

1921

## Cost accounting in the soap industry

William C. Koch

Follow this and additional works at: [https://egrove.olemiss.edu/acct\\_inst](https://egrove.olemiss.edu/acct_inst)

---

### Recommended Citation

Koch, William C., "Cost accounting in the soap industry" (1921). *Publications of Accounting Associations, Societies, and Institutes*. 102.  
[https://egrove.olemiss.edu/acct\\_inst/102](https://egrove.olemiss.edu/acct_inst/102)

This Article is brought to you for free and open access by the Accounting Archive at eGrove. It has been accepted for inclusion in Publications of Accounting Associations, Societies, and Institutes by an authorized administrator of eGrove. For more information, please contact [egrove@olemiss.edu](mailto:egrove@olemiss.edu).

**NATIONAL ASSOCIATION  
of  
COST ACCOUNTANTS**



**Official Publications**

---

**Vol. III DECEMBER 15, 1921 No. 7**

---

**Cost Accounting in the  
Soap Industry**

**BUSH TERMINAL BUILDING  
130 WEST 42nd STREET, NEW YORK**

**NATIONAL ASSOCIATION  
of  
COST ACCOUNTANTS**

✻  
**Official Publications**

---

**Vol. III DECEMBER 15, 1921 No. 7**

---

**Cost Accounting in the  
Soap Industry**

**BUSH TERMINAL BUILDING  
130 WEST 42nd STREET, NEW YORK**

# NATIONAL ASSOCIATION OF COST ACCOUNTANTS

---

Official Publications

---

Vol. III. No. 7

December 15, 1921

## Cost Accounting in the Soap Industry

---

WILLIAM C. KOCH, President  
Koch-Ward-Williams, Inc.

---

BUSH TERMINAL BUILDING  
130 WEST 42nd STREET, NEW YORK CITY

The National Association of Cost Accountants does not stand sponsor for views expressed by the writers of articles issued as Publications. The object of the Official Publications of the Association is to place before the members ideas which it is hoped may prove interesting and suggestive. The articles will cover a wide range of subjects and present many different viewpoints. It is not intended that they shall reflect the particular ideas of any individual or group. Constructive comments on any of the Publications will be welcome.



Additional copies of this Publication may be obtained from the office of the Secretary. The price to members is twenty-five cents per copy and to non-members seventy-five cents per copy.

COPYRIGHTED BY  
**NATIONAL ASSOCIATION OF  
COST ACCOUNTANTS**

DECEMBER 15, 1921

# National Association of Cost Accountants

---

---

## COST ACCOUNTING IN THE SOAP INDUSTRY

---

The cost accountant who undertakes to install a cost system in a soap manufacturing establishment will naturally encounter many difficulties peculiar to that business. This article deals with these difficulties. Since volumes have been written on the proper distribution of burden, it is not the intention in this article to suggest the proper method to be used in burden distribution in the soap industry. Therefore, where reference is made to any of the details of burden distribution in connection with the system outlined in this article, such references are only incidental, and it will be understood that the method best suited to all of the local conditions which obtain in any individual plant would be the method to use.

The fact must never be lost sight of that economical factory operation is paramount and that any cost system must adapt itself to any practices which may be most economical from a manufacturing standpoint. And while it will often be possible to find better operating methods by making use of information furnished by the cost system, the cost accountant must make his system fit the factory instead of attempting to fit the factory to the cost system. Thus, in the manufacture of soap it may be found that the weighing or measuring of materials used and materials produced is rendered impossible by existing factory conditions or methods of operation. Likewise, accounting for by-products, scrap soap, variation in volume of materials at different temperatures, adequate methods of distribution for labor and fuel, etc., will all be found to require considerable analysis.

### PROCESS OF MAKING LAUNDRY SOAP

The process of making ordinary laundry soap consists of boiling a mixture of fats and caustic soda together, during which process the fats are saponified by the action of the caustic. The mixture is boiled up a number of times, caustic or salt being added each time. After each boiling a liquor is drawn off, either in the form of spent lye or strong lye. The spent lye contains glycerine, salt, water and whatever impurities may have been contained in the original materials with which the kettle was stocked. The strong lye is much the same, except that it also carries caustic soda in varying amounts, and its glycerine content is lower than in

the case of the spent lye. After the kettle is finished and all the lyes have been drawn off, the soap is either pumped into a storage tank from which it is drawn into a mixer, or it is drawn into the mixer directly from the kettle, as required. After the mixing process, where other minor ingredients are added, the soap is drawn into frames for cooling. These frames are large boxes on trucks and are constructed with removable and interchangeable sides and ends. After the soap has hardened, these sides and ends are removed, leaving a block of soap weighing about 1,000 pounds, more or less, on a small truck which is the frame bottom. These stripped frames are then cut into cakes and placed on racks for drying, after which the cakes are stamped with their brand, wrapped, and packed for the market.

