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Ice-Cream Manufacturers' Accounts

BY IRVEN G. BITTLE

If one should ask all the men, women and children in the United States to name their favorite dessert, probably 90 per cent. of the replies would favor ice cream in one of its various forms. Not only is it a food generally liked by everybody, but it is safe to say that we eat more ice cream in proportion to our population than does any other nation.

Tremendous advances in the standards of manufacture and distribution, as well as in the quality of ice cream, have been brought about by the organization of the industry. The time has now passed when the inclusion of vegetable fats in place of cream and the use of various fillers instead of clean, wholesome dairy products was common practice. This change in the method of manufacture has been brought about chiefly because the larger dealers recognize that it is sound business policy to sell high grade products and partly because of legislation and the watchfulness of food inspectors from the city health departments and the regulatory commissions of the various states.

The constant rise in the standards of cleanliness and wholesomeness in the dairy industry has been one of the greatest helps in raising the standards of the ice-cream industry. Another important reason for the rise in ice-cream standards is that the manufacture of the product has gradually passed into the hands of larger manufacturers who are in a position to invest in modern machinery and to provide the sanitary surroundings necessary for the preparation of high grade products. There is still however sufficient competition in the industry to assure reasonable prices to the consumer.

During the past decade the industry has made rapid progress toward becoming one of the leading industries in the food-products field. This is due principally to the mergers that have been sweeping this country and to the financial assistance given by responsible bankers. The individual manufacturer and the administrative officers of the smaller companies were compelled to resort to all available methods of obtaining the necessary capital to finance their respective enterprises, and as a result the additional expense occasioned by interest charges and financing costs

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made it doubtful whether or not the proprietors and stockholders would receive any return on their investments. In view of this condition, the offers of larger companies to purchase the business and enter into an employment contract with the operators of the smaller businesses were acceptable.

Another disturbing element to the small producers in recent years was the necessity of obtaining sufficient capital to provide for the installation of mechanical or iceless cabinets, which the larger companies were installing in place of the former wooden ice and salt cabinets.

The consolidation of the smaller companies also effected economies in the distribution of product, by consolidating routes, thus permitting the dispatching of one truck with a 100 per cent. load whereas formerly there were several competitive trucks partly loaded, covering practically the same territory.

The combining of several smaller companies into one unit also made possible the operation of one modern plant at full capacity and thus resulted in a reduction of overhead costs.

The manufacturing processes may be segregated into two distinct sub-divisions or departments: first, the manufacture of the product itself and, secondly, the manufacture and maintenance of the refrigeration plant for the proper handling and storage of the finished product. The following table presents the various operations in the manufacture of the product and the maintenance of the refrigeration system:

Ice-cream Manufacture	Refrigerants
Receiving room	Power
Mixing and pasteurizing	Steam
Homogenizing	Refrigeration
Cooling	Ice manufacturing
Flavor room	
Freezing room	
Hardening room	
Laboratory	
Can washing	

Upon receipt of the milk from the shipper, adequate samples are extracted from each shipment by one of the chemists in the laboratory, in order to determine the quality and flavor, butter fat percentage, bacteria count and other vital information necessary in order to determine the basis upon which payment shall be made for the milk and further to ascertain whether or not the

raw materials satisfy the requirements of the regulatory commission of the particular state. The butter-fat percentage is one of the most important features in the manufacture of the product and has been the subject of legislation in many states. The legal standards for some of the states, showing the minimum butter-fat percentage are as follows:

<i>State</i>	<i>Plain ice cream</i>	
	<i>Milk fat</i>	<i>Gelatin</i>
Massachusetts.....	10%	No maximum
New York.....	8%	No maximum
Pennsylvania.....	8%	0.5%
Rhode Island.....	8%	1.0%
California.....	10%	0.6%
Wisconsin.....	12%	0.5%
New Hampshire.....	<u>14%</u>	<u>0.2%</u>

The milk products, with sugar, gelatin and egg products, are placed in the mixing vat in their proper proportion and the entire content of the vat is then pasteurized. The purpose of pasteurization is to destroy bacteria without materially reducing food properties. The regulatory commissions of the various states prescribe that the entire ice-cream mix, with or without flavor or color, shall be pasteurized and the process in itself is defined as heating the ice-cream mix to a temperature of not less than 145° Fahrenheit and holding it at that temperature for not less than thirty minutes. After pasteurization the mix shall be cooled to at least 40° Fahrenheit and held at that temperature until frozen. It is, therefore, necessary that all vats and other pasteurizing equipment shall be equipped with recording and indicating thermometers of a type approved by the state regulatory officers. Another important provision which some commissions require is that a recording thermometer record of each batch pasteurized shall be kept on file for at least three months.

