Distribution cost analysis as an aid to management

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Thesis

Distribution Cost Analysis As An Aid to Management

By

Roger G. Skinner

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Chapter One

I Distribution Cost Analysis as an Aid to Management.

A. Distribution Cost Analysis is a Requisite of Good Management.

1. As Important as Production Cost Analysis.

Distribution cost analysis is as important as production cost analysis. This is not a challenge but a statement of fact. Distribution costs have increased since the Industrial Revolution, but their importance is just being recognized. Production costs have long been the subject of detailed analyses and now the realization has come that distribution costs are about as large in total and therefore should likewise be the object of detailed analysis. The relationship between distribution costs and production costs in 1929 was as follows:

"The estimated total cost of commodity distribution in 1929 was about $38.5 billion, or almost 59% of the $65.6 billion estimated total cost of producing and distributing commodities." (1)

The analysis of production costs has resulted in a high degree of production control and has aided the development of mass production. It is no idle promise to say that the analysis of distribution costs will result in the

control of distribution costs and will aid in the efficient handling of the output of the mass producers.

2. **Logical Sequence to Production Control and Market Research.**

In the past business management has devoted considerable time to production cost control. A more recent development has been market research. In most cases the start is made with a proposed product. It may be a new product or it may be an improved product. The production department develops it; they then consult the sales department as to its salability. Together they analyze the product as to style, wearing quality, suitability, convenience of size and shape, price, value, uniformity and adaptability. (1) The sales department bases its opinion on the results of its experience and also on the results of a market research job for the particular product. Ultimately the product is decided upon and it is as much the result of the work of the sales department as it is of the work of the production department. So far as money is concerned two things have been determined; the price at which it can be sold and the cost of producing it.

Conspicuous by its absence is any data as to the cost of distributing the product. If any reasoning is done at all it is probably that the costs of the sales department are more or less fixed as are the costs of the

(1) From a class lecture by Professor Ralph Wells, Oct. 8, 1941.
shipping department, the office, and the administrative department. It is reasoned that the direct costs of distributing the product, such as freight and trucking are, on the average, much less than the gross margin. The gross margin is considered as more than sufficient to cover all those expenses and so the problem of distribution costs is dismissed. Since the costs of distribution are at least equal to the total production costs they should be given as much study and analysis as production costs and marketing problems. Distribution cost analysis therefore, is a logical sequence to production control and market research.

3. **What are Distribution Costs?**

To fully understand the importance of distribution cost analysis we must know what costs are considered as distribution costs. According to a report of the Federal Trade Commission:

"Distribution costs represent items of expense incurred in effecting the sale of goods and collecting the proceeds thereof and in getting such goods into the buyer's possession." (1)

Distribution costs are also defined as:

"Comprising all direct and indirect costs involved in selling and distributing goods, irrespective of the source of such charges. This includes the so-called 'commercial expenses' and such administrative and general expenses as can be identified with the distribution function. However,

it excludes all expenses which are properly allocated to the cost of manufacture". (1)

4. **Distribution Cost Analysis**

Distribution cost analysis is the compilation and allocation of distribution costs for the purpose of presenting facts and figures to be used in the investigation and determination of marketing procedures. One purpose might be to find out what it costs to distribute a particular product; another purpose might be to find out what the distribution costs are for a particular territory. The ultimate objective is to find out where profits are small or nonexistent, and to make comparisons with territories or products where profits are satisfactory. The statement has been made that:

"Net profits result from certain profitable operations under certain sets of conditions that exceed losses ensuing under other conditions." (2)

Distribution cost analysis will reveal where profits are made or losses incurred and the sets of conditions under which both occur.

5. **Management**

Management can be defined primarily as control, the degree of control necessary to ensure maximum profits. Since distribution cost analysis reveals the source of profits and losses it is easy to see what an essential part of control

(1) Metropolitan Life Insurance Company, "Accounting for Distribution Costs" (New York), P1
(2) W. B. Castenholz; "The Control of Distribution Costs and Sales". (New York, 1930) p. 37.
it plays in management. It furnishes the facts upon which management can make decisions. The importance of these facts is attested to by the following quotation:

"The judgments of our executives can be no better than the information on which it is based. It is cheaper to use the time of clerks than the time of managers to obtain routine facts. It is a penny-wise-pound-foolish policy to pay high salaries for executive judgment and then permit such judgment to be based on faulty information. Unfortunately, our books show only the pennies expended and cover up the pounds lost." (1)

B. History of Distribution Cost Analysis.

1. A Recent Development.

Despite its importance to management, distribution cost analysis is a comparatively recent development. It is used by only a few companies and by most of these for limited purposes. The work that has been done in building up the importance of distribution cost accounting has been done by the Department of Commerce, the National Association of Cost Accountants, and a few trade association: The National Electrical Manufacturers Association of New York, The Rubber Manufacturers Association, Inc. of New York and The National Wholesale Druggists Association of New York. The first year book of the National Association of Cost

Accountants was published in 1922 and contained three articles on distribution costs. In one of these articles distribution costs were referred to as

"A subject which is attracting the interest of the public as well as attention in governmental investigations." (1)

This is interesting because it shows that governmental bodies were interested in distribution costs as far back as 1922. The subject was also important enough in that year for the National Association of Cost Accounts to include it as a topic for discussion at their first annual meeting.

Since 1922 the National Association of Cost Accountants have devoted much time and space to this subject both in their semi-monthly bulletins and in their annual year book. The United States Department of Commerce started to give special attention to distribution costs in 1928 and since then have issued several bulletins giving the results of special studies that they have made. Among them are "The Wholesale Grocer's Problems", (1928); "Distribution Cost Problems of Manufacturing Confectioners" (1931); "Wholesale Grocery Operations" (1932); "Wholesale Confectioners' Operations" (1934); and "Distribution Cost Accounting for Wholesaling" (1939) (2). Incidentally, Herbert Hoover was

Secretary of Commerce at the time these studies were started and they have been referred to as "a manifestation of his engineering genius at its best." (1) Accounting manuals devoting attention to distribution costs have also been issued by the National Electrical Manufacturers' Association, the Rubber Manufacturers' Association, Inc., and the National Wholesale Druggists' Association. (2).

2. Development Has Been Slow.

The puzzling feature of this development has been the slowness with which distribution cost systems have been adopted by business in general. The Federal Trade Commission's study reports.

"that out of 137 concerns of many types and sizes, selected because of a probability that they had developed a procedure of distribution cost accounting, only 34 had made any start in this direction and a much smaller number had made any substantial progress. A considerable number of these companies which had done little in this direction are large and nationally important firms." (3)

There are, of course, reasons for the lack of enthusiasm which business has shown for distribution cost accounting. More discussion (4) will be given to these reasons later but in brief they are: the apparent complexities of such systems; and the fact that without them most businesses

(2) Federal Trade Commission; "Case Studies etc.", p. 2
(3) Federal Trade Commission, "Case Studies etc." p. 2
(4) See Chapter Seven.
were making profits with which they were content.

C. Need for Distribution Cost Analysis.

1. Based on Planning.

It is the contention of this thesis that there definitely is a need for distribution cost analysis which means the interpretation of the facts obtained from distribution cost accounting. If thought is given to the development of distribution itself the fact is recognized that careful planning has not been given to distributive functions. Instead, as has already been said, all of the planning energy has been devoted to production and to sales volume. Management has been devoted to the theory that low production costs based on large sales volume were the "Royal road to profits". (1) Distribution cost analysis shows that this is not the true picture. The real truth is that profits are the total of the profits of individual sales and unless you are reasonably sure that each individual sale has a chance of being profitable then you cannot be on the "royal road" to profits.

Distribution cost analysis works because it furnishes a breakdown of distribution costs which reveals weaknesses of individual cost items. Thus variations in cost that might not show in a comparison of total costs do show in a comparison of individual costs. In fact one main feature of distribution cost work is the setting up of stand-

ards for the measurement of the various distributive functions. (2) Marketing Department Reaps the Benefits.

The marketing department reaps the benefits of distribution cost work. Professor J. Brooks Heckert has made a complete list of the marketing problems that may be solved with the aid of distribution cost analyses. He lists the following:

1. Commodities to be sold.
2. Prices to be charged.
3. Extent of territory to be served.
4. Classes of trade to be cultivated.
5. Distribution channels and agencies to be used.
6. Profitable size of order.
7. Profitable size of unit of sale.
8. Credit terms to be granted.
9. When to expand.
10. Inventories to be carried.
11. Control of individual distribution operations and cost items.
12. Results to be obtained from costs. (1)

This is indeed an exhaustive list and it would be an harrassed marketing man who had all of these problems to solve, but every marketing man probably has two or three of these problems confronting him. Distribution cost analysis will not answer the problem, but it will present the facts upon which final judgment can be made.

D. Difficulties of Distribution Cost Analysis.

1. Additional Work Involved.

It has been the intention of this opening chapter

to present the benefits to be derived from distribution cost analysis and to show its importance to good business management. It will be readily acknowledged that certain difficulties present themselves when the actual operation of such a system is considered. In the first place it means a general revision of a good part of the accounting system. This is necessary because in most accounting systems the expense accounts are based on what is known as the "natural divisions" of expense. (1) In distribution cost accounting the expenses should be recorded in terms of the functions which they perform, or in accounts for which a definite person or persons is responsible. This so-called "functional division" of expense is a more detailed allocation of individual expense items. The item of salaries for example, would be distributed to accounts for administrative salaries, clerical salaries, salesmen's salaries, truck drivers salaries, warehouse salaries and others and these would be set up for each function such as selling, transportation and warehousing. (2)

2. Additional Expense Involved.

The additional work made necessary in the accounting department involves additional expense. This in itself is a major reason that many companies give for not setting up a distribution cost system. Another objection given is that

(1) H. F. Taggart, "Distribution Cost Accounting for Wholesaling", United States Department of Commerce (Washington 1939) p. 4
(2) See Chapter Two p. 25
distribution costs are controlled by factors that are in turn controlled by salesmen, customers, general economic conditions, and even local situations. It is said that there is too much of the unpredictable human element involved to allow any exact accounting for such costs. This objection is clearly stated in an article by L. E. Rossiter in which he says:

"The unit costs of distributing two units of a product which are exactly alike in size, shape, color and all other physical characteristics will vary with the individual characteristics of the customers to whom the products are sold." (1)

Some companies raise the objection that an analysis does not make clear the action to be taken, it simply shows that certain conditions exist. Nothing could be much worse certainly than an expensive and detailed analysis, the results of which were never used.

3. Difficulties can be Overcome.

All of these difficulties in distribution cost accounting and all of the objections to such a system deserve consideration. A number of them are partially offset if it is realized that a start may be made on a small scale that does not involve much additional clerical work or expense. A system may be worked up gradually until it is apparent that additional work and expense are justified or that there is no reason for continuing the study. A start may be made by first isolating one function such as delivery and later isolating

(1) L.E. Rossiter, "To Find the Cost of Selling-Analysis of Distribution Costs by Functions", Dun's Review, 49:16 Sept. 1941) p. 17
another such as order-taking. A continuous system may be carried out or certain functions may be checked every few years. It is not necessary to alter the regular accounting system to make some of these initial investigations. The records that are needed may be kept separate from the regular books of account. (1)

In considering the objections to such a system it should be realized that such a system does give management the facts by which distribution problems may be solved, even if no definite action is taken by the management.

There may be a tendency to side step distribution cost accounting because of its complexities and involved details. This is no excuse for dismissing the subject. E. S. Freeman of the Dennison Manufacturing Company has expressed a very apt thought:

"The fact is that man must master the intricacies of business rather than expect business to yield to his simpli-
cities." (2)

E. Conclusion.

The importance of production costs has long been acknowledged but it is only recently that distribution costs have received much attention. This was due to the fact that gross profits were considered more important than net

(1) L. E. Rossiter, "To Find the Cost of Selling—Analysis of Distribution Costs by Functions", Dun's Review, 49:16 Sept. 1941, p. 17

(2) E. S. Freeman, "Distribution Cost Analysis and Its Influence on Pricing Policy," p. 37.
profits. It was reasoned that if there were large gross profits, the net profits would automatically be satisfactory. Gradually it became clearer that the net profit depended almost as much on operating costs as on gross profits. It was then that distribution costs became important.

Distribution costs include all costs except production costs. In a non-manufacturing concern all costs, therefore, are distribution costs. To maintain the greatest possible control over these costs, special studies are made which are known as distribution cost analyses.

Distribution cost analyses are made from the accounting records which must be kept in a certain way. The accounting necessary for distribution costs will be discussed in the next chapter.
Chapter Two

I. Distribution Cost Accounting

A. Distribution Cost Analysis Necessitates Changes in Accounting Procedure.

1. Distribution Cost Analyses Based on Accounting Records

Distribution cost analyses are based on accounting records. That being the case the accounting system designed for the recording of distribution costs is the first thing to be considered after it has been decided that distribution costs are to be analyzed. This is important because in practically all cases changes will have to be made in the accounting system.

2. Classification of Accounts by Object of Expenditure.

The changes that must be made in designing a distribution cost accounting system affect the classification of the expense accounts. Usually expense accounts are classified in such a way that there is an account to which each expenditure can be charged. Under such a classification it is the object of the expenditure that determines the account to which the expense is charged.

A classification of accounts by object of expenditure is illustrated in Exhibit 1 (1). This is a classification of expenses actually used by a number of wholesalers. Each account is an object of expenditure. If money is spent for

(1) See p 21.
Exhibit 1. Classification of Accounts by Object of Expenditure

1. Advertising
2. Allowances and adjustments
3. Bad debts
4. Bank charges and interest
5. Buying expense
6. Depreciation—furniture and fixtures
7. Donations and charity
8. Dues and subscriptions
9. Entertainment
10. Insurance - general
11. Insurance - life
12. Legal and professional
13. Postage
14. Printing and stationery
15. Rent, light and heat
16. Salaries, owners
17. Salaries executive and clerical
18. Salesmen's salaries and commissions
19. Salesmen's traveling expense
20. Sundry supplies and expense
21. Taxes (other than income)
22. Telephone and telegraph
23. Traveling - sundry

letterheads for example it is charged to the printing and stationery account. The expenses of rent, light and heat are all charged to one account and there is one account to which are charged all the sundry supplies and expenses of the entire organization.

3. **Classification of Accounts by Functions.**

Distribution cost analyses require that expense accounts be classified on a functional basis. This means that when the various accounts to which expenses are to be charged are being determined the basis for the final decision is not the object of expenditure but the function for which each expense is incurred. A function is a definitely determinable activity necessary to carry on the business of a company. Exhibit 2 (1) is a list of functions of a group of wholesalers. The service units listed in Exhibit 2 are units by which the total cost of each function can be measured. (2) No one wholesaler would have all of the functions listed but the length of the list illustrates the number of functions there are and shows what is meant by the term "function".

The functional classification of accounts is a grouping of accounts rather than a completely different system of classification. It involves the determination of the

(1) See p. 23
(2) See p. 23
EXHIBIT 2

FUNCTIONS AND SERVICE UNITS

FUNCTIONS
Assembling and checking orders.
Carrying (financing).
Cash receiving.
City delivery

CREDIT AND COLLECTION.
Dealer helps.
Delivery of country shipments to station.
Direct mail advertising.
Filling orders.
Getting out stock for orders.
Handling.
Haulage (receiving and shipping truckage).
Keeping stock records.
Maintaining order and letter files.
Merchandise storage.