The spent lye referred to above forms the raw material for the glycerine plant, where, by a system of treatment, filtration, evaporation, distillation and concentration, the glycerine is extracted. The strong lye is kept for further use in the kettle department, in order to utilize the caustic strength which it contains.

#### PROCESS OF MAKING TOILET SOAP

Various methods are used in the manufacture of the different grades of toilet soaps, some kinds being made by the same general process as described for laundry soap. Other grades are made by running the hot soap out of the mixer between water chilled rolls which deliver the soap in chipped form into a dryer through which it is carried by a series of conveyors. From the dryer, it is placed into a storage bin, to be used as required. The next process is that of milling, which consists of passing the dried chips between series of rollers again and again until the mass is thoroughly milled and the perfume and coloring matter, which is introduced in this process, is evenly distributed throughout.

After milling, the soap is delivered to a machine known as a plodder, which by forcing the soap through a die of the desired shape, delivers it in a long strip which is in turn cut into proper lengths to make cakes of the desired sizes. These cakes are then stamped, wrapped, and packed for the market, as in the case of laundry soap.

Another type of toilet soap is made by what is known as the cold process method, which consists simply in mixing the ingredients, drawing the mixture into frames and allowing it to harden, after which the process is very similar to that used in the case of laundry soap.

Soap powder is made in a similar manner to laundry soap, but it is dried and ground into powder after it leaves the mixers.

The above description of processes, as well as any others of a like nature in this article, is given in very general terms for the benefit of accountants who have not had experience in this particular line, and is not designed to be a treatise on soap making methods.

### PERPETUAL INVENTORY

The basis for a satisfactory cost system must, of course, be an adequate perpetual inventory record of quantities of all raw materials, processes and finished goods. As far as possible, all material in the plant should appear in this record. It will probably be found, however, that in the case of caustic soda in liquid form, as well as strong lyes taken from the kettles, exceptions would have to be made. Methods for handling these exceptions will be referred to later.

A satisfactory ledger form for a perpetual inventory record has one or two debit columns, eight or ten credit columns, and a balance column. The credit columns are headed with the names of the various processes or accounts to which the material represented by the account is distributed. The debit columns show the sources from which material is received. These columns are totalled monthly. The totals form the basis for the cost journal entries.

A regular check should be made of the balances as shown by the perpetual inventory record against the actual stock on hand. For some items a monthly check will be sufficient, but in instances where variations are liable to occur by reason of temperature or moisture content, a comparison should be made at least weekly and necessary adjustments made. As indicated above, it will not be found practicable to account for all materials in process from day to day in the perpetual inventory records. Among the exceptions are caustic soda, strong lye and the kettle process. Each of these will be considered.

### CAUSTIC SODA

Caustic soda is purchased either in solid or liquid form. If in solid form, it is dissolved in water before using. If in liquid form, it is usually necessary to dilute the original liquid to a suitable degree of strength. Generally speaking, this material is used in all classes of soaps, for saponifying the fats, as well as in minor processes, such as refining oils, etc. Various classes of soap require caustic of varying degrees of strength.

In the kettle processes, the caustic is pumped into the kettle, but not by weight or measure, the quantity needed being determined by the soap maker, from the condition of the kettle. In many



instances it might be possible to obtain a measurement from the caustic tank out of which the material is pumped to show the amount used, but it will often be found that caustic is being drawn for more than one kettle simultaneously, making the distribution of the amount used in the kettles a matter of estimation.

Where caustic soda is purchased in solid form, a regular perpetual inventory account will be carried for the solid caustic. A memorandum account will be carried for liquid caustic, showing the distribution of all caustic used for other than kettle processes, indicating the amount used and its strength. At the close of each month, a physical inventory is taken of all liquid caustic on hand, and its strength and quantity entered in the balance column of the liquid caustic account.

Where liquid caustic is purchased, a regular account is kept for all such caustic in storage except that which may be kept in a tank from which the material is drawn for the kettle process, if the factory operations are such that the credits to the tank cannot be determined daily. The remaining accounts are handled as outlined in the above paragraph.

