preparing and rendering bills for service. This may be divided into two parts; first, meter-reading and, second, preparing bills and recording customers' accounts, these functions being commonly referred to as customer accounting. To some, meter-reading may seem more a part of the Operating Department than a clerical duty, but the reading is so essential a part of bill rendition that it should be considered in connection with the whole subject of customer billing.

METER READING

Meter-reading routes should be, and usually are, laid out at the outset so that the greatest number of meters may be covered in a given period of time. However, unless periodic re-routing is scheduled to accommodate new customers, etc., normal population shifts will have so changed urban and suburban routes in two or three years that a great deal of unnecessary waste time and motion will be present. Thus, re-routing is a "must" and more than repays its cost in reading time saved. While it is dangerous to generalize in such matters, if readers cannot average about 300-350 outside urban meters a day or about 225-250 outside suburban meters a day, the

routes should be surveyed to determine if re-routing will improve efficiency. If indoor meters are used, or if there are many demand meters to be read, the time per meter is considerably greater.

Some organizations still follow the expensive method of reading meters at or near the end of each calendar month, with required manpower recruited from the office force or operating departments or by the use of part-time readers hired for the purpose. However, many more organizations now employ cycle reading, whereby meters are read continuously throughout the month, with an objective of reading the same meter on approximately the same day each month. This latter method has certain obvious advantages such as: use of well-trained meter readers, familiar with the routes and employed throughout the month, and abolishment of a month-end billing peak if combined with billing to customers throughout the month. If cycle billing is adopted, not only is a billing peak abolished but also those in receiving and recording collections as well.

Reading meters every two months, or bi-monthly, is growing in popularity. In a recent survey of 79 utilities, 28, or 36 per cent, were on a multiple-month, usually bi-monthly, basis. Of the remainder, 22 are studying plans for multiple-months' reading and billing. Savings of from 33⅓ per cent to 50 per cent in the cost of meter-reading on the monthly basis is reported by those organizations adopting the bi-monthly basis, while drawbacks to such action, such as larger bills and increases in uncollectible accounts, union opposition, and larger deposit coverage, do not appear to offset the advantage to be gained.

The problem of "call-backs" or missed readings does not exist if outdoor meters are used. However, in a survey of 67 utilities on this subject, only 28 continue to make "call-backs" to pick up skip readings, while the remainder use such devices as estimated readings, dial cards to be marked by the customer, etc.

BILLING

The second part of the entire problem of customer billings deals with preparing bills and recording customers' accounts receivable.

In a manual or handwritten system the first step is usually the preparation of bills, using as a starting point the meter reader's book. The beginning and ending readings are inserted, the usage computed, and the dollar extension made; at the same time the clerk checks the usage for "hi-lo" limits. Subsequently, the same information is posted to the proper ledger sheet. This is an extremely condensed description of the operation but yet indicates a method for substantial saving in time. If, after due

consideration, it appears desirable to retain the manual system, the adoption of a "writing board" outlay such as that manufactured by Todd-Hadley, McBee, and others is recommended. By means of spot carbon, the bill can be made out and the ledger posted at one and the same time. Or, still retaining the ledger system, a moderately priced bookkeeping machine will prepare the bill and post a ledger card simultaneously. National Cash Register, Burroughs, and Underwood are among those who manufacture machines suitable for this purpose. Any of the above-noted mechanical aids will be found to be savers of time and clerical expense.

At this point it is well to emphasize that either a "writing board" or a bookkeeping machine may be used to advantage in its free time to perform many of the other clerical operations I shall comment upon later.

Many utilities, large and small, have found the stub system preferable to either a ledger sheet or a ledger card. The use of stubs requires a bookkeeping machine which prepares the bill, a payment stub, and a customer's receivable stub almost simultaneously through repetitive mechanism. The receivable stub is filed and serves as an accounts receivable record until payment of the account, when it is removed from the file. Reference to the stub file during preparation of the bill will serve to give necessary information on delinquent balances.