Packing and loading.
Posting invoices to customers account.
Preparation and mailing of customers' statements.
Preparation of invoices and shipping documents (except pricing and extending.)
Pricing and extending invoices.
Receiving and posting cash receipts.
Receiving stock.
Sales analyses and statistics.
Salesmen's compensation.
Salesmen's equipment.
Salesmen's telephoning.
Salesmen's travel.
Traffic and claims.
Transportation of country shipments (freight, express, postage)

SERVICE UNITS
The order or the invoice line or the volume unit.
The dollar of inventory.
The customer month.
The truck mile or hour or the order or invoice line, or the unit of goods sold for city delivery.
The customer.
The customer.
The merchandise unit.
The mail solicitation.
The invoice line.
The invoice line.
The invoice line.
The hundredweight.
The invoice line.
The order or letter.
The square foot or cubic foot of storage space provided or used.
The merchandise unit or the order or the volume unit.
The order.
The customer.
The order.
The invoice line.
The individual cash collection.
The volume unit.
The invoice line or the order.
The call.
The call.
The call.
The day or mile traveled.
The order.
The thousandweight-mile.

Source: Taggart, "Distribution Cost Accounting for Wholesaling", p. 10, 11.
EXHIBIT 3
CLASSIFICATION OF ACCOUNTS BY OBJECT OF EXPENDITURE ON A DEPARTMENTAL BASIS

Advertising
Salaries
Catalogs and Price Lists
Periodicals
Miscellaneous Advertising
Postage
Demonstrations
Displays and Exhibits
Sundry Supplies and Expense

Buying and Selling Expense
Salaries - Department Heads and Assistants
Sales Department Salaries
Salesmen's Salaries
Traveling Expense
Salesmen's Auto Expense
Gas and Oil - Repairs
Tires - Miscellaneous
Freight and Express-Outward
Freight and Express on Returned Goods
Parcel Post
Sales Meetings and Conventions
Commissions Paid
Bonuses and Prizes
Goods used for Samples and Given Away
Stationery
Sundry Supplies and Expense

Receiving and Shipping
Labor - Shipping Department and Lofts
Teaming
Labor - Trucks and Teams
Repairs
Depreciation of Trucks
Gasoline, Oil and Grease
Garage and Stable Expense
Sundry Teaming Expenses
Outside Teaming
Packing Materials
Sundry Supplies and Expense

Building and Stock Expense
Janitors and Carpenters
Repairs to Building
Rent
Storage
General Taxes
General Insurance
Depreciation of Machinery
Depreciation of Fixed Improvements
Depreciation of Furniture and Fixtures
Sundry Office Supplies and Expenses

Office Expenses
Office Salaries
Office Stationery and Supplies
Cost Department Stationery and Supplies
Collection Expense
Sundry Office Expense

Administrative Expenses
Official Salaries
Legal Expenses
Stenographers
Salaries
Supplies
General Postage
Telephone and Telegraph
Salaries
Telephone
Toll Calls
Telegrams
Auditing
Official Expense
Welfare Work
Picnics and Parties
Presents to Employees
Hajco Club
Group Life Insurance
Group Sickness and Accident Insurance
Employees' Purchases
Association and Club Dues
Subscriptions to Magazines

Heat, Light and Power
Labor
Fuel
Water
Repairs
Light Purchased
Sundry Supplies and Expense
Heat and Steam Sold

Carfares
Laundry
Credit Agency
Special Bonus
Sundry Supplies and Expenses

Source: Chart of Accounts of a Boston Wholesale Food Concern.
functions of the company and then a classification of accounts under each function. Exhibit 3 (1) is a classification of accounts on a departmental basis which is in reality a functional basis to a modified degree. This is an actual classification of accounts used by a large wholesale food company. Exhibit 4 (2) is a classification of accounts for this same company on a strictly functional basis. The accounts are grouped under eleven functions whereas in Exhibit 2 they were grouped under five departments.

Exhibits 3 and 4 both show that there are some expenses that are applicable to all functions and in such cases there is an account under each function in which to record the portion of the expense applicable to that function. A good example of this type of expense is payroll. Each function requires some expenditure for salaries or wages and under each function there is an account to which this cost can be charged. It is also true that there are some expenses which are only applicable to one function. The cost of catalogs and price lists, for example, is applicable only to the advertising function. Therefore the account to which it is charged is included in the accounts of the advertising function. Similarly the expenses of the trucks are applicable only to the trucking function therefore the accounts to which these expenses are charged are included under the trucking function.

(1) See p. 24
(2) See p. 26
## EXHIBIT 4

### CLASSIFICATION OF ACCOUNTS BY FUNCTIONS

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</tr>
<tr>
<td>2. Sales Department</td>
<td><strong>Salaries</strong> - Executive and Clerical&lt;br&gt; <strong>Sales Meetings and Conventions</strong>&lt;br&gt; <strong>Goods Used for Samples and Given Away</strong>&lt;br&gt; <strong>Stationery</strong>&lt;br&gt; <strong>Sundry Supplies and Expenses</strong></td>
</tr>
<tr>
<td>3. Salesmen’s Compensation and Expense</td>
<td><strong>Salesmen’s Salaries</strong>&lt;br&gt; <strong>Salesmen’s Bonuses</strong>&lt;br&gt; <strong>Prizes</strong>&lt;br&gt; <strong>Salesmen’s Automobile</strong>&lt;br&gt; <strong>Gas and Oil</strong>&lt;br&gt; <strong>Tires</strong>&lt;br&gt; <strong>Repairs</strong>&lt;br&gt; <strong>Depreciation</strong>&lt;br&gt; <strong>Insurance</strong>&lt;br&gt; <strong>Miscellaneous</strong>&lt;br&gt; <strong>Salesmen’s Traveling Expense</strong></td>
</tr>
<tr>
<td>4. Receiving Stock</td>
<td><strong>Labor</strong>&lt;br&gt; <strong>Freight and Express on Returned Stock</strong>&lt;br&gt; <strong>Sundry Supplies and Expenses</strong></td>
</tr>
<tr>
<td>5. Trucking (Shipping, Trucking)</td>
<td><strong>Labor</strong>&lt;br&gt; <strong>Repairs</strong>&lt;br&gt; <strong>Depreciation of Trucks</strong>&lt;br&gt; <strong>Gasoline, Oil and Grease</strong>&lt;br&gt; <strong>Garage</strong>&lt;br&gt; <strong>Sundry Trucking Expense</strong>&lt;br&gt; <strong>Outside Trucking</strong></td>
</tr>
<tr>
<td>6. Filling Orders (Includes getting out Stock and Handling to the Shipping Department)</td>
<td><strong>Labor</strong>&lt;br&gt; <strong>Packing Supplies</strong>&lt;br&gt; <strong>Parcel Post</strong>&lt;br&gt; <strong>Sundry Supplies and Expenses</strong></td>
</tr>
<tr>
<td>7. Assembling and Loading (Includes handling of stock from Time it Reaches Shipping Floor until it is on the Trucks)</td>
<td><strong>Labor</strong>&lt;br&gt; <strong>Sundry Supplies and Expenses</strong></td>
</tr>
<tr>
<td>8. Building and Stock</td>
<td><strong>Janitors and Carpenters</strong>&lt;br&gt; <strong>Repairs to Building</strong>&lt;br&gt; <strong>Rent</strong>&lt;br&gt; <strong>Storage</strong>&lt;br&gt; <strong>General Taxes</strong>&lt;br&gt; <strong>General Insurance</strong>&lt;br&gt; <strong>Depreciation of Machinery</strong>&lt;br&gt; <strong>Depreciation of Fixed Improvements</strong>&lt;br&gt; <strong>Depreciation of Furniture and Fixtures</strong>&lt;br&gt; <strong>Sundry Supplies and Expenses</strong></td>
</tr>
<tr>
<td>9. Credit and Collection</td>
<td><strong>Salaries</strong>&lt;br&gt; <strong>Sundry Supplies and Expenses</strong></td>
</tr>
<tr>
<td>10. Bookkeeping (Includes all work on Invoices and Accounts Receivable, work of Cashier, and Miscellaneous Bookkeeping)</td>
<td><strong>Salaries</strong>&lt;br&gt; <strong>Stationery and Supplies</strong>&lt;br&gt; <strong>Sundry Office Expense</strong></td>
</tr>
<tr>
<td>11. Administrative (Includes Purchasing)</td>
<td><strong>Official Salaries</strong>&lt;br&gt; <strong>Legal Expenses</strong>&lt;br&gt; <strong>Stenographers</strong>&lt;br&gt; <strong>Salaries</strong>&lt;br&gt; <strong>Supplies</strong>&lt;br&gt; <strong>General Postage</strong>&lt;br&gt; <strong>Telephone and Telegraph Salaries</strong>&lt;br&gt; <strong>Telephone</strong>&lt;br&gt; <strong>Toll Calls</strong>&lt;br&gt; <strong>Telegrams</strong>&lt;br&gt; <strong>Auditing</strong>&lt;br&gt; <strong>Official Expense</strong>&lt;br&gt; <strong>Welfare Work</strong>&lt;br&gt; <strong>Picnics and Parties</strong>&lt;br&gt; <strong>Presents to Employees</strong>&lt;br&gt; <strong>Group Life Insurance</strong>&lt;br&gt; <strong>Group Sickness and Accident Insurance</strong>&lt;br&gt; <strong>Employee’s Purchases</strong>&lt;br&gt; <strong>Association and Club Dues</strong>&lt;br&gt; <strong>Subscriptions to Magazines</strong>&lt;br&gt; <strong>Carfares</strong>&lt;br&gt; <strong>Laundry</strong>&lt;br&gt; <strong>Credit Agency</strong>&lt;br&gt; <strong>Special Bonuses</strong>&lt;br&gt; <strong>Sundry Supplies and Expenses</strong></td>
</tr>
</tbody>
</table>

Source: Hypothetical Classification of Accounts on a Functional Basis for Wholesale concern whose Actual Chart of Accounts is shown in Exhibit 3.
When an expense is incurred the procedure is to determine the function to which it applies and then to charge it to the proper account under that function. When a bill is received for gasoline, for example, the first thing to find out is whether it is for a salesman's automobile or for a truck. If it is for a salesman's car it is charged to the gasoline and oil account under the function "salesmen's" compensation and expenses". If, it is for a truck it is charged to the gasoline and oil account under the function "trucking".

At the end of any accounting period the total cost of any function is obtained by merely adding the balances of the accounts classified under that function. The balances for each account would be shown on a statement or report that listed the functions and the accounts under each function with a line for the total. This statement would also show the balances for each function and its accounts for a previous period so that a comparison would be available.

4. Advantages of Functional Classification.

The functional classification of expense accounts is necessary if distribution cost analyses are to be made but it has other advantages of its own. It is a definite aid to good management in that it gives a more detailed breakdown of expenses and affords a comparison of expenditures for different period in terms of functions or responsibilities rather than merely in terms of account totals. The latter comparison
can be made if accounts are classified on an object of expenditure basis. Under such a classification it might be found that total salaries and wages for this year are less than last year. Under a functional classification it might be found that salaries and wages for this year are less than last year for every function except assembling and loading. This discovery would certainly require further study which might disclose unsuspected inefficiency. The comparison of other expenses under a functional classification might reveal other inefficiencies. The comparison might also reveal examples of unusual efficiency and a study of these might uncover methods that could be extended to other functions.

Another advantage of the functional classification is that the total cost of each function can be measured in terms of functional service units and control over costs can be maintained by watching the unit costs. A function has already been referred to as "a definitely determinable activity necessary to carry on the business of a company". (1) As such its major purpose is accomplished by the cumulative performance of many relatively small acts. The shipping function, for example, is accomplished through the shipping of many separate and distinct orders. If the cost of making an average shipment or a standard size shipment can be determined then that unit cost can be kept under observation and when it varies

(1) See p.22
either up or down a study can be made to determine the cause.

The total cost of a function is valuable then in that it can be measured in terms of some service unit and the cost of the unit compared with the cost of the same unit for a previous period or with the standard or budget unit cost. This allays the contention that there is little value in comparing expense totals for different periods because there is no way of knowing which figure reflects the best operating results. This can be illustrated by assuming that a comparison of the total cost of the assembling and loading function for this year and last year shows that this year's total was less. In cases where this was the only comparison that could be made such a showing would be deemed very satisfactory. Let us assume that the total cost of the function is measured by a service unit which in this case might be a weight unit of one hundred pounds. The unit cost is found by dividing the total cost of the function for each period by the number of hundredweight shipped in each period. Since it is known that the total is less for the current period any change in the comparison will depend on the number of hundredweight shipped in each period. For the purpose of illustration it is to be assumed that fewer hundredweight were shipped in the current period so that a comparison of the unit costs shows that the unit cost for the current period is a little higher than the unit cost for the preceding period. If this is true the management can be shown that even though the total cost was
## EXHIBIT 5

### FUNCTIONS AND SERVICE UNITS

<table>
<thead>
<tr>
<th>FUNCTIONS</th>
<th>SERVICE UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Advertising</td>
<td>The customer or the order or the dollar of sales</td>
</tr>
<tr>
<td>2. Sales Department</td>
<td>The customer or the order or the dollar of sales</td>
</tr>
<tr>
<td>3. Salesmen's compensation and expense</td>
<td>The call or the dollar of sales</td>
</tr>
<tr>
<td>4. Receiving Stock</td>
<td>The hundredweight or the merchandise unit</td>
</tr>
<tr>
<td>5. Teaming, (shipping, trucking)</td>
<td>The hundredweight or number of orders</td>
</tr>
<tr>
<td>6. Filling orders (includes getting out stock and handling to the shipping department)</td>
<td>The invoice line</td>
</tr>
<tr>
<td>7. Assembling and loading (handling of stock from time it reaches shipping floor until it is on the trucks)</td>
<td>The merchandise unit or the order or the invoice line</td>
</tr>
<tr>
<td>8. Building and stock</td>
<td>The square foot, or cubic foot of space provided or used</td>
</tr>
<tr>
<td>9. Credit and collection</td>
<td>The customer</td>
</tr>
<tr>
<td>10. Bookkeeping (includes all work on invoices and accounts receivable, work of cashier, miscellaneous bookkeeping)</td>
<td>The invoice line</td>
</tr>
<tr>
<td>11. Administrative</td>
<td>The customer or the order</td>
</tr>
</tbody>
</table>

Source: Hypothetical list of service units for functions shown in Exhibit 4.
lower for the current period the unit cost was higher and therefore the function was not performed as efficiently this year as last. This type of situation is illustrated by Exhibit 6.

Exhibit 6

Comparison of Unit Costs for Assembling and Loading Function.

<table>
<thead>
<tr>
<th></th>
<th>1942</th>
<th>1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost of function</td>
<td>$90,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>Number of units (hundredweight)</td>
<td>80,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Unit cost</td>
<td>1.125</td>
<td>1.00</td>
</tr>
</tbody>
</table>

B. Units of Measurement

1. Selection of Units of Measurement.

Distribution cost accounting may be said to be an aid to better management since it furnishes a better basis (the unit cost) for comparing costs for one period with those of another period. Its value will depend on the selection of the unit of measurement for each function. The ideal unit would be the unit whose cost would remain the same under varying conditions assuming that the function is administered just as efficiently under the varying conditions.

Exhibit 2 (1) which is a list of functions that might apply to a wholesale concern also gives the units that might be used to measure each function. Exhibit 5 (2) which is a list of functions for a particular wholesale concern gives the units that might likewise be used to measure each of those functions.

(1) See p. 23
(2) See p. 30
functions. The units of measurement are so important that it might be well to explain the ones listed in Exhibit 5.

2. Advertising Function

The cost of the advertising function might be measured in terms of the number of customers that the company has, the number of orders that were obtained or the dollar of sales. The number of customers unit would be valuable in a type of business whose success depended on increasing the number of its customers rather than on increasing the amount of business done with its old customers. A measurement based on the number of orders taken or the dollars of sales would be practical for any type of business but of the two the number of orders basis would usually be the better due to the fact that the company's advertising might get the order but it would be up to the sales department to get the maximum size order.

3. Sales Department Function

The cost of the sales department might be measured by the same units used to measure the cost of the advertising function. Since this function does not include either salesmen's compensation or expenses but consists almost entirely of indirect selling expenses it can best be measured by the number of customers or the number of orders.