#### STRONG LYE

The process of making kettle soap always calls for the introduction of more caustic than the actual amount required for saponification of the fats used. This results in an excess of caustic strength which is taken off in the form of strong lye, and which accounts for the caustic content of that material referred to above. This strong lye is used in subsequent batches of soap to aid in saponification of the fats as its caustic strength is sufficient to warrant its use in this manner.

The nature of this material is such that its value depends entirely upon the percentage of caustic and glycerine which it carries. Inasmuch as these percentages vary widely with different batches of strong lye, figures showing the quantity of strong lye produced or used per kettle would be of little value, even if readily obtainable, unless each lot were sampled and analyzed. This is usually impracticable. Ordinarily, factory operations are such that a central tank is used to take care of such strong lyes as the kettles may produce and whatever is used in other batches is withdrawn from this tank. Thus it frequently happens that one or more kettles will be discharging into this storage tank while others are drawing from it, making any estimate of volume produced or used impossible. Probably the most practical way of handling this item is not to attempt to carry an account for it in the perpetual inventory records, but to take a physical inventory of all strong lye in storage at the close of each month, showing quantity and analysis as to caustic and glycerine content.

## NIGRE

Difficulties will also arise in keeping a satisfactory record of kettle processes. Mention has been made of kettle soap, spent lye and strong lye as being produced by the kettle process. There is also another element to be considered, which is known as nigre. This is a sort of emulsion which forms between the lyes in the bottom of the kettle, and the kettle soap at the top. Roughly speaking, this material consists of soap, water and glycerine. After the lyes and soap have been drawn from the kettle, the nigre remains and is taken into the next batch of soap made. Therefore, it may be said that under normal operating conditions, each kettle always contains a batch of nigre, and in a going plant this item might well be disregarded as being a fixed quantity except for the fact that its soap and glycerine contents vary greatly with different batches even of the same grade of soap. Unfortunately this material cannot be sampled except at such times as both soap and lyes have been drawn off and even then a representative sample cannot be gotten without "boiling up" the nigre, which in turn would require a considerable amount of steam at an expense which would scarcely be justified in connection with each batch of soap made.

## KETTLE ACCOUNTS

Under the circumstances, as outlined above, the kettle accounts may well be handled as follows. A form should be prepared carrying eight or ten debit columns, two credit columns and a balance column. The debit columns are headed to correspond to the various materials used in stocking the kettle. The credit columns are headed "Kettle Soap" and "Spent Lye," respectively. A separate account is made up on this form for each kettle, all ingredients being debited under their proper headings, soap and spent lye being credited. A report should be made by the laboratory on each kettle stocked, showing the amount of soap its ingredients should produce; and when the kettle is reported empty of soap and lyes by the kettle department, a comparison should be made by the stock clerk of the amount of soap available according to test as against the amount actually drawn off. It will frequently occur that a considerable discrepancy will be shown, which can only be accounted for by an increase or decrease in the amount of soap contained in the nigre. It is on this basis that the inventory at the close of the month should be calculated, entering the nigre on the basis of pounds of soap contained therein. However, the nigre contained in each kettle should be sampled and analyzed as often as practicable and the book figures adjusted accordingly.

From the above description it will be apparent that considerable time may be required in getting a perpetual inventory system to function properly. This should be done, however, before an attempt is made to install the cost system.

## BOOKS FOR THE COST SYSTEM

The books required for the cost system are the cost journal and cost ledgers for raw materials, processes, packing, finished goods, warehouses and general. The classes of accounts carried in these ledgers are as follows :

*Raw Materials Ledger.*—(a) Raw materials, used as ingredients in the manufacture of soap, which are received from outside sources; (b) raw materials produced in own plant, such as mixed perfumes, liquid caustic, spent lye (if the plant operates its own glycerine evaporators), refined cotton oil, liquid silicate, fatty acid, sweetwater, etc., where such materials are converted into the form indicated by a process within the plant; (c) processes for converting articles from class A above to class B, such as refining kettles, silicate dissolvers, Twitchell process, etc. This does not, however, include the process of spent lye manufacture as this material is a by-product of the kettle process; (d) merchandise in transit to plant, including supplies as well as ingredients.

*Supplies Ledger.*—All materials used in packing the finished product, but which are not used as ingredients of the soap itself, such as wrappers, boxes, labels, etc.

*Process Ledger.*—All process accounts, and accounts of materials in process with the exception of processes for the manufacture of raw materials for subsequent use, as explained above.