Thus far no mention has been made of punched cards and tabulation systems, of which the chief exponents are IBM and Remington Rand, nor of the electronic machines now available for the performance of clerical tasks of all descriptions. The omission was intentional, as I have been informed by representatives of these concerns that punched-card installations for utilities are not economical until a somewhat greater number of customers are served than the number alluded to in the introduction to this paper.

COLLECTIONS

The next large clerical operation is performed in connection with the collection of customers' accounts. During the fifteen years following 1940, the actual collection of accounts presented little or no problem to the credit man. Recently, however, some tightening of credit has required the credit department to work a little harder. Latest available statistics for this area, based on the first six months of 1956 as compared to the same period for 1955, show an increase of 12 per cent in sales of service, an increase of 17 per cent in disconnect notices, and an increase of 16 per cent in net charge-off of accounts. It is encouraging to note, however, that the increase in non-payment disconnects in this area was barely over 1 per cent,

whereas a similar nation-wide figure was over 9 per cent. Inasmuch as a disconnect for non-payment is actually an admission of defeat for the credit man, it would appear that the collectors of this area are on the job. Obviously, adequate customers' deposits make the task of collecting somewhat easier and more certain. This is borne out by statistics which again show this area well ahead of other parts of the country in requiring adequate deposits.

What methods of collection are most prevalent? Generally speaking, the most common in use is a combination of cashiers in the home office or in branches, and of agents, such as storekeepers, druggists, or bankers, at selected locations throughout the service area of the utility. In other cases meter readers are used as collectors. In some areas, a plan whereby the customer authorizes his bank to charge the utility bill against his account has been used with success. This last method has advantages to the utility in that substantial numbers of bills may be sent to a few destinations, and in that collection is almost immediate.

SORTING AND POSTING

From a clerical standpoint, the most time-consuming operations are the sorting of paid bills or stubs and the posting to accounts receivable. As a batch system of cash posting is now in general use, the cash entries are no longer a problem. Various mechanical means are now available to sort quickly, particularly if the stub plan mentioned earlier is employed or if specially perforated cards are used. Posting to accounts receivable may be reduced to the mere extraction of stubs, may be accomplished easily and quickly by use of the "writing-board" method of posting to the cash record and accounts receivable simultaneously, or may be completed quickly and accurately through the use of a bookkeeping machine. I suggest that, if hand-posting methods which require several individual entries for each item of cash received are in use in any given organization, the matter of a change to any of several time-saving systems be given serious consideration. Just for the record, a recent nation-wide survey disclosed that approximately 25 per cent of the utilities answering a query as to cash recording had changed their cash-posting procedures during the past two years and that most of them had converted to mechanical posting. So much for the preparation and rendition of bills.

PAYROLLS

Next we come to the preparation of payrolls. The basic time report is an individual report, which may be for daily, weekly, semi-monthly, or monthly periods; however, there is also a daily group time report for crews

and gangs. The daily or weekly reports are approved by the foremen and the monthly or semi-monthly reports by department heads. The foregoing procedures, with minor variations, are almost universally used in the utility field and there is little opportunity for time-saving changes at this point.

In an operation of the size we are considering it is certain that the actual preparation of payrolls will be done at one point, probably the main office. Twenty-five years ago, such preparation was a relatively simple matter and consisted of copying the time on the roll, crossfooting and extending by the rate, and preparing the check or pay envelope. Now, however, with deductions and withholdings to be made, with W-2 forms, FICA, unemployment reports, and individual earnings records to be prepared, the need to accomplish the task in the fewest possible operations is quite apparent.

You may be sure the office machine manufacturers and accounting system people have been aware of this problem for some time and, contrary to Mark Twain's remark about the weather, have done something about it. There are numerous manual and machine systems available, designed especially for utility operations, which will cut the time of preparation of payrolls and collateral records literally in half. How is this accomplished? By the same means we have emphasized earlier in this paper – preparation of two or more records at a time through the use of writing boards, spot-carbon sheets, repetitive machine mechanism, etc. Distribution of labor charges to property accounts and to numerous cost and expense accounts has been simplified by semi-mechanical sorting of cards or by the use of total accumulators on bookkeeping machines.