The quality of the product of one manufacturer as compared with that of another differs according to the variations in the composition of the mix. There is no standard formula, but the following table presents a general idea of the chemical combination of ice cream expressed in percentages:

Butter fat.....	12%
Solids not fat.....	11%
Sugar and flavor.....	17%
Water.....	<u>60%</u>
Total.....	100%

After the mix has been pasteurized and homogenized, which usually takes about two hours, it is forced through a cooler and the temperature is reduced to approximately 35° Fahrenheit. The length of time necessary to cool a batch is from five to ten minutes, and the mix is then pumped into the storage tanks in the aging room. These tanks vary in size from 50 to 5,000 gallons in accordance with the production requirements of the plant and are used to store the mix until it is required in the freezing tanks. The storage tanks, while not a necessary part of the manufacturing, permit of full time operation of the freezers, since the mix is always prepared and ready to run into the freezers as requirements demand. Tests are made from time to time of the mix in the storage tanks in order that defects may be corrected and the product standardized before it is completed for commercial purposes.

Upon receipt of orders from the production department for future requirements as to flavors needed, sizes of cans and cuts of brick, the mix is run through sanitary piping into the freezing tanks and the flavor is added. The entire mass is then frozen to the consistency of mush, at a temperature of 22° Fahrenheit. This process usually requires from five to seven minutes. The mix is also "whipped" simultaneously with the freezing process in order to obtain the desired overrun. The percentage of overrun depends upon public taste. In the eastern part of the United States the percentage usually varies from 70 to 100 per cent., whereas in the western part it ranges from 100 to 130 per cent. It is apparent that the higher the percentage of overrun the lower the butter-fat content will be, since the whipping process is merely forcing air into the mix. Another factor affecting the percentage of overrun is the sale price of the finished article, since the butter-fat solids represent the largest element of cost. This can be demonstrated by a comparison of the results of two manufacturers adhering to the same sale price where overruns of say 70 and 110 per cent. are used. The same ratios will necessarily prevail with respect to the composition of the mix so that the manufacturing costs will be identical on a given quantity of material while the quantity of salable ice cream produced will be greater in the one case to the extent of the excess overrun.

After the completion of the freezing process the mix is no longer in liquid form. It has been whipped into a pliable state which facilitates pumping into cans or moulds in the hardening room.

Upon being received in the hardening room in eight quart moulds and cans ranging from ten to twenty quarts, the product is exposed to a temperature of 20° below zero for a period of about twelve hours and is then ready for either the brick-cutting room or the delivery platform.

In the brick-cutting room the ice cream is removed from the moulds by applying warm water to the outside surface of the container and is then placed in a cutting machine and cut into the desired number of portions to the quart. After the pieces have been cut, they are conveyed to employees seated at the other end of the machine who wrap the individual cuts in paper and place them in waxed containers of one quart for delivery.

The total time necessary to complete a batch of ice cream from the raw material state to the finished article depends upon the type of machinery used and the efficiency of the operators. It is obvious that modern machinery, operated by skilled labor, will produce a better product in a shorter period of time than will antiquated machinery operated by inefficient employees. However, various tests have been made under different conditions in order to include all contingencies and it has been determined that a fair average time for complete manufacturing is approximately twenty-four hours. In extraordinary circumstances the product could be manufactured in less time, but this would be expensive and to delay more than twenty-four hours would detract from the "freshness" of the article. The quality of the finished article is dependent upon the ingredients used in its manufacture, and it therefore follows that the faster the manufacturing process the fresher the milk used will be. An ideal operating condition would be one in which it was possible to purchase only sufficient milk for each day's requirements, so that it would be unnecessary to hold over any raw milk or finished product beyond the succeeding day's requirements.