3. Selling Function

Salesmen's compensation and expenses can be measured by the number of calls made or the dollars of sales. The
number of calls made is the better because the dollars of sales will vary with business conditions and will not reflect any promotional effort that a salesman might be making. It may be advisable to separate the automobile and traveling expenses and measure the automobile expense on the basis of the miles traveled and the traveling expense on the basis of the number of days worked. This is because in both cases the total expense will vary more directly with these bases than with the other possible bases.

4. **Receiving Function**

The expense of receiving stock may be measured by the number of hundredweight received or the number of units received. If the units are of approximately the same size and weight the number of units received might be used but since they will usually vary in weight the number of hundredweight is the better unit of measurement.

5. **Teaming Function**

The cost of the teaming function may be measured by the number of hundredweight teamed or the number of orders teamed. The number of orders teamed is not desirable if there is a wide difference in the size of the orders; its advantage is that it takes into consideration the time involved in loading and delivering each order. An order weighing fifty pounds may take as much of the teamster's time as an order weighing three hundred pounds. However this is not usually true and since orders may vary greatly in size it is probably
better to use the number of hundredweight teamed as the unit of measurement.

6. **Filling Orders Function**

The cost of filling orders can best be measured by the number of invoice lines on the orders filled. This is because each line represents an item to be taken from stock and conveyed to the shipping room. The items may vary greatly in size and weight but any weight unit that could be used would be small and it would be impossible to determine a size unit.

7. **Assembling and Loading Function**

The assembling and loading function can be measured by the units of merchandise shipped, the number of orders shipped, or the number of invoice lines on the order shipped. If the units of merchandise being shipped were large units then this unit of measurement might be the best. However if the units being shipped are small or vary in size they would not be a desirable unit of measurement. The number of orders shipped would be a satisfactory unit of measurement if the orders didn't vary too greatly in size and weight. The invoice line is open to the same criticisms but it might well represent more of an average unit than the others.

8. **Building and Stock Function**

The square foot or cubic foot of space used would be the unit used to measure the cost of the building and stock function. The cost of this function should remain very nearly constant unless there was outside storage space involved and
it was included in the cost of the building and stock function.

9. **Credit and Collection Function**

The cost of the credit and collection function would be measured by the number of customers. The costs of this function are more or less fixed but the costs that are not fixed should vary with the number of customers.

10. **Bookkeeping Function**

The cost of the bookkeeping function should be measured by the number of invoice lines. This is a natural unit of measurement in this case because so much of the bookkeeping work involves the invoice line. Each invoice line must be priced, extended, billed and perhaps costed. The invoice itself is another possible unit of measurement but it is not as desirable because the number of lines on an invoice vary so widely.

11. **Administrative Function**

The cost of the administrative function may be measured by the number of customers, or the number of orders filled. This function is perhaps the most difficult to measure because its cost will not vary directly with any particular service unit. Despite this fact it is desirable to measure it and for that purpose either the number of customers or the number of orders may be used.

12. **Final Selection Made After Consideration of Pertinent Facts.**

The preceding discussion has included all the units of measurement that might be used for the functions given in
Exhibit 5 (1). In Exhibit 2 (2) other functions and service units are listed. The selection of a service unit or a unit of measurement will vary with the facts in each case and the selection should be made only after the facts have been collected and studied. It should always be borne in mind that the ideal unit of measurement is the one whose cost would remain the same under varying conditions provided the function is always administered efficiently. Practically no such unit exists but the nearest approach to it is the unit to be used.

C Summary

1. Determination of Functions, Accounts and Units of Measurement.

The basis of distribution cost accounting is the classification of accounts by functions. The first step is the determination of the functions that are to be used. Each function should be clear cut and distinct. The distinction shouldn't be too fine, instead the minor functions should be combined with each other or with major functions. The purpose of this is to avoid details that would serve no useful purpose after they were compiled.

After the functions are decided upon the accounts may be grouped under the functions. This is merely the setting up of accounts to record the expenses of each function.

The final step is the determination of the units to be used to measure the efficiency of each function. These should be considered when the functions themselves are being

(1) See p 30
(2) See p 23
determined but should be decided upon definitely after further study and thought have been given to them.

2. Functional Classification an Aid to Management.

After the three steps that have been discussed have been taken a distribution cost accounting system has been set up that has a very definite value to management. The management can determine how each item of expense compares with previous periods; it can determine how the total cost of each function compares with the total cost for previous periods; and it can determine how the unit cost of each function compares with the unit cost for previous periods. It has in fact three comparisons with previous periods in place of the usual one, that of each expense account with the same account for a previous period.

A distribution cost accounting system therefore makes a valuable contribution to management in that it provides the means of comparing operating expenses in more detail and by operating functions. In this respect such a cost system can be used by the general managers of the business. The over-all results would be studied by the general managers and the results of each function would be analyzed by the person or persons responsible for that function.

A distribution cost accounting system is also the basis of distribution cost analysis which is primarily for the use of the sales manager. It is distribution cost analysis that shows which are the most profitable products and
which are the profitable territories. Distribution cost analysis therefore is the ultimate goal of distribution cost accounting.
Chapter Three

I Distribution Cost Analysis

A Importance of Distribution Cost Analysis to the Sales Manager


"Distribution cost analysis is the compilation and allocation of distribution costs for the purpose of presenting facts and figures to be used in the investigation and determination of marketing procedures." (1) Its function is to furnish the information about costs that the management needs to guide its sales planning. It should be as valuable to the sales manager as production costs are to the production manager.

The sales manager cannot be content with a large volume of sales. He must endeavor to make his total sales as profitable as possible. This means more than instructing salesmen to keep their returns and allowances as low as possible, to keep their expenses down, and not to cut prices. Keeping total sales as profitable as possible means selling the most profitable merchandise, selling in the most profitable territories and selling through the most profitable channels. The sales manager can do this intelligently if the distribution costs can be analyzed for his particular purpose or

(1) See p. 10
purposes and then interpreted for him. His plans and his
decisions must be based to a great extent on the distribution
costs. Distribution cost analysis is the medium that brings
this cost information to him in usable form.

B. How Analyses are Made.

1. Commodity Analysis.

The analysis of distribution costs for any particular purpose is made by bringing together all the costs that affect the particular problem. This can best be illustrated by explaining how an analysis would be made to show the profitability of a particular commodity or group of commodities. The term "group of commodities" is used because in the case of a company that sold a large number of items it would not be practical to make an analysis of each individual commodity. Instead the commodities would be classified in definite groups and the cost compiled for each group. A food wholesaler, for example, might classify his canned goods in one group of commodities, his frozen goods in another and his bulk goods in another.

2. Classification of Commodities.

The first step in analyzing distribution costs for a particular commodity or group of commodities is to name the commodity or definitely define the group of commodities. In defining or classifying a group of commodities there should be some guides for determining the classification to which a particular product belongs. The guides to be used in making such
Classifications might be set by the following factors:

1. Price ranges.
2. Physical size or weight of items.
3. Quality of output—first, second, millrun, etc.
4. Distribution channels—where different products are sold to industrial users, wholesalers, and retailers.
5. Similarity of design.
6. Size of the sales unit—full cases, broken case lots, etc.
7. Production costs.
8. Production methods.
10. Methods of financing. (1)


After the commodities have been classified into groups the problem is one of determining the costs that are incurred directly and indirectly for that commodity or group of commodities. The direct costs can be accumulated by the simple process of addition. An example of direct costs for a commodity would be the salaries and expenses of salesmen who were selling only that commodity. The difficult part of distribution cost analysis comes in determining the portion of indirect or joint costs that are to be applied to the commodity. An example of joint costs would be the salaries and expenses of salesmen who were selling several commodities.

The allocation of indirect or joint costs to the particular problem being analyzed is the most important factor in the analysis. It must be exact as possible otherwise the results of the analysis will not be dependable.

(1) J. B. Heckert "The Analysis and Control of Distribution Costs", (New York, 1940) p. 86
Since the illustration to be used is that of a commodity analysis it should be stated that there are relatively few direct costs applicable to a commodity group. This is true unless a company is large enough to distribute such a large volume of goods that the distribution of each group is handled more or less separately. Another exception would occur in the case of a company that distributed a large volume but handled only a few items. Usually it would be the case of a company whose salesmen sold a variety of products that were handled and shipped from one warehouse. Under such conditions all the costs would usually be joint costs and would have to be allocated.

To make the illustration as clear as possible it is to be assumed that the commodity group is canned goods and that the analysis is being made for the company whose classification of accounts by functions is shown in Exhibit 4 (1) and whose functions and service units are shown in Exhibit 5 (2). The commodity group is canned goods because in this particular company this is a separate department in so far as sales records, cost of goods sold, returns and allowances, and cost of returns are concerned. It can be assumed that there is a buyer and an assistant for the department and three loft men who handle only canned goods, but that all the other costs are joint costs. It should also be noted that the units

(1) See p. 26
(2) See p. 30
in this classification are cases of canned goods which are of approximately the same size and weight and which sell within a narrow price range.

4. **Direct Costs.**

The direct costs to be applied to this analysis are the salaries and expenses of the buyer and his assistant and the wages of the loft men. The wages of the latter are direct costs because one entire floor is devoted to canned goods and there are three men who spend all their time working on this floor. All of these direct costs are obtained from an analysis of the payroll records.

5. **Indirect Costs.**

The next step in the analysis is to determine what other costs are applicable to the group of commodities and the bases on which they should be allocated. This can best be done by taking each function as given in Exhibit 5 (1) in order and determining whether or not its costs are applicable to the commodity group and if they are, to determine the basis on which the cost should be allocated.

6. **Costs of Advertising.**

The expenses of the advertising function are applicable to this commodity group because, obviously enough, some of the advertising was for these products. It might be that a definite advertising campaign was carried on for this group of commodities. If that were the case the cost of that cam-

(1) See p. 30
campaign would be a direct charge to the commodity group. The remaining cost or the total cost if there were no such direct costs would be charged to the commodity group on the dollars of sales basis. Thus if the sales of canned goods were 25% of the total sales then 25% of the cost of the advertising function would be charged to that commodity group.

7. Costs of Sales Department.

The next function is that of the sales department which does not include salesmen's compensation and expenses. There probably are no costs included in the total cost of this function that are directly applicable to the canned goods group. That being the case the costs of this function would be charged to the commodity group on the dollars of sales basis or possibly on the number of invoice lines basis.

8. Salesmen's Compensation and Expenses.

Salesmen's compensation and expenses do not include any costs directly applicable to the canned goods commodity group. If there were any salesmen who sold canned goods exclusively then their salaries and expenses would be directly applicable to the commodity group. Since there are no salesmen who sell canned goods exclusively salesmen's compensation and expenses must be allocated. It might be that the salesmen kept a record of the time they spent selling each group of commodities. If they did their compensation and expenses could be allocated among the commodity groups on the basis of the time spent selling each. However salesmen's time reports
or records are rarely kept and when kept their accuracy is questionable. In view of these facts the costs of the salesmen can best be allocated on the dollars of sales basis or the total costs of all salesmen together may be allocated on the basis of total sales. Probably both methods should be tried to see if they both give substantially the same figures. If not the allocation of each individual salesman's costs should be used as it would be the most accurate.


The cost of the fourth function, "receiving stock," probably doesn't include any costs that are directly applicable to any commodity group. That would be the case unless there was a separate receiving department for certain commodity groups. Exhibit 5 (1) shows that the cost of receiving stock is measured in terms of the number of hundredweight received or the number of merchandise units received. The cost of the function would be allocated to the canned goods commodity group on the basis of the number of hundredweight received or the number of cases of canned goods received. In this particular case, either basis of allocation could be used since cases of canned goods all weigh about the same and are of the same size and shape.

A standard handling unit is sometimes used as a basis of allocation. In a study made by the Bureau of Foreign (1) See p. 30
and Domestic Commerce of the United States Department of Commerce the department established by means of time studies a case of canned goods as the standard handling unit. (1) When a standard handling unit is established all other commodities are reduced to an equivalent number of standard handling units. Thus a bag of flour weighing twenty-five pounds might be considered half a standard handling unit while a bag weighing ninety-eight pounds might be considered two standard handling units. When a standard handling unit is used the cost per unit is found and the number of standard handling units of each commodity becomes the basis of allocating the cost of receiving stock.


Like the cost of receiving stock the cost of the teaming function probably includes no costs that can be applied directly to any commodity group. The total teaming cost depends to some extent on the number of deliveries that are made since the time spent in making a delivery involves more or less lost time and reduces the number of deliveries that can be made. If each order was made up of only one type of commodity then the cost of this function could be allocated on a per order basis. However since most orders would be made up of more than one type of commodity the cost of this function cannot be allocated on that basis. The most satisfactory basis of allocation is the number of hundredweight shipped. Records are kept to show the number of hundredweight shipped by commodity
groups. The total cost of the function is divided by the total number of hundredweight shipped and that figure is multiplied by the number of hundredweight of canned goods shipped to get the cost of teeming applicable to that commodity group.


The sixth function is that of filling orders which includes taking the merchandise out of stock and conveying it to the shipping floor. The suggested basis of allocation of this function is the invoice line. This means that a record must be kept of the total invoice lines by commodities. The total cost of the function is divided by the total number of invoice lines, and that figure is multiplied by the number of lines for each commodity group to get the portion of the cost of the function applicable to each commodity group. The weakness of this method of allocation is that in one case a shipment of twenty cases of canned goods might represent one invoice line while in another case a shipment of one pint of extract might represent one invoice line. Obviously it costs more for the former than for the latter yet with this basis of allocation each would be charged with exactly the same cost. In the illustration that is being used, that of a distribution cost analysis of a commodity group, it happens that the commodity group is canned goods. These are all stored on one floor with the result that the wages of the employees on that floor make up the cost of filling orders.
12. **Cost of Assembling and Loading Function.**

The assembling and loading function includes the handling of the merchandise from the time it reaches the shipping floor until it is on the trucks. The suggested basis of allocation are the merchandise or standard handling unit, the order or the invoice lines. The number of orders cannot be used if each order is apt to be made up of more than one commodity group. The invoice line may be used but its accuracy is questionable if the weight or number of units per invoice line varies. This leaves only the merchandise unit or the standard handling unit. If a merchandise unit were satisfactory there would be no need of a standard handling unit. Therefore it can be implied that the standard handling unit should be used unless the merchandise units are of the same size, shape, and weight.

13. **Cost of Building and Stock.**

The eighth function is that of building and stock. The cost of this function may be allocated according to the square feet of space provided or used. Part of the cost of this function will be allocated to the other functions since they are performed by definite departments occupying space. The portions thus allocated will be included in the total cost of each of the other functions before its cost is allocated to each commodity group.
14. **Costs of Credit and Collection, Bookkeeping and Administration.**

The last three functions given in Exhibit 5 (1), those of credit and collections, bookkeeping and administration can be allocated on the basis of dollars of sales or the invoice line. It might be possible to allocate the cost of bookkeeping which includes all work on invoices and accounts receivable, the work of the cashier, and miscellaneous bookkeeping on the basis of the invoice line since part of the cost of this function, namely all work on the invoices, would vary with the number of invoice lines. However unless this particular item of cost was a significant one it would not be much less accurate to allocate the total cost of this function on the basis of the dollar of sales. The other two functions cannot be allocated on any basis that is directly applicable to particular commodity groups and therefore it would be satisfactory to allocate them according to the dollar sales of each commodity. Any direct costs such as the salaries of the canned goods buyer and his assistant would be deducted from the costs of administration and charged directly to the commodity group before the costs of the function were allocated.

15. **Profit and Loss Statement for Commodity Groups.**

The costs of each function that have been allocated to the commodity group are then used to prepare a profit and loss statement for that commodity group. The general books

(1) See p. 30
of account give the gross profit for the commodity group from which is deducted the sum of these costs. The result is the profit or loss that is being made on the sales of this commodity group. If the analysis is made for only one group of products the management must decide whether or not the percentage of profit is large enough. If the analysis has been made for more than one group of commodities then the profitability of each group can be compared.