*Packing Ledger.*—An account for each brand and size packed. In these accounts are gathered together the finished soap from its last process, and all of the packing materials or supplies to bring it to its finished state ready for the market.

*Finished Goods.*—All accounts covering the finished goods at plant.

*Warehouses.*—All accounts covering the finished goods in storage at various points away from the plant.

*General Cost Ledger.*—(a) Controlling accounts with each of the ledgers enumerated above; (b) balancing accounts for Purchases, Warehouse Freight, Manufacturing Expenses and other similar items as may be found desirable; (c) cost of sales account; (d) closing account.

## JOURNAL ENTRIES

The cost ledgers are opened by entering the opening inventory quantities and amounts in the balance columns of the various accounts in their proper ledgers.

At the close of the month's business, a journal entry is made debiting all purchases of raw materials and supplies to their proper accounts in their respective ledgers, crediting whatever general ledger accounts have been carrying these items. This entry is made on the cost journal form, which carries a double column for each sub-ledger, one column being for quantity and one for amount. No part of this entry is carried into the general ledger.

The remainder of the month's transactions are entered as to quantity from the distribution shown by the credit side of the perpetual inventory record, where such record is complete. The entry covering caustic soda used in the kettle processes as well as that covering glycerine recovered or recoverable from fats saponified cannot, however, be taken from the perpetual inventory records.

With regard to the caustic entry for the kettle processes, a practical method is to reduce all liquid caustic on hand at the beginning of the month to a basis of its solid caustic ( $\text{Na}_2\text{O}$ ) content. To this figure is added the  $\text{Na}_2\text{O}$  content of all strong lye in storage at the beginning of the month. This gives the total  $\text{Na}_2\text{O}$  on hand in the plant in solution at the beginning of the month. To this is added the  $\text{Na}_2\text{O}$  content of all solid caustic dissolved or liquid caustic purchased, during the month. From this total is then deducted the total  $\text{Na}_2\text{O}$  on hand at the close of the month, the result being the total  $\text{Na}_2\text{O}$  used. Caustic used in refining kettles, in making cold process soap, or in other ways aside from the kettle process, has been recorded as used during the month, and will therefore appear as a separate journal entry on the cost records. The total  $\text{Na}_2\text{O}$  used in such processes is deducted from the total used for the month which gives the amount used in the kettles. This amount is distributed to the various kettles on the basis of the amount of  $\text{Na}_2\text{O}$  required theoretically to saponify the fats with which the kettles were originally stocked. The theoretical figures mentioned may be obtained from nearly any standard treatise on soap making. Similar difficulties are encountered in giving credit to the various kettles for glycerine produced. It will be understood that all fats used in soap making carry a percentage of glycerine, and that the process of soap manufacture carries the major portion of this glycerine into the lyes drawn from the bottom of the soap kettle.

It will be seen from the outline of the manner in which strong lye is handled from kettle to kettle, as mentioned above, that inasmuch as this material has a glycerine as well as a caustic content, the glycerine which is taken off with the spent lye is not only the glycerine which has been taken from the fats with which the kettle was originally stocked, but consists in part of glycerine introduced into the kettle with the strong lye. This must be credited to the kettle which originally produced it.

The same principle is used in arriving at a basis for crediting this glycerine to its source as is used in the case of caustic distribution, except that inasmuch as the glycerine is a by-product produced instead of a material used, the procedure is reversed. In other words, glycerine refined during the month plus the glycerine content of all spent and strong lyes, and all glycerine liquors in process at close of month, less the glycerine content of all spent and strong lyes and glycerine liquors at the beginning of month, equals the glycerine produced by the kettles during the month.

The amount of glycerine available in each charge of fats sent to the kettles during the month is reported by the laboratory at the time the kettle is charged. This figure less the glycerine remaining

in the soap (also determined by analysis) forms the basis for distribution of the glycerine credit to the various kettles. This credit is made, however, not on the basis of pounds of glycerine recoverable but on the basis of pounds of spent lye produced. This is established by pro-rating the total spent lye produced over the total glycerine available from each kettle.

It is recognized that this method does not give a true figure for spent lye produced by any particular kettle, inasmuch as different kinds of fats used for different grades of soaps will yield spent lye of varying glycerine content. The figure obtained represents the amount of average spent lye which each kettle would have to produce for the month to equal the amount of glycerine recoverable from the materials with which it was stocked. This apparent error, however, does not affect the correctness of the cost figures, inasmuch as the only value which the spent lye has is that of the glycerine it contains. The reason for handling this material in the cost records on the basis of pounds of spent lye instead of on the basis of pounds of glycerine contained is that only in this manner can the glycerine department be given credit for the amount of material it actually handles. In other words, it is important to know the total amount of spent lye delivered to the glycerine department, but the amount of this material obtained from each kettle is of no consequence, provided each kettle is given credit for the glycerine yielded by its fats.