STORES

After the control of cash, the next most difficult asset to control, both physically and bookwise, is stores. In the generic term "stores" we include construction materials as well as repair stocks, operating supplies, etc. Our imaginary utility should require only one area in which to collect stores except possibly for a pole or pipe yard. This area should, of course, be fenced or otherwise protected physically so that only authorized personnel would be able to obtain supplies. The practice of scattering stores in small quantities throughout the area served should be discouraged as a waste of manpower. Understand, we are talking of a small utility; larger operations will require numerous stores locations to prevent an inordinate amount of hauling by working crews and gangs. No matter what the physical set-up, personnel should be permitted to draw materials only upon presentation of properly authorized requisitions.

So much for the physical control of stores. How can we maintain accounting control and yet do so on an economical basis? It is believed that dollar control can be adequately provided for solely by general ledger account. If this is so, perpetual detail records, which I believe are essential for information upon which to build realistic use and purchasing policies, can consist of quantity records only. These may be kept on index cards or sub-ledger sheets and a notation on each card of the latest cost of the item may be used for costing requisitions and for pricing inventory quantities when an annual inventory is taken. Dollar control is established by comparison of the priced-out inventory, whether physical or taken from the perpetual inventory cards, to the general ledger account. The considerable task of extending dollar values for each receipt and issue is thus avoided. As in the case of payrolls, distribution of stores issues to property or expense accounts is made easily and rapidly by the use of requisitions designed for semi-mechanical sorting such as the McBee Keysort; there are several types of these requisitions available. In at least one instance of which I have knowledge, no more than one kind of item is placed on a stores requisition; while this results in an increase in the number of requisition cards handled, the resultant ease of sorting and distribution more than compensate for the greater volume.

PROPERTY ADDITIONS

Probably without exception, every utility in the country either has under way or is planning a program for expansion of facilities and services. This growth is caused by many things, among which are population increase and shifts, additional appliances, air conditioning, etc., and results in an increased need for proper control and recordation of additions to and retirements from property.

In order to control property additions it is needless to say that all work done or purchases made should be covered by properly authorized work orders and that any large project should be approved by the board of directors or other executive body.

As many of you are aware, governmental regulatory commissions require that utilities under their supervision maintain property accounts in the greatest detail – sub-accounts, sub-sub accounts, and sub-sub-sub accounts – for rate-making purposes. I do not believe that municipal utilities, especially those of medium or small size, must necessarily keep accounts in this detail, as the advantages to be gained by such detail are generally far outweighed by the clerical cost involved. (An exception to this general statement should be taken in cases where the ordinance creating a municipal

utility or a bond indenture require that exhaustive property records be maintained.) As an example, an electric utility might be well served by six or eight property accounts, as follows: land, buildings and structures, generation equipment, transmission equipment, sub-station equipment, distribution equipment, meters and metering equipment, furniture and fixtures, and automobiles and trucks. With general classes of property accounts, such as the foregoing, it is recommended that composite rates of depreciation be adopted, based on the average life of property or equipment in each class. Composite rates will eliminate a good deal of clerical work in connection with computing depreciation and also in booking retirements. If, as I believe, many of the smaller operations are unable to ascertain from their records the original cost of a piece of equipment being retired and must rely on engineers' estimates instead, it is permitted to charge such actual or estimated cost, net of salvage, to the applicable composite depreciation reserve. By using the foregoing method, it is a simple matter to clear both asset and reserve accounts of scrapped or sold property.