16. Importance of Allocation.

It is obvious that the basis of allocation of the costs of various functions is the most important factor in a distribution cost analysis. The Policyholders Service Bureau of the Metropolitan Life Insurance Company has made a study of distribution costs in which is says:

"The basis used for allocation...is perhaps the most important single factor in the accuracy and practicability of the distribution cost system." (1)

17. Steps in Making An Analysis.

The first step in actually making an analysis is to study the costs of each function; first to determine which costs are direct costs for the particular analysis being made; and second, to determine what is the best basis for allocating the indirect costs.

In the commodity analysis that was used as an illustration the only direct costs were the salaries of the

(1) Metropolitan Life Insurance Company "Accounting for Distribution Costs" (New York)p15.
department head and his assistant and the wages of the loft men who worked on the floor on which all the canned goods were kept. There might have been other direct costs. It might be for example that a special advertising campaign was made to increase the sales of canned goods. If this were done then the direct costs of that campaign would be directly applicable to the canned goods commodity group. It might also be that some canned goods were stored in public warehouses. If so, then those storage costs would be directly applicable to the analysis. Thus the costs that make up the total costs of each function should be carefully studied to see if there are any that are directly applicable to the analysis being made. Such a careful study might also reveal costs that are not at all applicable to the analysis being made. In the case of the particular company for which an illustrative commodity analysis was made there are costs that are directly applicable to other commodities and those should not be included in the cost of any function that is allocated to the canned goods commodity group. The act of allocating costs must be preceded by the selection of certain costs that are directly applicable to the analysis and the elimination of those costs that are entirely separate and distinct from the analysis.

18. Preliminary Study Reflected in Chart Form.

Exhibit 7 (1) is an illustration of a chart that

(1) See p. 52
### EXHIBIT 7

CLASSIFICATION OF ACCOUNT'S BY FUNCTIONS SHOWING STATUS OF EACH ACCOUNT FOR VARIOUS ANALYSES, ALSO BASES OF ALLOCATION OF INDIRECT COSTS FOR EACH FUNCTION

<table>
<thead>
<tr>
<th>Commodity Analysis</th>
<th>Territory Analysis</th>
<th>Channels of Distribution and Methods of Sale</th>
<th>Classes of Customer Analysis</th>
<th>Size of Order Analysis</th>
<th>Operating Department Analysis</th>
<th>Salesmen Analysis</th>
<th>Bases of Allocation</th>
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</thead>
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<tr>
<td>Advertising</td>
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<td>Displays &amp; Exhibits</td>
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<td>Sundry Supplies &amp; Expenses</td>
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<tr>
<td><strong>Bases of Allocation of Indirect Costs</strong></td>
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<td><strong>1-4</strong></td>
<td><strong>1-4-5</strong></td>
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</table>

**Sales Department**

| Salaries - Executive and Clerical | I | I | I | I | I | I | I |
| Sales Meetings and Conventions | I | I | I | I | I | I | I |
| Goods used for Samples and Given Away | I | I | I | I | I | I | I |

1. Number of units sold
2. Number of invoice lines
3. Number of orders
4. Number of customers
5. Number of salesmen
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<td>Freight and Express on returned stock</td>
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</tbody>
</table>

1. Basis of time spent if time reports are available
2. Number of orders
3. Number of invoice lines
4. Number of calls made
5. Sales dollar

6. Gross profit
7. Managers estimate
8. Sales dollar
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### Filling Orders (Includes getting out stock and handling to the Shipping Department)

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</table>

1. Number of orders
2. Standard charge per invoice line or per delivery
3. Per hundredweight

1. Per invoice line
2. Per unit of merchandise or standard handling unit
3. Number of orders
**EXHIBIT 7 (Cont.)**

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<td>(Includes handling of stock from time it reaches Shipping Floor until it is on Trucks)</td>
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<td>5. Per sales dollar</td>
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1. Average space occupied per square foot - per cubic foot
2. Per sales dollar
3. Cost of goods sold
4. Number of orders
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should be made out before a distribution cost analysis is made. It is a classification of accounts by functions with columns to designate whether each cost is indirect or semi-direct. The term "semi-direct" is used because in reality there are no direct costs; the costs that might be termed direct can be separated from the other costs within the accounts but they are not direct in the sense that they make up the total costs of the account. In the illustrative charge some of the accounts are designated as indirect and semi-direct. This indicates that under varying conditions there might be costs within the function that are directly applicable to a particular analysis.

The bases of allocation that are listed for each function (in the right hand column) are the bases that might be used for the various types of analyses. The last line under each function reads "bases of allocation of indirect costs." On the same line under each type of analysis there are one or more arabic numerals which refer to the bases of allocation listed in the right hand column. Where there is more than one numeral it indicates that there is a choice of bases. The actual choice depends upon the characteristics of the business for which the analysis is being made.

The chart was designed to illustrate the allocation of costs for a wholesale grocery concern. It would be more specific in that there would be fewer choices if it were made for a particular concern. It would be changed in a greater
degree if it were made for another type of concern. Its purpose is to show the various possible bases of allocation and to bring out the fact that each company should make a more specific chart for its own use in its distribution cost analysis work. A chart of this type is a definite guide in such work. It should be the object of exhaustive study and should be changed as it is found to be inequitable. After it has been prepared the remainder of the analysis is little more than routine work.

C. Types of Analyses.

1. Commodity Analysis.

The commodity analysis is one of the most useful of all analyses as it shows the profitability of various products or groups of products. It also shows why a product is profitable or unprofitable. Dr. Taggart says that such an analysis will show what characteristics of the unsatisfactory commodity are to blame for their unprofitable showing. (1)

An analysis by commodities may also be a factor to be considered in the setting of selling prices. This is a delicate subject as most marketing men contend that prices are set by competition and that distribution costs cannot be used for such a purpose. It is still possible that under certain circumstances selling prices might be based on such costs. It might happen if there were no existing market price and it might

(1) Taggart "Distribution Cost Accounting for Wholesaling". p. 16
also happen in the case of bids.

A detailed analysis by commodities need not always be made. It might be that the characteristics of the several commodities are such that the total distribution cost can be allocated on a uniform basis such as sales volume. However, there are several sets of circumstances that make the use of any uniform basis of allocation impractical. Professor Heckert gives four circumstances which would prevent the use of such allocation. They are:

1. Differences in the amount or kind of selling effort required.
2. Differences in physical and money volumes per unit sold.
3. Differences in size of orders.
4. Differences in trade channels used. (1)

The advantages of the analysis of distribution costs by commodities are described by Dr. Taggart as follows:

"An excellent characteristic of commodity analysis is that it can be carried to different lengths at the same time. Nothing theoretically prevents a determination of costs for Commodity A on the one hand and all other commodities on the other, although little would be gained by doing so. A great deal of the benefit of commodity analysis comes from the ability to compare the performances of given commodities or commodity groups with each other. The great advantage of the flexible character of commodity analysis is that the more minute procedures can be carried on only in connection with lines which seem to require it in order precisely to locate sources of difficulty. Thus, while the business as a whole might be subject only to department analysis,

the costs of handling the commodities of Department B, which shows unsatisfactory performance as a whole, may be determined individually. Obviously much time and expense may be saved by such a procedure. Another expedient which may be used when cost analysis is to be a permanent feature of managerial control is to make the more minute breakdowns in rotation so that each major commodity group receives attention in its turn." (1)

This type of analysis would be more useful to a retailer or a wholesaler than to a manufacturer unless that manufacturer was also a large scale distributor. In one case in which such an analysis was made the company reduced its list of items by one-third and at the same time increased its sales and profits. (2)

2. Analysis by Territories.

Each type of analysis is made for certain definite purposes and each requires a special procedure. An analysis of distribution costs by territories, for example, is made to find out what territories are not as profitable as others and to get the facts necessary to control the distribution costs within a territory. From the point of view of the sales manager this is important because he can then direct his sales effort into the most profitable territories and either withdraw from unprofitable territories or take steps designed to increase their profitability.

(1) Taggart "Distribution Cost Accounting for Wholesaling", p. 31
Certain things are required for analysis by territories. First of all the territory should be clearly defined and geographically distinguishable. It also helps if it is served by its own salesmen. Once the territory has been defined it will be charged with the direct costs applicable to it and the indirect costs will be allocated to it on a predetermined basis.

The actual determination of the costs that are direct and of the basis of allocation will be made after the facts have been studied. If a chart of the type illustrated in Exhibit 7 (1) has been made it is only necessary to select the costs of each function that are direct costs for the particular territory being analyzed and charge them directly to the costs of that territory. The remaining cost of each function will be allocated on the basis shown for each function.

The fact that a need may exist for an analysis of distribution costs by territories is illustrated by the following excerpt from the Magazine of Wall Street:

"A textile manufacturer who has been in business in New York since the year one, found to his embarrassed confusion that while he was selling goods at a loss in Texas, let us say, and not knowing it, he was overlooking profitable outlets right under his nose up-state." (2)

The case of analysis by territories is put even

(1) See p. 52.
(2) J. C. Cresswell, "Manufacturing Profits and Selling Losses", Magazine of Wall Street, (April 1931)p 816
more strongly by Dr. Hilgert who quotes an article from a publication called "The Sphinx Talks":

"I have seen a concern stop selling in half of its territories, and although its gross sales fell off 30%, its net profits rose from $50,000 a year to $75,000. Unusual? Not a bit; I have seen in lesser degree the same result a dozen times, and I haven't a doubt but that most small and medium-sized concerns would increase their dollars of profit by cutting out certain of their territories. With reverse English they would still further profit by giving closer selling attention to some territories-or customers- whose full buying power has never been-but easily could be-developed" (1)

3. Analyses by Channels of Distribution and Methods of Sale.

Two other types of analysis are by channels of distribution and methods of sale. "Channels of Distribution" means sales direct to consumer, sales through a retailer, sales through a wholesaler, or sales through a broker. "Methods of Sale" means sales by salesmen, by mail, by telephone, or by other agencies. The choice in either case may be dictated by the general trade practice but even under such conditions a knowledge of which is the most profitable would be valuable if a change were contemplated.

These types of analysis would be made as special studies to determine whether or not it would be more profitable to change channels of distribution or methods of sale. The actual analysis would be made by selecting the costs that were directly applicable to the analysis and charging them

(1) J. R. Hilgert "Cost Accounting for Sales" (New York, 1926) p. 18
directly to the analysis. The indirect costs of each function would be allocated on a predetermined basis. The direct costs and the bases of allocation for these types of analysis are shown in Exhibit 7 (1)

4. By Classes of Customers.

The analysis of distribution costs by classes of customers often brings out interesting facts. As a rule manufacturers consider themselves fortunate if they number among their customers large volume firms, such as mail-order houses, or chain stores. They reason that this assures them of a good volume of business that, while it may not be as profitable as the rest of their business, will at least meet its share of the overhead and perhaps show a little profit. The following quotation shows what may happen to a concern that sells its products to large buyers:

"Except in cases where the manufacturer enjoys a strong consumer demand, sales to mail-order and other mass buyers must be made on a very close mark-up. Some manufacturers take these orders almost at cost just to have a backlog in the plant, or in the belief that such business holds down overhead. But let us look at one case. In 1930 a manufacturer's total sales were $1,200,000. Of this he sold 12 per cent, or $144,000 to mail-order and chain stores at a mark-up of only 8 per cent. This brought a gross profit of $11,520 on mail-order sales. The remainder of his volume was $1,056,000 on which his gross profit was 27 per cent, or $285,120—bringing his total gross to $296,640."

(1) See p. 52
"Now let us look at the figures for 1938. Sales to mail-order and chain stores increased considerably but his total sales went down to $900,000. Of this 28 per cent or $252,000, went to the mail-order house buyers at the same mark-up-8 per cent, bringing a gross profit of $20,160 from mail-order sales. This time he had but $648,000 left for the independents at his regular 27 per cent mark-up. This brought a gross profit of $174,960 which when added to the $20,160 he got from sales to mail-order houses brought his total gross profit to $195,120-off more than $100,000 since 1930, despite the fact that salaries, taxes, and everything else going into overhead have increased."

"For 1930 this manufacturer is going to obtain a higher mark-up on his sales to mass buyers, and he is planning to increase the total percentage of sales to small buyers at prices which include a fair mark-up" (1)

This illustration brings out the importance in certain cases of analysis by class of customers.

The first step in making an analysis of costs by classes of customers is to define the classes.

Customers may be classified according to:

1. Territories.
2. Annual volume of purchases.
3. Size of average order.
4. The nature of their operations-e.g. retailers, wholesalers, manufacturers, etc.

After the classes of customers have been determined the cost applicable to each class are charged to it. The costs are studied to see whether or not there are any direct costs and if so they are deducted from the cost of the function to which they apply and charged directly to the customer analysis. The remaining indirect costs are allocated on one or more of the

bases shown in Exhibit 7 (1) for each function.

The results to be obtained from this type of analysis should help the sales manager in deciding which class of customer should be cultivated. It might also result in an adjustment in prices to cover the cost of services rendered an unprofitable customer group.

5. **By Size of Orders.**

There is one type of distribution cost analysis that has been used more than others. It is analysis by size of orders. Somehow there seems to have been an intuitive knowledge that small orders cost nearly as much as large orders but that the rate of gross profit is no larger. Mr. Titus cites the case of Western Electric which found that out of 772,000 orders 462,000 were for less than $25 and each of these showed a loss of $1.63. (2)

An analysis of cost by size of orders is closely related to the analysis of costs by customer groups and classes of commodities. In fact one basis for determining classes of customers, as has already been pointed out is the size of the average order. Similarly one basis for dividing commodities into groups was the size of the customers orders. The purpose of an analysis by size of orders is to determine the minimum size profitable order and to build as

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(1) See p. 52
many orders as possible up to that size. Such an analysis shows some unprofitable customers since customers who buy the small orders are, of course, unprofitable. This type of analysis might also show that certain commodities were sold in small size orders and therefore that these commodities tended to be unprofitable.

An analysis by size of orders requires that orders be classified in groups according to value or weight. The analysis is made by taking the costs of each function and allocating them as direct or indirect costs of the orders. In Exhibit 7 (1) it was assumed that all costs were indirect costs as none of the costs of any of the functions would apparently vary directly with the number or size of the orders unless these two features varied widely. That being the case the cost per order would be determined by dividing the total cost by the number of orders.

If the orders were classed according to price ranges the next step would be to estimate the average price of the orders within the price range and the estimated gross profit of that order. This profit would then be compared with the distribution cost per order to show the net profit or loss for that order. This would be done for each class of orders.

If the orders were classified according to weight groups the next step would be to find the average weight within each group. One group might be made up of orders

(1) See p. 52
under twenty-five pounds and the weight of the average order within that group might be fifteen pounds. The cost per order has already been determined and the cost per hundredweight can be found by dividing the cost per order by the weight of the average order and multiplying by one hundred. Thus if the cost per order was $1.00 and the weight of the average order was fifteen pounds it would cost $.067 per pound or $6.70 per hundredweight to ship these small orders. If the average weight per order was two hundred and fifty pounds it would cost only $.40 per hundredweight to ship each order. This variation is due to the fact that in the first case a hundredweight would be made up of six and two-third orders while in the second case a hundredweight would be only two-fifths of one order.

The analysis by size of orders may be made within another type of analysis. For example after costs have been analyzed by territories by commodities, by customers, by channels of distribution and by methods of sale it may be desirable to find out what is the minimum profitable size order within a territory, for certain commodities, for certain classes of customers, for the different channels of distribution and for the different methods of sale.

This analysis within an analysis is made by taking the costs by functions that have been allocated to the particular analysis and reallocating these costs to orders. It has been assumed that all the costs applicable to orders
are likely to be indirect costs. Therefore the total cost of each analyses would be divided by the number of orders applicable to that analysis. The remainder of the procedure would be as the same as has been described for a general analysis by size of orders.