After the journal entries have been prepared as to quantities, they are posted. Each account is balanced as to quantity and the balance is checked against the perpetual inventory.

#### LABOR AND FUEL

Labor and fuel are then distributed to the accounts affected. The labor distribution is difficult to handle from a standpoint of actual elapsed time, owing to the fact that frequently one employee will work on a number of different brands during the day, although his work will probably fall into the same general departmental labor classification, such as cutting, pressing, packing, etc. The type of labor employed on this class of work is generally such as to make it practically impossible to base an accurate labor distribution on any sort of a report which such employees might make. A satisfactory method is to make a payroll summary divided into departments with sub-headings for the various operations. These subdivisions may be carried as separate accounts in the general ledger where a system of account numbers is used, or the general ledger charge may be simply to a labor account, using the summary as a basis for distribution by the cost department. Distribution of the amounts in the various subdivisions or operations is made

on the basis of the direct labor required for that operation on the various brands handled. This direct labor is established by a series of tests.

Fuel or power cost is divided into direct steam and electric or motive power. By a series of tests the amount of steam required per unit of production in the various departments a basis is established. The cost of power is distributed on this basis. The same principle is used in distributing the motive power, whether it is produced at the plant or purchased outside. After the labor and fuel charges have been distributed, the accounts are ready to be extended as to cost.

### SPENT LYE

The extensions in the supplies ledger and the raw materials ledger are readily made and require no elaboration with the exception of the spent lye account. Since this material is a raw material for the glycerine department as well as a by-product of the kettle process, the question of the proper method to be used in fixing its value should be considered. Some manufacturers regard their glycerine refinery as a separate business and want the spent lyes charged to it and credited to the kettle process at a rate determined by the glycerine content of the lyes and the market value of the finished glycerine. This basis is easily determined. Where this method is used, no particular difficulty is experienced in carrying out the cost procedure. However, other manufacturers believe that the glycerine refinery is merely an adjunct to the soap business and consequently that the soap made is entitled to credit for the full value of the glycerine sold after deducting the actual cost of refining and packing. Where this method is used, the glycerine production becomes the key to the entire cost procedure, and instead of entering the costs in the regular order by beginning with spent lye and carrying the figures down through the process accounts to finished goods, it is necessary to begin with the sales of glycerine for the month. These sales are summarized. Their amount is set up on the credit side of the finished goods account, and the figures are worked back to the spent lye which is the raw material for the glycerine department. Under this method no overhead is charged to the glycerine refinery. The overhead in this department is considered as a charge against the whole production of soap inasmuch as that production receives credit for the full value of the glycerine.

In using this method, the stock of glycerine on hand as finished goods, and in the various tanks and processes is figured at the rate used for the credit to the account in which the particular stock is carried. It must be recognized, however, that this rate as applied to a balance on hand is only an estimate of the value of the balance

although it is the best figure available at the time. Ordinarily no great error is introduced in allowing the difference to be carried by the following month's production, but in times of violent market fluctuations and heavy stocks, this method would be found to be inadequate. It is therefore advisable to open an account in the general cost ledger for glycerine market adjustments to take care of the differences between the estimate used for last month's balances and the credit rate for the current month.

#### SCRAP SOAP

Much the same problem arises in valuing scrap soap. Where this scrap is used in a process which results in no loss of material, such as a remelting process, the value would be the same as the current month's cost of a product of the same grade. Again in this case the balance remaining on hand is priced at the same figure as the month's credit. On the other hand, where scrap is thrown back into the kettle, certain of the ingredients are lost and the value of this scrap is only the value of the amount of kettle soap it will produce, the difference being taken up by lowering the rate.

A scrap value adjustment account is opened in the general cost ledger, similar to the account mentioned in connection with the glycerine procedure described above. The balances remaining in these accounts are ultimately entered in the profit and loss account in the same manner as an amount written off to depreciate any inventory to a lower market value.