ACCOUNTS PAYABLE

Accounts payable and the clerical work in connection therewith deserve at least mention in passing. Some years ago the majority of business enterprises, whether utility, industrial, or commercial, ceased maintaining individual accounts with each supplier of goods or services and converted to some form of voucher system. The voucher system maintains adequate control over the payables without posting to detail accounts payable with a resultant saving of time and effort. Distribution of charges recorded in a handwritten voucher register to the many expense and cost accounts may be accomplished by distribution columns in the voucher register; however, an easier and quicker distribution is obtained by the use of Keysort or other cards which can be sorted by semi-mechanical means. If a bookkeeping machine is used to prepare the voucher register, the cumulative registers on the machine are the means of distribution. Whether a bookkeeping machine or a manual operation is used to prepare the voucher register, provision should be made for entry on the appropriate voucher jacket simultaneously. As we have attempted to emphasize throughout this paper, the more entries which can be made at a single writing, the less clerical work is required.

PURCHASE ORDERS

The Purchasing Department can be of aid in reducing clerical work in other sections of the office. An extra copy of each purchase order can

be forwarded to the Receiving part of the Stores Department to be used as a receiving report, thus making unnecessary the preparation of separate receiving reports. Also, during the routine of checking prices on invoices received from vendors, the Purchasing Department can aid the perpetual inventory section by indicating by some distinctive mark those items on which a change in unit price has taken place since the last purchase.

GENERAL LEDGER

Finally, we come to the general ledger. Whether the ledger is posted by machine or by hand makes little difference in the speed of the operation; the clerical operations leading to entries in the ledger are the areas in which new methods bring time-saving. However, there are one or two general ledger procedures which deserve mention. Perhaps it is unnecessary to state that loose-leaf ledgers and journals are greatly superior to bound books and should be adopted wherever possible throughout the organization. Standard journal entries which recur each month may be given standard numbers and prepared in advance, except for the insertion of amounts. In order to decrease posting time, it is suggested that journal entries be entered in the voucher or invoice register, thus being summarized and posted in one figure for each ledger account.

A chart of accounts, properly drawn, is of value in reducing general ledger clerical work. Doubtless, many of you use the Uniform System of Accounts of the Federal Power Commission, or some adaption of it. If you do, I wish to point out that the last general revision of this system was made twenty years ago and that some of the practices advocated therein are no longer considered good accounting.

"PENNYLESS" RECORDING

A fairly recent innovation in the field of utility accounting is "pennyless" recording. Penny elimination is accomplished by rounding up or down to the nearest dollar, the eliminated pennies being carried to a suspense account. Of course cash payments, cash receipts, accounts receivable, and accounts payable are carried to the exact penny. To illustrate the principle we will use Vouchers Payable as an example:

> "An invoice would be classified to the accounts affected in round dollars. The check would be drawn and recorded in the exact amount. The voucher would then be recorded as a credit to vouchers payable in the exact amount with a corresponding debit to the proper accounts in dollars only and the difference, either debit or credit, would be recorded in a cents-elimination account. No savings

at this point. But, from this point on, pennies would be dropped from expense accounts, construction, materials and supplies, and all other accounts except cash, receivables, and payables."

What are the benefits of this system? Various utilities have reported as follows and I quote:

"Clerical salaries reduced over 10 per cent."
"30 per cent savings in payroll distribution."
"53 per cent saving in pricing material issues from stock."

And so on. There is no loss in accounting control and the system is acceptable as sound accounting practice.

To those who may be interested in investigating pennyless accounting further, I recommend the committee report on that subject contained in the proceedings of The National Conference of Electric and Gas Utility Accountants held in April 1955, from which most of the foregoing material on pennyless accounting was taken. This report also refers you to numerous other articles on the same subject.

CONCLUSION

In closing, it may appear to some of you that I have overemphasized the use of accounting machines, writing boards, etc., and the systems with which they are identified. My view is this: When office-machine and office-systems companies have spent thousands of hours developing the best and quickest way of recording utility transactions, why not take advantage of their research and know-how?

And, finally, I wish to leave with you this quotation from Methods Magazine: "When something has been done a particular way for fifteen or twenty years, it is a pretty good sign, in these changing times, that it can be done a better way."

Thank you.