6. **By Organization or Operating Divisions.**

One of the preliminary types of analyses that may be made is by organization or operating divisions. If a concern maintains branches the costs of each branch may be desired. If the concern is strictly local, but carries several lines, its costs might be analyzed by lines or departments. Such an analysis might be similar to a commodity analysis as a group of commodities might represent the cost or line-up of a department.

This type of analysis is used most frequently in retail stores but it is equally applicable to wholesalers whose operations are divided among distinct merchandise departments. It is one of the easiest types of analysis to make provided there is a distinct classification of merchandise, some separation of responsibility and a physical segregation of the department. The analysis is made by allocating the cost of the various function on the basis suggested in Exhibit 7 (1).

7. **By Salesmen**

Some concerns analyze their distribution costs by

(1) See p. 52
salesmen. This may be a sort of weather-vane that tells which way the wind is blowing as far as profitability of territories, customers, or commodities is concerned. If this analysis shows that a salesman is less profitable than he should be the causes can be investigated. The fault may be with the salesmen or with the territory he covers, commodities he sells, classes of customers he sells, or the size of his orders. Such an analysis is valuable then as a general indication of whether or not distribution costs are excessive. It is frequently found that the salesman who does the largest volume is not always the most profitable. The results also reveal the strong and weak points of the various salesmen and may be used by the sales manager as a basis for improving the work of the individual salesmen.

An analysis by salesmen is made the same way that the other analyses are made. The direct costs of each function are charged to the salesmen directly and the indirect costs are allocated on the basis shown in Exhibit 7. (1)

D. Summary

Distribution cost analyses furnish the facts that guide sales managers in planning profitable sales. They show that the emphasis should be on profit rather than volume but they also show why volume is not profitable. They show why certain products or territories are not as profitable as they might be and they thereby pave the way for making

(1) See p. 52
such sales more profitable.

An analysis is made by bringing together all the costs that affect the problem under consideration. These costs are grouped in functions and each function is studied to determine the costs within it that may be directly applicable to the problem. The direct costs are charged directly to the analysis and the remaining costs are allocated on a suitable basis.

The allocation of the indirect costs presents the major problem in the analysis. The aim is to allocate the costs in such a way that each analysis bears its fair share of the indirect costs. The bases of allocation should be determined only after a thorough study of all the facts. When they are decided upon they should be expressed in chart form similar to Exhibit 7 (1). This chart should also show the costs within each function that may be direct for the various types of analyses.

There are many analyses that may be made. Those most commonly made are as follows:

1. By commodities.
2. By territories.
3. By channels of distribution.
4. By methods of sale.
5. By classes of customers.
6. By size of orders.
7. By organization or operating divisions.
8. By salesmen.

Each type has its place and usually only one or two would be

(1) See p. 52
made. The types of analysis that would be used vary with the particular concern involved. It is important to know what results are wanted and how much work the company is willing to put into the analysis; then a start can be made. It would be wasteful of time and energy to start with only a vague idea of what was wanted and then end the study when the management decided that enough time had been spent on it.
Chapter Four

I Standards and Budgets in Distribution Cost Analysis

A Distribution Cost Standards and Budgets

1. Distribution Cost Standards.

Distribution cost standards are estimates of satisfactory performance of distribution activities. They are based on an analysis of past operations, a knowledge of existing conditions, and a reasonable study of the factors that will affect future operations. They should represent results that will reflect efficient performance and will be satisfactory to the management.

Distribution cost standards should be set for each of the functions into which total distribution costs are segregated. It has been explained that the cost of each function is measured in terms of service units and it is for these service units that standards should be set. (1)

2. Distribution Cost Budgets.

A distribution cost budget is a plan of distribution activities for the future. It is based on a company's program for the coming period, which may be one month, three months, six months, or a year. Such a program is made after the sales for the period have been planned. Everything is figured on the budget sales figure. The sale figure will affect each distributive activity, for the number of units

(1) See p 31
of service of each distribution function will depend on the number of sales transaction that are planned. After the planned sales have been translated into a certain number of service units for each function that number is multiplied by the standard unit cost of each function and thus a budget cost for each function is determined.

B. Management's Need for Standards and a Budget.

1. Standards and a Budget Give Control.

The accounting for distribution costs on a functional basis makes possible the establishing of distribution cost standards and a distribution cost budget. These are important because of the additional control that they give to management. Standards and a budget are yardsticks with which unit costs and total functional costs can be measured and controlled. They make possible the detection of deviations and variances and afford the means of tracing them to their sources. Steps can then be taken to remedy the causes.

It must be acknowledged that the control of all operations is essential to good management. It is interesting to note what Professor Heckert has to say about standards.

"Standards are primarily a total of control by which performance is held to what it should be. If we know what effort should be applied and what is actually used, what the costs should be and what they are, what results should be secured and what are actually being secured; and if we can definitely place the responsibility for unsatisfactory performance; we are in a position to control operations. This can be affected by the prompt reporting of adverse variances with full investigation
of cause and responsibility. Standards are also essential to a satisfactory budget procedure. The development of the future program must be predicated upon a knowledge of what can be done and what it will cost to do it. (1)

It is also important not to overlook the fact that favorable variances may occur and that in such cases the causes should be investigated and credit should be given to the persons responsible.

2. **Comparisons With Previous Years Not Enough.**

Control over distribution costs cannot be obtained by comparing this year's figures with last year's figures. The weakness is that last year's figures may not represent efficient operations and therefore nothing is gained by using them as a basis of comparison. Production costs wouldn't be compared with the previous year's costs to determine whether or not the production department was operated efficiently. Instead production costs are compared with carefully prepared standard costs. The same should be true of distribution costs. They should likewise be compared with carefully prepared standards.

The importance of standards as a means of control over costs is evident when it is realized that the only alternative is to compare costs with the same costs for a previous period. It is necessary to know what the costs

(1) Heckert. "The Analysis and Control of Distribution Costs". p. 216
should be rather than what they were last year.

"Only by comparison with an expected level of accomplishment can performance really be measured at a given time. Last year's results or the average of results over a period of years do not constitute reasonable goals or achievements for the activities of the coming year. Unless all the influencing conditions are the same in two instances, comparison of performances may be meaningless. In attempting to decide whether a performance is efficient, without standards which take into consideration current conditions, one must really go through the process of setting up standards in one's mind. An apparent improvement in current performance over that of a year ago may in fact not present a true picture in that, relative to the opportunity presented, the past performance may be the better one. (1)

Distribution cost standards are not often used. This is due to the fact that careful attention has been given to distribution costs for only a few years. Their development is linked to the development of distribution cost accounting and distribution cost analysis. Progress has been slow but gradually it has been realized that distribution costs must be considered as carefully as production costs.

C. The Establishing of Standards and the Budget.

1. Cost Standards Can be Applied to Distribution.

Standards can be established for many of the functions of distribution. It must be admitted that for

some functions such as advertising and selling the psychological factors involved make standards less exact than standards should be. However there are many distributive functions for which standards may be set as exactly as they are set for productive functions. These functions would include: filling orders, getting out stock for orders, handling, haulage, posting invoices to customers accounts and pricing and extending invoices. For each of these functions the unit of activity is something that can be measured rather closely and for which a standard cost can be determined.

The real answer to the question as to whether or not standards can be set for distribution costs lies in the fact that distribution costs involve so much money that some control must be exerted over it. That control results from the establishment of standard costs even though for some functions variances must be expected. The work and study that go into the establishment of the standards will in themselves disclose conditions and facts, that will aid the management in controlling distribution costs.

2. **Classification of Accounts on the Functional Basis.**

Distribution cost standards are based on the functional analysis of distribution costs. After the costs have been recorded by functions they are measured in terms of the units of service performed by each function. It is these units of service for which standard costs are set. The
value of the standard depends upon the care with which the function was determined and the unit of measurement that was selected. These two factors were discussed in detail in Chapter Two. (1)

3. The Actual Establishing of Standards.

Distribution cost standards are set for the service units by which the cost of each function is measured. Thus the function "pricing and extending invoices" is measured in terms of the invoice line. Past experience may show that the cost of this unit has averaged .6 cents. The study that goes into the setting of the standard may show that by making certain changes the cost of this unit can be reduced to .5 cents. The standard for the unit of service is then established at .5 cents. This standard then not only reflects the cost of this unit in the past but certain changes that have been made as the result of a study of the actual operations involved. It reflects not what the cost has been, but what it should be.

4. The Establishing of a Budget.

A budget is a plan for future operations. It is based on the number of units of service of each function that are expected as a result of the planned sales, and on the standard cost of each of these units of service. Thus it may be assumed that the budgeted sales volume was $5,000,000

(1) See pp. 20-39
and that 1,000,000 orders would be necessary to obtain this volume and that these orders would contain 1,500,000 invoice lines. To determine the budget cost of the function "pricing and extending invoices" the number of invoice lines (1,500,000) would be multiplied by the standard cost per invoice line which is .5 cents. This gives a budget cost figure of $7500 for that particular function. The budget cost of each of the other functions would be determined the same way.

D. How Management Uses Standards and a Budget,

1. Actual Costs are Compared with the Budget and Standards.

Actual costs are compared with the budget and with standard costs. The comparisons are made monthly or perhaps quarterly, semi-annually, or annually depending upon the degree of control that is desired. Usually the comparisons would be made monthly.

The first comparison would be that of actual costs with the budget. It might show that for the "pricing and extending invoices" function the actual cost was $700 and the budget cost was $625. Since the budget figure was based on 125,000 invoice lines the next step would be to find out the actual number of invoice lines. If the actual number of invoice lines was 140,000 then the cost of $700 is due to the additional invoices. lines. However, if the actual number of invoice lines was only 100,000 the unit cost per invoice line would be .7 cents as compared with the standard
cost of .5 cents. A condition like this would be investigated to determine the causes.

It is the comparison of actual costs, with the budget costs and standard costs that gives management the control that it needs over these costs. The actual cost of the function is compared with the budget cost and the actual number of units performed is compared with the number upon which the budget figure is based. Neither one means much without the other and the comparison actually resolves itself into a comparison of the actual unit cost with the standard unit cost. It is the comparison of the two unit costs that show whether or not the functions are being performed as efficiently as planned.

E. Other Factors Affecting Standards.

1. Variable Costs.

Standard costs should be based on the items of cost within a function that vary with the number of units of service performed. This means that the fixed costs such as rent and light and heat should not be included. The goal is to get a unit cost that will not vary as the number of units increases or decreases. Practically of course, this goal cannot be attained but a closer approach can be made if the fixed costs are eliminated. When this is done the budget cost is based on the estimated number of units and the fixed costs are added after that figure has been calculated. Thus the standard cost of .5 cents per invoice line might be made
up of .47 cents variable costs and .03 cents fixed costs. (1)

F. Conclusion.

1. Standards and a Budget are Made Possible by Distribution Cost Accounting.

Distribution cost standards and the distribution cost budget are a use of the information made possible through distribution cost accounting. Distribution cost accounting requires costs to be kept on a functional basis. This is done so that the accounting records will show what it costs to perform each of the distributive activities or functions. After the costs of each function have been determined they are divided by the number of units of service of each function to show the cost per unit. This is done so that these unit costs can be compared from period to period since it is evident that they will reflect differences in operating efficiency more quickly than will the total costs of the function.

After actual unit costs have been established it is relatively simple to establish standard costs. The actual performance of a unit of service is studied to see if it can be improved upon and existing conditions such as the cost of labor, materials and supplies are studied to see if they affect the unit cost. On the basis of past operations and these two studies the standard costs are determined.

(1) See p. 79
The budget is of course based upon the standard unit costs and the number of units of service of each function that it is planned to perform.

"Planning of sales activities can best be done in terms of the operations to be performed - the telephone and personal calls to be made by salesmen, the number of mail solicitations, the orders to be received, recorded, filled, packed, loaded and delivered, the invoice lines to be written, priced, and extended, and so forth and so on through all the processes required in acquiring and disposing of the goods which it is intended to sell." (1)

The budget costs are determined after the planned sales activities have been analyzed to show how many units of service of each function will be performed. The number so determined for each function is then multiplied by the standard unit cost for each function to arrive at the budget cost for each function.

2. Advantage of Standards and a Budget.

The advantage of standards and a budget is that they offer a comparison of actual costs with costs as they ought to be. Usually costs can only be compared with costs for a previous period which may or may not reflect efficient operations. After standards have been determined they serve as a yardstick by which actual costs are measured. Comparisons are usually made monthly thus any variances can be detected before they become serious. It is this constant check-up right at the source that gives management a valuable control

(1) Taggart, "Distribution Cost Accounting for Wholesaling." p. 11
over the operation of the distributive functions.
Chapter Five

I Distribution Cost Reports

A Importance of Distribution Cost Reports.

1. Reports Contain Results of Analysis.

The value of all the time and labor spent in distribution cost accounting and the subsequent analysis of the results may be lost unless the information is reported to the management in good form. These reports contain the results of the analysis and their value depends upon the manner in which they present the evidence.

Report-making is almost an art in itself. It calls for an open mind and complete fairness. A person who makes an analysis is apt to form his own opinions and is very apt to report the facts that influenced the formation of his opinions. Tendencies of this nature should be guarded against for the report should contain all the facts necessary to carry on a function that is showing a loss. An analysis of costs by customers may show that certain customers are sold at a loss, yet the executive may feel that these customers are potentially profitable.

2. Reports should be Planned for Executives for Whom They are Prepared.

The executive to whom the report is to be made should be considered when the report is being prepared. The aim should be to adapt the report to the known likes of that
executive. If an executive is known to dislike figures then only those that are absolutely necessary should be included in the report and they should be included in as interesting and clear a manner as possible. There may be an executive who likes to analyze figures, if so he should be given all the figures definitely pertaining to the subject of the report.

3. Unimportant Details Should be Omitted.

All reports should omit unimportant details. The details that are unimportant will vary in every case but if a report was being made of overtime wages for the purposes of control, an unimportant detail might be overtime of $2 paid in the stenographic department. Accountants and bookkeepers are prone to tie in all details that are of no practical value except in balancing the books. A report of salesmen's yearly mileage costs might include the costs of one or two men in the sales department who covered a route as a substitute for one or two weeks, or who made three or four special trips. Things like these are unimportant to an executive who is interested only in the mileage costs of the regular salesmen.


Wherever possible the report should be presented in such a manner that a basis of corrective action suggests itself. This is not contradictory to the statement that
reports should be unbiased and not reflect the opinion of the person preparing the report. This principle of report-making can be illustrated using a mileage cost report as an example. A company may own the cars of some of its salesmen and may have other salesmen who use their own cars and are paid a monthly allowance plus a mileage allowance. In a company such as this, one purpose of a mileage cost report would be to compare the cost of company owned cars with the cost of personally owned cars. Let us assume that the cost per mile of the personally owned cars is more than that of the company owned cars. In such a case the cost of the personally owned cars would be refigured on a lower monthly allowance or mileage allowance that would bring the cost per mile in line with that of the company owned cars. Such information would be suggested corrective action. The executive who reads the report would know that if the amount allowed for the use of personal cars was reduced by so many dollars per month, or per mile then the cost of such cars would not be excessive. The action that might be taken is immediately apparent to him. Whether or not he takes that action is beside the point but because of such information the report is of infinitely more value to him.

This is about as far as one can go in suggesting corrective action. It is probably better to be a little timid in this respect than to be too bold. The subject matter of the report is the guide. In the case of the
mileage cost it is reasonable to show what the results would be if the monthly allowance were different. If a report was made on salesmen's traveling expenses it would not be reasonable to show what the results would be if each salesman were allowed a fixed amount per day because some salesmen might travel in territories where their expenses would be higher or they might sell customers who expected to be entertained. This is a type of report that involves matters that are not within the scope of the accountant's knowledge. The things that the accountant wants to include may later be asked for by the executive but that does not mean that they should have been in the original report.