#### CLOSING ACCOUNT

After all accounts have been extended and a trial balance of the general cost ledger has been taken, all accounts in this ledger are closed out to a closing account, leaving in the general cost ledger debits covering all inventories and an equalizing credit to the closing account. It will be noted that this entry is a summary of the month's work on the cost ledgers and that from it may be made up an entry for the general books covering the month's cost work, starting with the credits to the month's purchases and manufacturing expenses to their respective general ledger accounts, and debiting the cost of goods sold to the cost of sales account.

As mentioned in the beginning of this article, distribution of overhead has not been discussed, because the soap business probably does not present any problems in that respect that are peculiar to itself. The same applies to the distribution of selling expense.

Too much emphasis cannot be placed upon the importance of eternal vigilance in testing and re-testing the methods employed in a cost system of this kind, with a view to finding those which are most accurate while still being practical.

### STANDARDS DESIRABLE

The cost records of a soap plant are of necessity merely history. As a rule, however, an estimate of costs for selling purposes must be made before the goods to be sold are actually manufactured. It is therefore of the utmost importance that a comparison of such estimated cost figures be made with the actual cost records as soon as the latter are available, so that past errors may be detected and future errors avoided. This comparison might well be made from a series of charts showing fluctuations in the costs of basic raw materials from month to month; and also the cost per cwt. of the finished bulk soap before packing, in comparison with the estimated cost for each grade.

Probably the great majority of soap manufacturers in this country do not have a cost system which ties up with their accounting system in any way, and the greatest possible difference of views exists concerning the manner of applying various items of overhead and expense, and the extent to which credit for glycerine recovered should be applied in reducing the cost of soap produced. Therefore it would seem that some steps toward standardization of cost accounting in this line of business might well be taken. Undoubtedly standardization would be of great value to the entire industry.



**Vol. I**

- No. 3—Calculation and Application of Departmental Burden Rates, *Research Dept. N. A. C. A.* (out of print)**
- No. 4—Overhead Distribution, Compilation and Presentation, *Research Dept. N. A. C. A.* (out of print)**
- No. 5—Industrial Accounting as an Aid to Management, *Homer N. Sweet***
- No. 6—Distribution of Defective and Spoiled Material Costs, *C. H. Smith* (out of print)**
- No. 7—Accounting for By-Products, *Research Dept. N. A. C. A.***
- No. 8—Foundry Costs, *J. P. Jordan***

**Vol. II**

- No. 3—Cost Accounting for Brass and Bronze Foundries, *A. H. Barrett* (out of print)**
- No. 5—Managerial Uses of Foundry Costs, *J. P. Jordan* (out of print)**
- No. 6—A Method of Obtaining Ink Costs in the Printing Industry, *Paul H. Shaw***
- No. 7—Purchase Orders and Purchase Records, *Homer N. Sweet* (out of print)**
- No. 8—Some Problems in the Actual Installation of Cost Systems, *H. G. Crockett* (out of print)**
- No. 9—Cost Accounting for Public Utilities, *E. D. Bistline* (out of print)**
- No. 10—A Bibliography of Cost Books, *Research Dept. N. A. C. A.***
- No. 11—Cattle Costs, *E. D. Newman***
- No. 12—Coöperation and Cost Control, *John W. Robinson* (out of print)**
- No. 13—A Method of Accounting for Scrap, *C. B. Williams* (out of print)**
- No. 14—Cost Accounting for Fruit and Vegetable Cannerys, *Frank Palmer Brown***
- No. 15—What is Wrong with Cost Accounting? *G. Charter Harrison***
- No. 16—A Method of Distributing Factory Payroll, *Matthew Porosky***
- No. 17—Coal Production Costs, *R. W. Gardiner***
- No. 18—Uniform Cost Accounting Methods in the Printing Industry, *W. B. Lawrence***
- No. 19.—A Cost System for an Electric Cable Plant, *Fred F. Benke***

**Vol. III**

- No. 1—Cost Methods in a Woodworking Plant, *J. J. McCaffrey***
- No. 2—Costs as an Aid to Management, *John M. Scanlon***
- No. 3—Cost Accounting in the Laundry Industry, *Fred Elliott***
- No. 4—Some Cost Problems in the Hawaiian Sugar Industry, *F. A. Haenisch***
- No. 5—Securing Effective Work from Labor, *J. L. McVicker***
- No. 6—Some Phases of Cost Accounting in the Chemical Industry, *C. B. E. Rosén***
- No. 7—Cost Accounting in the Soap Industry, *William C. Koch***

Copies of the above Publications which are not out of print may be obtained from the office of the Secretary of the Association, 130 W. 42nd Street, New York City, at the price of 75 cents per copy.