DISTRIBUTION

The successful distribution of the product is contingent upon the proper coördination between the sales department and the delivery department. The sales department is under the direct supervision of the sales manager and is divided functionally into selling, advertising and cabinet installation. The department is charged with the responsibility of obtaining new customers, adjusting complaints of present customers, following out the adver-

tising policies and coöperating with the transportation department in the installation and service of cabinets.

The transportation department, under a delivery superintendent, is responsible for the housing and maintenance of trucks, horses and wagons and furnishes the delivery department with equipment as required.

The delivery department is responsible for the actual delivery of the product to customers and is under the direct supervision of a superintendent.

The type of vehicle used in the distribution of the product is largely dependent upon the territory, the distance between stops and the condition of the streets and highways. In the more densely populated cities, the necessity for numerous stops within a comparatively small area makes it more practical and economical to use the horse and wagon for delivery, whereas it has recently been proven that the use of the automobile truck for suburban delivery speeds up the service and also permits a larger area to be served, thus increasing the volume of sales. Still another factor in favor of the automobile truck is the marked improvement in road construction and the growth of the ice-cream industry has for this reason been coextensive with the good road facilities of a territory. In the east and on the Pacific coast, trucking to adjacent cities comprises a large percentage of the total sales. On the other hand, ice-cream manufacturers in the middle west, Rocky mountain and southern states distribute ice cream to their "interurban trade" largely by railway express. However, even in these territories there is shipping by truck.

To obtain new business the solicitors and sales representatives of the various companies are constantly granting special concessions to prospective customers in the nature of volume rebates, credit terms, more frequent deliveries and cabinet service. This condition has been brought about more through the attempt to gain absolute control of a territory by one company rather than through increased quality of one manufacturer's product over that of another. The business was formerly conducted on a cash basis, but, due to the development of the industry and competition, it became necessary for the manufacturer to extend credit for a weekly period, at first, and gradually to increase the time, so that at present the manufacturers are extending credits for thirty days and even longer.

The ice-cream market is dependent upon three main factors, namely the population of an area, the climatic conditions and the raw milk supply. It is only natural to assume that the larger the population the greater the consumption will be, provided climatic conditions are favorable. Sales have been materially favored in recent years by modern inventions and the rise in our standards of living. Since our clothing is warm and our houses so comfortably heated it does not make us cold to eat frozen dainties even in the middle of winter. The ice-cream industry acts as a balance wheel for the entire dairy industry, since approximately 65 per cent. of the total yearly production occurs during the months of May, June, July and August, which is the season when the cows are at pasture and produce a larger quantity of milk. It seems logical that the ice-cream industry, in absorbing the increased production during these summer months, helps to stabilize the price of milk by avoiding a surplus which is generally the cause of any break in price.

The United States and Canada consume more ice cream than any other countries, but foreign countries are gradually acquiring a liking for the product and the development of the foreign markets should be an incentive for the European manufacturers and investment bankers. The manufacturers in this country would not benefit by the development of the industry in foreign countries, since it would be too expensive a project to attempt to manufacture for export purposes. For this reason the manufacturers, with few exceptions, have not endeavored to influence the production in foreign countries but have been content to develop the business at home. The question of refrigeration would present itself as one of vital importance in the exportation of the product and for this reason it would hardly be practicable to manufacture for export.

There has been a decided change in the method of distribution in recent years, which has materially benefited the dealer as well as the manufacturer. The product was originally sold in bulk form in cans ranging from eight to twenty quarts, and the dealer was obliged to "dip" from the cans into one or two-quart containers according to the demands of the consumer. The recent tendency has been toward the adoption of what is termed "brick ice cream" which is produced by the manufacturer in package form in units of a quart. This has eliminated the necessity for "dipping" and has been a benefit to the retailer as he is no

longer confronted with losses formerly sustained as a result of dipping.