B. Content of Reports.

1. Actual Costs.

When one speaks of reports he means either regular routine reports set up as a part of the accounting system or he means special reports made in answer to specific requests. The contents of the special report depends on its subject matter more than on anything else although it may have many of the features of a routine report. Since it is distribution costs that are concerned it is only natural to assume that the regular routine report will be expressed in figures. If it is true that figures by themselves mean practically nothing then it is obvious that they should be the actual costs. This means that the report should not set forth the standard costs, or the budget
costs, but the actual costs adjusted only for deferrable amounts. The costs that are included would be analyzed as to their nature and function. The costs of the shipping departments would be shown as wages, supplies, insurance, rent, etc. The actual costs that are put in the report would then be compared with the costs of previous periods, with standard costs, and with the budget. It is generally agreed that comparisons with previous periods are not a good basis of action but nevertheless they are usually made and they at least satisfy someone's curiosity. It is the comparison with the standard costs and with the budget costs that are of most value. From these comparisons the management can see whether or not things are going according to plan and if they are not special studies can be made to see what has happened. This is the control that management needs and wants; it is the type of control that it gets over production costs and that it can get over distribution costs.

2. Distribution Results Obtained.

A report should also contain the results that have been accomplished by the function being reported. The actual costs and the comparison of these costs with previous periods, standards, and the budget mean more if the results obtained are included. Thus in a report on the costs of the shipping department there should be included either the number of pieces shipped, the total weight shipped or the value of pieces shipped. A report without some mention of
of the results obtained is like getting a price quotation for a case of canned goods and not being told whether they are fancy, choice, or standard, or how many cans are in the case.

Certain reports might be made to be used for the purposes of setting prices. There is considerable controversy as to whether or not prices aren't set by competition, but it is generally agreed that regardless of how they are set they must be high enough to show a profit. Distribution cost reports should be made to show the net margin under existing prices, the net margin being the difference between the selling price of the product and the cost of the product plus the cost of distributing it. If no profit is being made an estimate should be made of the volume necessary to obtain a profit at the existing price.

3. **Routine Accounting Reports.**

Several reports would be made regularly as a part of a distribution cost system. These routine reports would be for each function. The reports that would be made for the company whose functions and service units are given in Exhibit 5 (1) are as follows:

1. Advertising expenses
2. Sales Department expenses.
3. Selling expenses.
4. Receiving expenses.
5. Teaming expenses
6. Filling Orders expenses
7. Assembling and Loading expenses.

(1) See p 30
9. Credit and Collection Expenses.
11. Administration expenses.

These reports would be made by listing under each function the various expenses that make up that function. There would be a line for each item of expense with columns on the right in which would be put the costs for the current period, the same period last year, and the budget or standard cost. The last two lines would show the number of service units performed and the unit cost. Exhibit 8 is an illustration of such a report.

As these reports represent the functions under which distribution costs are classified it is a comparatively simple matter to prepare them. Outside of determining the unit costs all that is necessary is to copy the balances of the accounts at the close of each month.

**Exhibit 8**

**Functional Cost Report**

**Trucking - January 1943**

<table>
<thead>
<tr>
<th></th>
<th>Budget</th>
<th>1943</th>
<th>1942</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>$1050</td>
<td>$1100</td>
<td>$1000</td>
</tr>
<tr>
<td>Repairs</td>
<td>150</td>
<td>200</td>
<td>125</td>
</tr>
<tr>
<td>Depreciation of Trucks</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Gasoline, Oil and Grease</td>
<td>50</td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td>Garage</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Sundry Trucking Expense</td>
<td>40</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Outside Trucking</td>
<td>225</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$1600</td>
<td>$1810</td>
<td>$1490</td>
</tr>
<tr>
<td>Hundredweight Shipped</td>
<td>800</td>
<td>750</td>
<td>700</td>
</tr>
<tr>
<td>Actual Cost per Hundredweight</td>
<td>$2.41</td>
<td>$2.31</td>
<td></td>
</tr>
<tr>
<td>Standard Cost per Hundredweight</td>
<td>$2.00</td>
<td>$2.00</td>
<td></td>
</tr>
</tbody>
</table>
4. Reports Based on Analyses

Additional reports could be made based on the results of the distribution cost analyses that are made. It should be realized that the routine reports that have been described reflect the information obtained from a distribution cost accounting system but do not in any way show the results of the analysis of such information. A report would be made out for each analysis that was made. In Chapter Three, seven types of analyses were described. (1) As there would be a report for each type of analysis there would be the following reports of distribution costs.

1. By commodities.
2. By territories
3. By channels of distribution.
4. By methods of sale.
5. By classes of customers.
6. By size of orders.
7. By salesmen.

These reports are really profit and loss statements for the analysis involved. They show the gross profit and the costs of each function that are applicable to the analysis. The difference between the gross profit and the total functional costs is the profit or loss for that particular analysis. A report of this kind is illustrated in Exhibit 9.

(1) See p.59-70
Exhibit 9

Results of Analyses of Canned Goods Commodities Group.

Analysis Made for Six Months Ending June 30, 1945.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Sales</td>
<td>$100,000</td>
</tr>
<tr>
<td>Less: Returns and Allowances</td>
<td>$100</td>
</tr>
<tr>
<td>Net Sales</td>
<td>$99,900</td>
</tr>
<tr>
<td>Less: Cost of Goods Sold</td>
<td>$40,000</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>$59,900</td>
</tr>
<tr>
<td>Deduct Direct Costs of Commodity Group</td>
<td></td>
</tr>
<tr>
<td>Salaries of Department Head and Assistant</td>
<td>$5000</td>
</tr>
<tr>
<td>Wages of Loft Men</td>
<td>1000</td>
</tr>
<tr>
<td>Gross Profit After Deducting Direct Costs</td>
<td>$53900</td>
</tr>
<tr>
<td>Deduct: Cost of Functions Allocated to Commodity Group</td>
<td></td>
</tr>
<tr>
<td>Advertising</td>
<td>$500</td>
</tr>
<tr>
<td>Sales Department</td>
<td>1000</td>
</tr>
<tr>
<td>Salesmen's Compensation and Expenses</td>
<td>5000</td>
</tr>
<tr>
<td>Receiving Stock</td>
<td>1000</td>
</tr>
<tr>
<td>Teaming</td>
<td>900</td>
</tr>
<tr>
<td>Filling Orders</td>
<td>600</td>
</tr>
<tr>
<td>Assembling and Loading</td>
<td>600</td>
</tr>
<tr>
<td>Building and Collection</td>
<td>500</td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>1500</td>
</tr>
<tr>
<td>Administration</td>
<td>3000</td>
</tr>
<tr>
<td>Total Deduction of Functions</td>
<td>14,600</td>
</tr>
<tr>
<td>Net Profit</td>
<td>$39,300</td>
</tr>
<tr>
<td>Number of Cases Sold</td>
<td></td>
</tr>
<tr>
<td>Profit per Case</td>
<td>$20,000</td>
</tr>
<tr>
<td></td>
<td>1.93</td>
</tr>
</tbody>
</table>

6. Special Reports.

In addition to the reports based on the cost of the functions and the reports based on the results of the analyses, special reports may be required from time to time. Such reports might be in the nature of estimates as to the effect of proposed changes in distribution policies. Special reports might be made to show the relationship of distribution costs to the total costs of the business, or to show the trend of the costs of the various functions. The cost of the selling function, for example, might be a smaller percentage
of the total distribution costs than formerly while the cost of filling orders might be a larger percentage than formerly. The accountant should be alert to detect any facts that he thinks should be the subject of special reports.

C. Form of Reports.

1. No Set Forms.

There are no set forms for distribution cost reports but like other reports after a particular form has been used two or three times it becomes a set form. At the start however, the report may be in the form of a narrative, a chart or a graph. Exhibit 8 (1) is a chart and is the type commonly used. A graph would be used to show the costs of each function in dollars and cents compared to each other and to total distribution costs. This type of chart is illustrated in Exhibit 10 (2). A narrative report is a description of results in words. It is more difficult to make because not only must the results be known and understood but they must be expressed clearly.

The general idea is to choose a form that fits the information on hand and brings out its importance at a glance. The form of report to be used presents as much opportunity for ingenuity as does the contents of the report. It aids in the ultimate success of the report by bringing out clearly the importance of the data presented. Like the contents the

(1) See p. 90
(2) See P. 94
form should be designed for the executive for whom the report is prepared.

Exhibit 10

Costs of Distribution Functions in Relation to Total Distribution costs and to Each Other For 1942

<table>
<thead>
<tr>
<th>Total Distribution Costs</th>
<th>$160,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
<td>25,000</td>
</tr>
<tr>
<td>Sales Department</td>
<td>10,000</td>
</tr>
<tr>
<td>Salesmen's Compensation and Expense</td>
<td>15,000</td>
</tr>
<tr>
<td>Receiving Stock</td>
<td>25,000</td>
</tr>
<tr>
<td>Teaming</td>
<td>30,000</td>
</tr>
<tr>
<td>Filling Orders</td>
<td>10,000</td>
</tr>
<tr>
<td>Assembling and Loading</td>
<td>20,000</td>
</tr>
<tr>
<td>Building and Stock</td>
<td>5,000</td>
</tr>
<tr>
<td>Credit and Collection</td>
<td>10,000</td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>10,000</td>
</tr>
<tr>
<td>Administration</td>
<td>20,000</td>
</tr>
</tbody>
</table>

D. Frequency of Reports.

1. Frequency Varies with Different Reports.

The frequency with which reports should be made is something that should also be considered. Reports that are made too often tend to be accepted as mechanically as they are made out and thus lessen in value. Sometimes reports are made out at intervals so short that the information contained in the reports is not complete enough to be valuable. It may also be that reports are not made frequently enough so that after they are made it is too late to correct weaknesses.
that they reveal. As a general rule reports should be made monthly, quarterly or annually. The costs by functions that have been referred to should be reported monthly; the results of the various distribution cost analyses should be reported not oftener than quarterly and possibly only annually. Here again it may depend upon the individual who receives the report.

E. Conclusion.

Distribution cost reports are important because they contain the results of all the distribution cost work. If they are not made out intelligently all the work that has been done to get the necessary information is wasted.

The reports should be planned for the executive for whom they are prepared. They should contain the information in the form that that executive favors. The reports should contain only the important facts and where unsatisfactory results are being reported a basis of corrective action should suggest itself.

The reports should contain actual costs and, for the purposes of comparison, standard costs and costs for the same period in the previous year. The report should also state the distribution results obtained.

There are no set forms for distribution cost reports but the form should be selected to fit the information to be reported and the executive to whom the report is to be made.

The reports are important and deserve serious con-
sideration. They are the medium by which the information obtained through distribution cost accounting and analyses are transmitted to the management. They then become the basis of any action the management decides is necessary.
Chapter Six

I  Use by Management of Distribution Cost Analysis

A  Final Objective of All Distribution Cost Work.

1. **Doesn't Necessarily Mean Action.**

The actual use by management of the information that has been obtained through distribution cost accounting, distribution cost analyses, and distribution cost reports is the final objective of all distribution cost work. "Use by management" means consideration and study of the facts that are contained in the distribution cost reports. It doesn't necessarily mean action by management since action isn't always advisable. It does mean the use of these facts in future planning by management. Special studies or investigations may be launched at once to find ways of remedying the weaknesses that have been revealed.

2. **Specific Uses.**

There are many specific uses that can be made of the information that can be obtained through reports of the results of distribution cost analyses. Each type of analysis shows certain facts that should be considered by the management in connection with marketing problems.

The commodity analysis shows the relative profitability of the various products. This information should be used to increase the profitability of the company's total sales. That can be accomplished by selling more of the high profit items, by increasing the profitability of the low profit items,
or by a combination of both.

The analysis of territories shows the relative profitability of the various territories. The management can increase the profitability of its total sales by selling more in the profitable territories, taking steps to make the less profitable territories more profitable or by a combination of both.

The analyses by classes of customers likewise shows where and how greater profits can be made. It may be that larger profits can be made by eliminating certain classes of customers or it may be more practical to try to make these classes more profitable.

The analysis by channels of distribution may show that where two or more channels are being used one may actually be unprofitable. In such a case sales through that channel may be gradually reduced so that the losses through such sales are reduced to a minimum.

The analysis by methods of sales may show that it is most profitable to sell by mail or telephone. In such a case the other methods of sale may be subordinated to the more profitable method with a resulting increase in profits.

The analysis of sales by order sizes will definitely show that certain size orders are unprofitable. In such a case a real effort should be made to decrease the number of orders in that classification.

The analysis by operating divisions or departments
will show the degree of profitability of each division. It is not possible to make all departments just as profitable but it is valuable to know which are the less profitable so that special efforts can be made to make them as profitable as possible.

The analysis by salesmen will show the relative profitability of each salesman. The study of each salesman's performance will show his strength and weakness and should result in the improvement of all salesmen.


The steps that should be taken to correct weaknesses that are disclosed will vary with the individual company and with the problem itself. When a commodity is found to be unprofitable the following steps may be taken. (1)

1. Repackage the product.
2. Change the method of construction or the quality.
3. Simplify the line.
4. Reduce the unit of purchase to increase stock turn.
5. Reduce the cost of production.
6. Increase (or decrease) the price.
7. Increase (or decrease) the amount of advertising and promotional work.
8. Reappraise the efficiency of advertising done.
9. Alter the channels of distribution.
10. Reduce the stock carried for a few customers only.
11. Arrange with one or more competitors for each to concentrate on a few of the products creating losses for one of the group and supplement the arrangement by agreements to sell to one another at low cost.
12. Arrange to sell on consignment.

(1) D. R. Longman, "Distribution Cost Analysis" (New York 1941) pp. 199-204.
13. Change brands or sources of supply.
14. Continue sales at a loss.
15. Substitute another product.
16. Eliminate the product.

These steps represent a use that can be made of distribution cost analysis. The analysis has shown that a certain commodity is unprofitable; with the fact in mind the list that has been given represents suggestions for correcting that situation.

For another illustration let us suppose that an analysis was made of the profitability of certain customers and that it was found that certain customers were unprofitable because of the small size of their orders. In such a case a study should be made with the aim of reducing the costs of such customers and also of reducing the cost of small orders in general. Such a study would take into consideration the following suggestions: (1)

A. Packing:
   1. Reduce the package unit to minimize broken package problems.
   2. Employ package units of several different sizes.
   3. Develop assortment packages.
   4. Leave some merchandise unpacked and pack to order.
   5. Find cheaper ways of packing and shipping.
   6. Fill small orders in slow periods of the day.

B. Delivery:
   1. Employ public warehouse and delivery service.
   2. Promote club buying for single delivery.

3. Reduce services offered on small orders.

C. Sales promotion:
1. Attempt to improve the effectiveness (pulling power) of advertising, or increase the appropriation.
2. Decrease the promotional efforts directed at the customers themselves.

D. Contact customers:
1. Show retail or wholesale customers the high cost of frequent orders and the loss they suffer from "outs."
2. Show customers that their mutual interest lies in the lower costs obtainable by the seller from larger unit orders.
3. Induce the distributor to handle the sellers' products exclusively.
4. Establish a customer aid department.

E. Instruct salesmen:
1. Place salesmen on a commission basis.
2. Attempt to increase the amount of the line extension.
3. Avoid order taker salesmen.
4. Reduce missionary work among customers of the type found to order in unprofitable quantities.
5. Use sub-salesmen.
6. Solicit less frequently.

F. Change sales policies:
1. Turn small orders over to jobbers.
2. Sell in certain areas or to certain groups of customers through brokers or agents of some other sort.
3. Arrange for mail solicitation.
4. Guarantee against price decline.
5. Loosen credit restrictions.
6. Guarantee a minimum stock turn.
7. Sell on a consignment basis.
8. Employ quantity discounts.
9. Charge postage or express for orders not large enough to be profitable if services are rendered to the buyer.
10. Charge a service fee for credit and delivery in orders below a minimum size.
11. Make an extra charge for drop shipments.
12. Reduce the product trade discount.
13. Raise or lower the (suggested) final price to consumers.
14. Establish a minimum size of order that will be accepted.
15. Refuse to sell broken lots.
16. Diversify the line.
17. Reduce and finally stop soliciting the trade of customers providing small orders.
18. Refuse small orders.
19. Change the channels of distribution.

This list of suggested remedies applies to unprofitable conditions revealed by an analysis of classes of customers and by an analysis by size of orders. It is an exhaustive list but it worth reporting in detail because it shows that there are any number of steps that management can take when it finds through distribution cost analysis that certain classes of customers and certain size orders are
unprofitable.

If the analysis of territories shows that certain territories are unprofitable then ways and means of making the territories profitable must be sought. The remedy may be in one of the following suggestions:

1. Rearrange territorial boundaries.
2. Better balance of territorial effort to sales potentialities.
3. Changes in methods and channels used in certain territories.
4. Changes in physical facilities of territories.
5. Shifting of salesmen.
6. More emphasis on neglected lines.
7. Abandonment of territories. (1)

The suggested remedies for unprofitable channels of distribution as revealed by cost analysis are:

1. Abandonment of unprofitable channels.
2. Changes in products.
3. Changes in territories.
5. Increase promotional efforts directed at channels.
6. Build up consumer demand for product.
7. Establish a minimum size order.

The suggested remedies for unprofitable methods of sale are:

1. Abandonment of unprofitable methods.
2. Changes in products.
3. Changes in territories.

(1) Heckert "The Analysis and Control of Distribution Costs". p. 73.
4. Sales training
5. Changes in channels of distribution.
6. Increase promotional efforts directed towards unprofitable methods of sale.
7. Build up consumer demand for product.
8. Establish a minimum size order.
9. Raise or lower prices.
10. Diversify the line.

An analysis may show that there are some unprofitable salesmen. In such cases the remedy may be one of the following:

1. Eliminate the salesmen.
2. Change products he sells.
3. Change territory in which he sells.
4. Change class of customers to whom he sells.
5. Increase promotional efforts in his line and in his territory.
6. Put him on a commission basis.
7. Eliminate his unprofitable customers.
8. Sales training.

If an analysis shows that certain operating departments or divisions of the business are unprofitable the following remedies may be studied:

1. Eliminate the department.
2. Make changes in product.
3. Add new territories and eliminate old ones.
4. Change channels of distribution.
5. Change methods of sale.
6. Raise price of product.
7. Reduce stock carried.
8. Change the management

These lists of suggested remedies are not complete. There are any number of remedies and the ones to be chosen depend upon the facts in each case. Frequently, a study will have to be made to determine the best way to remedy the situation. These studies are undertaken not only when unprofitable conditions are revealed but when conditions are revealed that are less profitable than the management thinks they should be.

4. Reports do Not Solve Problems.

It is important to make clear that distribution cost reports based on the results of specific analyses do not solve problems, they simply present problems that the management did not know existed. The facts that have thus been uncovered aid in the solution of the problems.

5. Reports May be Used to Increase Effectiveness of Salesmen.

The management should use the facts made available to increase the effectiveness of its salesmen. To start with, distribution costs can be analyzed by salesmen and thus the profitability of each salesman can be determined. With that fact in mind the salesman's activities can be further analyzed to show his specific weaknesses which might include selling too much of a low profit item, or selling too many small cus-
customers. It can be explained to him that if he sells more of a line A than he has been, his profit will be larger; he can be shown that the same will be true if he spends more time with larger accounts or builds up his small accounts. There is no doubt but that distribution cost analysis gives the sales manager all the information he needs to increase the profitability of his sales force.

6. Results of Analyses May be Used to Guide Legislation.

It is sometimes advantageous to have distribution cost data available when certain federal or state regulation of business is at hand. This was true at the time of enactment of the Robinson-Patman Act and it is very true now that business is being controlled through price regulations issued by the Office of Price Administration. In the wholesale food industry for example, prices are set at specific mark-ups over delivered costs. These mark-ups obviously must make allowances for distribution costs and someone must have some knowledge of about what those costs are. The weakness is that the knowledge from which the rate of mark-up is determined may not be true of the wholesale food industry as a whole or it might not be true of all types of food wholesalers. No one, of course, should set up a distribution cost system merely to have the information in case it is needed, but if such a system is in operation here is another use that can be made of it. If the wholesale food industry had made a thorough study of its distribution costs, it would have had the information needed to correct any inequities
that might exist in the rates of mark-up that were allowed. It is interesting to note in this connection, that the accounting department of the Office of Price Administration is headed by Dr. Taggart, author of the Department of Commerce's study on "Distribution Cost Accounting for Wholesaling". It is also worth mentioning that the government as represented by the Department of Commerce and the Federal Trade Commission has given more study to the problem of distribution costs than any individual business or trade association. (1)

7. Examples of Use by Management.

To show that distribution cost analysis can be used by management it is only necessary to show that it has been used by management with great success. One example is as follows:

"A western manufacturer of farm implements got a dose of the national market complex. He got the market all right but was puzzled to know why his profits declined as his volume of business grew. An analysis showed that there was a demand for and a profit on everything he was selling beyond that limit." (2)

This is one example of what will be disclosed by an analysis of distribution costs by territories.

The analysis of distribution costs by commodities will also disclose sources of loss.

"A hosiery company, manufacturing 60 lines found that 85% of their business was in 19

(1) See p. 11
(2) J. C. Cresswell, "Manufacturing Profits and Selling Losses," Magazine of Wall Street, p47:p814 (April, 1931.)
Independent wholesale grocers carry perhaps as many as 2200 items, but the chain store warehouses manage to get along with from 800 to 1400." (1)

A similar situation was discovered by the Jantzen Knitting Mills which attributes much of its success to a policy of restricting the variety of articles offered for sale and concentrating its styling, advertising and selling on a smaller number of items. (2)

The Dennison Manufacturing Company is usually thought of as the outstanding exponent of distribution cost accounting. (3) It is interesting to relate therefore what one of their men said about the costs of order-handling and order-filling.

"In our own case we were somewhat appalled when we first came to learn that they amounted approximately to $1,350,000 compared with a cost of factory operations of some $8,500,000 and average yearly sales of some $17,000,000. And our astonishment only increased when we started to investigate the handling costs in certain specific types of orders, and proceeded to learn of the really large number of instances in which they were choking off all profits." (4)

The small-order problem is one of the most troublesome problems confronting business in normal times. It is

(3) See Appendix pp. 129-177
a problem that is quickly revealed by distribution cost
analysis and the remedies that are put into effect are easily
measured through distribution cost analysis. Once the pro-
blem is discovered steps can be considered that will remedy
it. A Chicago mail-order house, Spiegel, May Stern and
Company solved its small-order problem by refusing all orders
below $5.00. It also reduced the number of catalogues mailed
by one-third and put its selling effort in the items that showed the greatest gross profit. The results were a profit of
$1,300,000 in 1933 compared with a loss of $300,000 in 1932 (1)

All of these examples are important because they show that distribution cost analysis is an aid to good management
in bringing to light unprofitable distribution conditions that
can be revealed only through distribution cost analysis. These
examples are also important because they show that steps can be
taken to correct these unprofitable conditions. It is also
apparent that unless steps are taken to correct these unprofit-
able conditions a good part of the value of the distribution
cost work is wasted. Some of it is not wasted, however,
because even though the conditions revealed by the analyses
are apparently ignored by the management the mere knowledge of
such conditions will have a subconscious effect on future de-
cisions.

(1) W. F. Titus "How Accountants Can Assist the Sales
Department in Controlling Cost of Distribution;" p. 635.
8. _Management Must Study Reports._

One thing that may affect the use by management of distribution cost reports is the time that management has to devote to study of the reports. To get the maximum good out of these reports the management should study them thoroughly. This implies that the executives involved will not be so tied down by detail that they have no time available for other things. Maximum use of distribution cost reports may call for a management research department that can devote special study to these reports. It might imply an assistant to the president who could summarize the report and suggest plans of action for the present to take up with the board of directors.

9. _Conclusion._

A review of this chapter will reveal that management can use distribution cost analysis primarily in the solution of marketing problems. For this reason it is primarily an aid to the sales manager. It not only presents the marketing problems and the guides to their solution, but it also reveals the strength and weakness of individual salesmen. In addition to these things it also furnishes the general management with an analysis of operating expenses by functions and comparisons with standards and the budget. It affords a yardstick with which management can measure its operating results.

Perhaps the best way to leave this subject of the use by management of distribution cost analysis, is to quote Dr. Taggart.

"Above all the making and utilizing of distribution-cost analysis requires the
exercise of an intelligent understanding of the potentialities and limitations of such studies. The field for experimentation and improvement is literally limitless, and the accountant or statistician who chafes at dull routine can find no better outlet for the exercise of imagination, insight, and ingenuity. Similarly the executive who is satisfied that he has done all he can to improve the mechanical operation of his business and its relations with its customers will find that cost analysis opens up new fields of profitable attack on the problems of business management." (1)

Chapter Seven

I An Analysis of the Criticisms of and Objections to a Distribution Cost System.

A. General Objections and Criticisms.

1. Judgment Depends on Type Used and Conditions.

Distribution cost analysis cannot be judged by itself; it is necessary to know the type of analysis that is to be used and the particular condition under which it is to be used. The majority of management men and accountants would probably agree that the theory is sound and that such an analysis is valuable. However, from that point on they would probably disagree. They would disagree on the methods suggested in specific cases and as to particular companies to which the methods might be applied.

2. Many Reject the Whole Theory.

On the other hand there are many who reject the whole theory of distribution cost analysis as unsound. They say:

"that is inaccurate, impracticable from the point of view of its cost, unworkable or unsatisfactory as to the basis for executive action. (1)

This last objection, "unsatisfactory as the basis for executive action", is a most fatal objection; if that is true then there should be no distribution cost analysis system as in

(1) D. R. Longman, "Distribution Cost Analysis" (New York 1941) p. 218
definition such a system is to be a "tool of management."

B. Specific Objections and Criticisms

1. Objections Based on Nature of Distribution Activities.

Some of the objections to distribution cost analysis are based on the nature of distribution activities. Distribution costs are often compared to production costs but it is contended that this is not a fair comparison. The reason offered is that by nature distribution costs are different. Distribution costs differ by nature because:

1. The human element is involved to a considerable degree. The efforts of salesmen and the reaction of buyers are difficult to measure.

2. Distribution methods vary widely and one concern may make use of several different methods.

It would be better to describe these objections as difficulties of distribution cost analysis. It must be admitted that they exist. They apply however only a few of the distributive functions, namely, sales and sales promotion. The other functions that are concerned with the handling and filling of orders are made up of routine operations that can be organized as systematically as production activities.

2. Objections Based on Nature of Distribution Costs.

Another set of objections to distribution cost analyses is based on the nature of the costs of distribution activities. It is said that:
1. Marketing costs are joint costs that cannot be allocated fairly.

2. The costs of distribution are fixed costs and do not vary in any direct relation to results obtained. These objections likewise apply mainly to the sales and sales promotion functions. The costs of the other functions are as separate and distinct as production costs and can be allocated just as fairly. The results obtained by these functions can be measured as readily as the results of the productive functions.

3. Information Needed Not Available.

Some managements contend that the information needed to make distribution cost analyses is not available. By this they mean that due to the nature of distribution activities the information that can be obtained is not accurate enough to be used for analytical purposes.

The rebuttal to this depends upon the accounting system that has been devised for the recording and measuring of distribution costs. If costs are recorded on a functional basis and accurate units of measurement have been found then all the information that is needed is available. It must be granted however, that for some of the functions the units of measurement will be less accurate than for others.

4. Distribution Cost Analysis is Too Expensive.

Distribution cost analyses is expensive for several reasons:
1. The accounting system must be revised to allow for the recording of costs on a functional basis.

2. Additional records must be kept to show the number of service units performed by each function.

3. Records must be kept for different commodity groups, for classes of customers, for different territories, for various size orders, and for each salesman.

It will be granted at the outset that distribution cost analysis may be expensive, but exception is taken to the addition of the qualifying adjective "too". If one thinks of distribution cost analysis as requiring a new accounting system depending upon an allocation of expense items on various bases and the subsequent allocation of the costs of the various functions among products, territories, customers, classes of customers, salesmen, size of orders, and others, then one naturally gets the impression that it is costly. The truth is, of course, that a practical system is not as elaborate as that. A system that is in actual use would be limited in scope and would have certain limited objectives. Thus such a system would be much less expensive than one would suppose after reading a general outline of distribution cost analysis.

The other point of view to take is that, so long as money is not wasted, distribution cost analysis cannot be considered too expensive if it results in savings that exceed its costs. Dr. Longman says that these savings may be
of two kinds:

"those derived from the elimination of existing losses and those resulting from the fact that cost analysis discloses sources of loss early before they become so serious that they could be diagnosed by observation." (1)

It is also true that once a distribution cost system has been started the additional expense is small.

"The process (of distribution costing) is not nearly so difficult as many firms have supposed. While it requires at the start a number of factors not ordinarily compiled, these are all readily obtainable. Once the system is set up, the compilation of the costs becomes largely routine which can be handled for the average firm with very little added expense. It is a type of information which the distributor of the future is going to find absolutely necessary, and those making use of it today are finding themselves in an advantageous position compared with their competitors." (2)

An article in "Printers Ink" by Charles Hatch told of a manufacturer who found that 96 per cent of the sales dollar was required to sell a group of customers constituting 12 per cent of the total number and of another who eliminated 10 per cent of his customers with a resultant increase of 12 per cent in profit. These were facts that were worth the expense involved in discovering them. Mr. Hatch also said:

"Sales cost-finding is not necessarily expensive. Not all of the figures need be collected regularly and continuously. Some figures need be gathered only period-

ically—sometimes as seldom as once in a year or two. Others should be current. The methods to be used depend upon the nature and needs of the business." (1)

5. **Results of Analyses are Not Satisfactory**

Distribution cost analysis is sometimes objected to on the grounds that the results obtained are not satisfactory. It is contended that the results obtained reflect what has happened in the past, and are of no practical value. Since a distribution cost system shows in more detail what has happened in the past it reveals individual losses or weaknesses that might not otherwise be noticed. This is one of the stronger arguments for recording costs on a functional basis. The results of past operations also are the basis for setting standards for future operations. This in itself is a distinct contribution.

An analysis of distribution costs by commodities for example shows what it has cost to distribute these commodities in the past. It is reasonable to assume that unless changes have been made commodities that were unprofitable last year will be unprofitable this year. The analysis not only reveals that they were unprofitable but also shows why they were unprofitable and where changes should be made.

6. **Difficult to Interpret Results of Analysis.**

Dr. Longman in his book "Distribution Cost Analysis",

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has brought up the question of the interpretation of the results of distribution cost analysis. He says it is sometimes argued that:

1. The training necessary for the understanding and clear interpretation of the results of these systems is absent.

2. Irrespective of training in accounting and a reasonable knowledge of marketing, clear interpretation of results is difficult. (1)

The first criticism may be valid to a certain extent but certainly the accountants who devised the system could help the management in the initial study of the results. In fact before the analysis was started the objectives would have been clearly defined so the management has a good idea of what to look for in the results. In this respect Dr. Longman says:

"It is true that any new plan designed to assist management, which plan is any degree complex, calls for a degree of study; but in so far as the results that may be expected are worth having, there is every incentive to make such a study. Progress in any field is almost inconceivable without real work." (2)

The answer to the second criticism depends on how carefully the analysis was made. If the distribution cost accounting system is slipshod and the expenses are allocated to the various functions on an arbitrary basis then obviously they will be impossible to interpret. However, if the analysis is

(2) Longman, "Distribution Cost Analysis," p. 231
the result of reasonably accurate work then it should not be too difficult to interpret.

7. **Usefulness of Results.**

The objection is sometimes made that even after an analysis has been made and the results interpreted it is of no practical value to management. This is because the action called for cannot be taken. Such a situation might arise in the following cases:

1. An analysis might show that certain commodities were unprofitable. The management might decide that it was necessary to continue to carry these products to round out a line or to keep customers from doing business with a competitor.

2. An analysis might show that certain customers were unprofitable. The management might decide that it would not be wise to eliminate such customers. It could be reasoned that they would develop into profitable accounts or that the amount of goods they did buy made possible a volume of business that resulted in savings due to large scale buying or mass production.

These objections are not entirely logical because the mere knowledge that unprofitable conditions exist has at least a subconscious effect upon management. In most cases action will be taken, perhaps not to eliminate the unprofitable commodities or customers but at least to decrease their unprofitability. Chapter Six "Use by Management of Distri-
bution Cost Analysis" (1) took up in detail steps that can be taken to alleviate unprofitable operating conditions.

8. Statistical Analysis and Accounting Data Now Compiled are Satisfactory.

Another objection to the expense and time involved in distribution cost work is based on the argument that the statistical analysis and accounting data now compiled are satisfactory. This is not true because they can be used only in comparison with figures for past periods and there is no way of determining whether or not they reflect the results of good management. Unless costs are kept by functions and analyzed by functions it is impossible to determine what the various distributive activities cost and whether or not they cost more than they should.

9. Each Objection Valid Only as it Applies to a Particular System.

Many of the objections that have been given may be valid objections, but they are valid only as they apply to specific distribution cost systems. They are valid in that respect because the system to which they apply may be over simplified or at least not set up in accordance with sound accounting principles. They may be valid to a small degree when applied to the theory of distribution cost analysis. This is true because of the psychological factors involved in distribution. Such factors make it impossible to have distribution costs that are as exact as production costs.

The fact remains however, that none of these objec-

(1) See p. 37-112
tions can offset the value of distribution cost analysis to management.

10. **Solution is Careful Study and Hard Work.**

The answer to the criticisms of distribution cost analysis and the solution of the difficulties involved in it are summed up in the words "careful study and hard work." Even the most ardent advocates of distribution cost analysis will admit that criticisms are justifiable in many cases and that difficulties do exist. He will insist however, that in many cases the value to management of such an analysis more than justifies the additional work and study involved in the preparation and the interpretation of the analysis.
Chapter Eight

I. Future Importance of Distribution Cost Analysis

A. A Social, Economic and Management Problem.

1. Management Must Aid in Solving Problem.

Any discussion of the future importance of distribution cost analysis must be based on the recognition of the fact that distribution is not only a management problem, but a social and economic problem. As such it is very apt to be the object of much social agitation and economic legislation. It isn't going to be left to management representing private business enterprise, as its special problem. Instead, it is going to be worked on from several angles and unless management does its part it is going to find itself burdened with legislation regulating distributive activities.

2. Twentieth Century Fund Report.

A great deal of impetus was given to the social and economic aspects of distribution when the Twentieth Century Fund Report was published in 1939. (1) If the war had not intervened it is probable that many efforts to regulate distribution would have been made. The report sets forth fact that are very impressive. It states that in 60 years a nine-fold increase in distribution workers

(1) Paul W. Stewart and J. Frederic Dewhurst, "Does Distribution Cost Too Much." (Twentieth Century Fund, New York, 1939)
(from 1,500,00 to 13,949,00) had been necessary to keep pace with the output of a three-fold expansion in production workers (from 9,740,000 to 24,818,000) (1). Distributively per worker had been increased hardly at all, while productively per worker had tripled. (2)

The report also points out that it costs more to distribute goods than it does to produce them and that about 59 cents out of the consumer's dollar goes for services involved in distribution and only 41¢ for the services in production. (3)

The authors of the report also make the statement that,

"the inventive genius of American business has been chiefly dedicated to the lowering of production costs through mechanization and scientific management", but the "same inventive genius has hardly begun to be applied to the reduction in distribution costs." (4)

This report clearly puts it up to business management to do something about the high costs of distribution.

3. Governmental Agencies Have Much Distribution Cost Data.

There are other factors that will affect the future of distribution cost analysis. One is the fact that the government itself possesses a wealth of data regarding distribution costs that it has accumulated over the past fifteen years.

(2) Ibid p. 14
(3) Ibid p 117
(4) Ibid p. 4
years. It has already been pointed out that the Department of Commerce has been active in distribution cost research since 1928. The Federal Commission not only made a special study of distribution cost accounting in 1939 and 1940, but has also accumulated much case material through its administration of the Robinson-Patman Act.

4. Regulations of Office of Price Administration.

The regulations of the Office of Price Administration, a wartime agency, lead one to suspect that some of the data collected by the government is being used by this agency. There is also the possibility, which some people accept as a fact, that various distribution reforms are being tried out as wartime measures. One example of this would be the price ruling regarding barrels of powdered milk. The mark-up allowed the wholesale distributor was so low that he couldn't afford to handle it. It is suspected that some officials in Washington had reason to believe that barrels of powdered milk could be distributed more efficiently directly by the producer as are barrels of flour. The purpose of using this illustration is not to pass judgement but to show that the men in Washington are conscious of the distribution problem and evidently hope to do something about it someday.

It is reasonable to assume therefore that if government control of business continues in any degree, after the war, the problem of the cost of distribution will not be neglected.
One good reason for management to take more of an interest in distribution costs is the possibility of using these costs to guide future legislation. One firm by itself cannot accomplish such results; such results can only be accomplished by trade groups. It is important for trade association, therefore, to take the initiative in getting their members interested in distribution costs. It is a matter of self-preservation.

5. Robinson-Patman Act.

There is still another aspect of the future importance of distribution cost analysis that is affected by government regulation. It is the legal necessity of keeping the records that are needed to comply with the Robinson-Patman Act. This act, in general, forbids certain price discriminations that cannot be justified by certain differences in costs. The act may apply to any concern that is engaged in interstate commerce. Thus countless companies come within its jurisdiction and must observe its legal aspects.

This is illustrated by the fact that within two years of its enactment 515 investigations were made of alleged infractions. (1) Any company subject to this act must keep distribution cost records to justify any price differentials that they may have allowed.

6. **Effect of Government Standards.**

There is still another trend in government that may affect the future importance of distribution costs. That is the trend towards government standards for various products, especially food products. The grading of canned fruits and vegetables in accordance with government standards instead of trade standards may affect consumer preferences. If the consumer knows that it is not the brand that counts but the grade that has been established by the government then the value of private brands will be lost. Profits will not be made by wide-spread advertising calculated to increase consumer demand but by economics in distribution. Efficient distribution will offset the losses due to smaller volume.

In the future competition will be keener than ever before and the concern that maintains a strict control over its distribution costs and keeps abreast of its marketing problems through the use of distribution cost analyses will have the greater opportunities for profits.

7. **Distribution Cost Analyses Will Not be Accepted Generally.**

All this paints the picture of the future importance of distribution cost analysis. The question that remains is whether management in general is going to appreciate these facts and prepare itself. If the question is looked at practically and realistically the answer is in the negative. The reasons that may be offered are:

1. There is too much detailed work involved.
2. Too many unpredictable human elements are injected into the cost system.

3. The action to be taken after the analysis has been made is not clear.

These objections are not offered here as conclusions that distribution cost analysis is not necessary, but rather to support the practical statement that although the future importance of distribution cost analyses will be great, few business managements will set up distribution cost systems.

Although it seems to lead away from the subject the truth is that the details of management are entirely too complicated for the majority of business enterprises. The degree of control that is necessary to efficient management is beyond the limitations of the average executive. The successful concerns are the large concerns that have set up systems for obtaining and compiling the details necessary for control. It is only the large concerns that can set up efficient distribution cost systems. To set up such a system the undivided attention of a specialist is needed and only the large concerns can afford the services of such specialists. It will result in the large concerns being the efficient distributors. It will be interesting to see if legislation regulating distribution will be aimed at the large concerns who are the efficient distributors.

8. Future Importance Based on Four Facts.

Distribution cost analysis will be of great importance
in the future due to the following facts:

1. It will be necessary to have facts and figures with which to guide the legislation that will be proposed as the result of the social and economic importance of the cost of distribution.

2. Records must be kept to conform with the Robinson-Patman Act.

3. Economics in distribution must be made to off-set reductions in volume due to government standards.

4. To insure efficient operations management needs the control that is afforded distribution cost analysis.

It should be emphasized that in the future distribution cost analysis will be invaluable as an aid to good management. Because of the detailed work and study involved it will be the large business organizations that will be the first to make use of it. However as it grows in importance smaller organizations will gradually set up accounting systems that will give them the cost information they need to improve their management.
APPENDIX

Distribution Cost System of Dennison Manufacturing Company (1)

A. Background

1. One of the Few Companies That Have Distribution Cost System.

No discussion of distribution cost analysis would be complete without a few facts about the system used by the Dennison Manufacturing Company. This company is one of the few that have a definite distribution cost system and many references are made to it.

The Dennison Manufacturing Company manufactures and distributes a wide variety of stationery products. To obtain a control over its distribution costs it maintains a distribution cost system designed to furnish the facts needed for a distribution cost analysis by commodity groups.

B. Classification of Accounts

1. Distribution Costs Divided into Three Functional Classifications.

The distribution costs of the Dennison Manufacturing Company are divided into three functional groups, namely; order-handling and filling, order-getting, and administrative. Each of these functions is subdivided into many accounts representing various operations within the functions.

2. Order-handling and Filling Functions.

The costs of the order-handling and filling function

include the costs of such operations as pricing, checking, and recording orders, billing customers, keeping customers records, assembling orders for shipment, keeping merchandise stock records, storing and shipping goods, extending credit and collecting for the goods.

The costs of these operations are recorded in primary expense accounts for labor, stationery and supplies, rent, and other expenses. Primary expense accounts are set up for each of the many department whose activities fall within the general function "order-handling and filling." The departments themselves are grouped under three divisions namely, office, warehouse, and planning. The costs of the major functions are thus divided into three divisions which are in turn divided into several departments. The principal departments under each division are as follows:

Office Division

Billing department
Accounts receivable department
Central files department
Correspondence department
Order register department
Outside warehouse department
Transcribing service department
Credit department
Stock costing department
Office administration department

Warehouse

Office department
Filling department
Packing department
Outside warehouse department
Traffic department
Shipping department
District warehouse department
Warehouse divisional expense department
Back-order transportation department
Chicago warehouse department

Planning Division
Label planning department
Box planning department
Tag planning department
Stock goods and holiday merchandise planning department
Gummed paper planning department

This grouping makes possible a comparison or analysis of expenses in much greater detail than is ordinarily possible. It thus affords the management a closer control over operations. It also makes possible an accurate allocation of the costs of the function to the various commodities.


The costs of the order-getting function and the costs of the administrative function are not allocated to the various products. The company has experimented with the allocation of these costs and found it impractical. It was decided that the deduction of order-handling and filling costs from the gross profit gave a profit figure that was sufficiently accurate to show the relative profitability of several products.

C. Product Groups

1. Products Grouped in Ten Lines

The products sold by the Dennison Manufacturing Company are grouped into ten lines. They are: dealer; holiday; boxes; crepe; shipping tags; marking tags; seals; labels; and cellophane wrappings and bands; envelope and
other outside purchase consumer items; gummed and bronze paper and tape; machines and tickets for marking goods.

Each of the ten major lines is further subdivided into commodity classifications so that actually distribution cost information is available for some 200 classes of commodities.

D. Allocation

1. Expenses That Are Allocated.

Only the expenses of the order-filling and handling function are allocated to the products sold. These expenses are allocated on a standard basis which in effect is the application of a cost factor to the number of units sold. The standard costs are adjusted to the actual costs for the ten major lines but not for the several commodity groups within each line.

2. Establishment of Cost Factors or Standard Costs.

The cost factors which are used in allocating costs to the various product classes are determined as a result of an analysis of the costs of the various departments. The departments are studied to determine the basis on which their costs should be allocated to the products. Three bases of allocation are used; the order or the invoice, the item filled, and the cubic-inch content of the container used in shipping.

The departmental costs that can be allocated on the basis of the order or the invoice are added together and the total is divided by the number of orders handled to get the
cost factor or standard cost per order for all orders. If this standard cost is $1.00 then every order that is handled is said to cost $1.00 and if 500 orders are received for shipping tags an order-filling and handling charge of $500 is charged to that product.

Some departmental costs can be allocated most equitable on a per item basis. The costs of each department that are to be allocated on a per item basis are first distributed to product lines on the basis of the actual or estimated time that the employees of each department devote to each of the ten product lines. The amounts thus distributed to product lines are added together so that a total is obtained for each product of the departmental costs that are to be allocated on a per item basis. This total for each product line is then divided by the total number of items of that product line that were shipped to get the cost factor or standard cost per item.

In distributing the departmental costs to product lines some costs are found that are not applicable to any particular line. These costs are called "all stock items," and are accumulated by departments. Their total is divided by the total number of items shipped and the unit cost is added to the standard cost per item already determined to get the standard cost per item that is actually used.

Thus the per item cost of shipping tags might be 10 cents and the per item cost of all stock items might be 5 cents. The standard cost per item would be the total of the two or 15
cents per item. If there were 500 orders for shipping tags and those orders had two lines both for shipping tags but different sizes or colors then there would be a total of 1000 items. The standard item cost of 15 cents would be multiplied by 1000 and the resulting charge of €150 would be charged to the product "shipping tags."

The third basis for distributing departmental costs is the cubic-inch content of the container used in shipping. The expenses incurred for packing material, for warehouse space used, and for packaging and shipping goods are distributed on this basis. The total cost that is to be distributed on this basis is divided by the number of cubic inches of containers handled during the period to determine a rate per cubic inch. This is translated into a rate per 1000 cubic inches for ease in calculating.

This rate is then applied to individual products. For example shipping tags might be sold in units of 1000 and for a particular type of tag the cubic inch content of the container used might be 150. If a rate of 9 cents per 1000 cubic inches had been determined the rate for this particular container would be 1.35 cents. If 100,000 tags of this type were shipped during the period the cubic cost would be 1000 multiplied by 1.35 cents or €13.50.

3. **Application of Cost Factors or Standard Costs.**

The cost of the order-handling and filling function is allocated to the various products on the basis described
above. For purposes of illustration it might be well to show just how it would work out in a particular case.

If it is assumed that there were 1000 orders for No. 1 shipping tags and the standard cost per order were $1.00 then $1000 would be charged against No. 1 shipping tags.

It may be also assumed that there were 1000 items or invoice lines calling for No. 1 shipping tags. With a standard cost for 15 cents per item $150 would be charged against these tags.

The third assumption is that the 1000 orders called for a total of 1,000,000 No. 1 tags, that these tags were packed in units of 1,000 and that the cubic cost of the container was 15 cents. Under these conditions the cubic cost of the 1,000,000 tags would be $15.00.

The costs to be allocated to other types of tags would be determined in the same way. The cost for all tags would be found by adding the costs for each of the individual types.

The costs to be allocated to other lines of products would be determined in the same way.


After the cost factors or standard costs have been applied to all products the management has available the cost of handling and filling orders for each product. As its system of manufacturing costs likewise shows the cost of each product, and sales records are kept by products, it also has
available the gross profit by products after order-handling and filling costs.

5. **Summary.**

The distribution cost system of the Dennison Manufacturing Company allocates the cost of the order-handling and filling function to some 200 classes of commodities making up ten lines of products. Its remaining distribution costs, namely, order-getting and administration are not allocated to product lines.

The analysis that is made shows the gross profit by products after deducting the cost of the order-handling and filling function. The company calls this its secondary revenue. It considers that it can judge its net profits by lines of products very closely by estimating the portion of the selling and general administrative expenses applicable to each line or products.
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