The actual distribution by the manufacturer to the dealer was originally effected by the use of cans, completely enclosed in a mixture of cracked ice and rock salt, placed in a wooden tub. This method was very expensive since it required that all trucks carry sufficient cracked ice and salt, not only for refrigeration while en route, but also for the customers' cabinets. In addition, the constant melting of the ice had a telling effect upon the life of the vehicle used for delivery and the equipment-maintenance costs were considerably in excess of present-day costs. Since the invention of modern refrigeration, the delivery trucks are equipped with refrigerated bodies, the dealers' wooden cabinets have been replaced by mechanical cabinets, and it is no longer necessary for the manufacturer to supply ice and salt to the retailers. However, as an offset to the cost of ice and salt formerly used, which had to be purchased or manufactured by working capital, the manufacturer now has need for greater fixed capital for investment in the mechanical equipment. Another advancement in methods of refrigeration has been the invention of dry ice or solidified carbon dioxide, which is still in the experimental stage of development. It has served as an excellent refrigerant in experiments, but difficulties have been encountered which may be primarily attributable to lack of knowledge of how it should be used. The distribution of dry ice over the area to be refrigerated is of importance. The ice cream becomes too hard near the dry ice, but if properly applied it should remain in good condition for eighteen to twenty-four hours in insulated bags. A recent newspaper article states that ice is now being imported from the tropics. It is a product of carbon dioxide gas found in wells of the Tampico, Mexico, oil fields, flowing to the surface at a pressure of 1,000 pounds to the square inch. A New York concern has erected a factory there which solidifies the gas into "sub-zero" ice. It has a capacity of 40,000 pounds a day. Vessels with insulated chambers of cork board a foot thick will bring the ice to the United States. The bulletin of the navy department's bureau of engineering called attention to this new accomplishment of science and industry today saying: "This paradox of bringing 'ice' from the tropics to the north is without precedent."

Delivery cost is the one division of expense which increases each year. It must be remembered that in the ice-cream industry

much of the selling effort can not properly be classed as selling expense but must be considered as delivery or customers' service expense. A large portion of the increased cost is attributable to extra service rendered to obtain new business or to retain present customers. While it is true that an intelligent selling effort must be made, a close watch must be kept on the amount of free service that is given. This free service can quickly increase the total cost per gallon to the point where the additional business procured actually costs the manufacturer more than he gains through the additional volume.

FINANCIAL ACCOUNTING

The financial records necessary for the recording of the transactions incident to the operation of an ice-cream business do not differ to any great extent from those of any other manufacturing enterprise. There are, of course, various detail records which are peculiar to the industry, but these records are maintained more for statistical purposes and for inspection by the health department than as a component part of the financial accounting records.

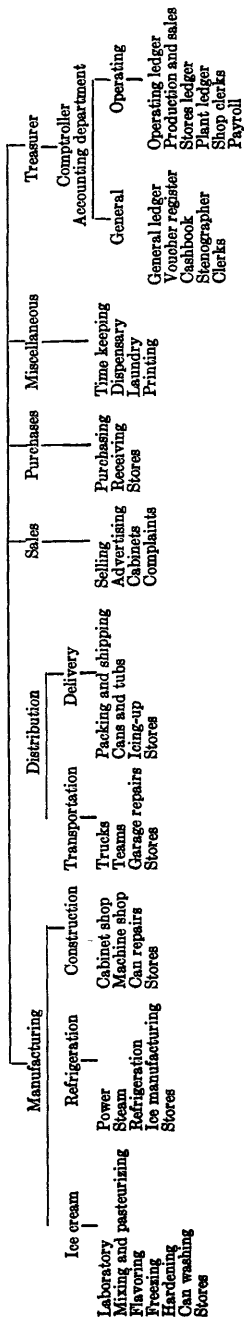
The successful operation of any system necessitates the definition of the responsibilities and functions of the various departments on a recognized plan of organization. The organization chart shown on the following page is submitted, showing graphically the departmentalization of the business to conform with the system and classification of accounts. The functions and responsibilities of the departments, so far as they affect the operation of the accounting system and insure the proper coördination between the accounting and the operating departments, are discussed in subsequent paragraphs.

The accounting department is subdivided into the general and operating divisions under the general supervision of the treasurer. The former division has the responsibility of keeping the general or financial accounts, journal and accounts-payable vouchers and the preparation of financial and operating statements. The latter is charged with the keeping of the operating accounts, production, stores, costs and payrolls. The records to be maintained in the two departments are as follows:

General department
General ledger
Voucher register and journal
Cash receipts and disbursements
Accounts-receivable ledgers
Petty-cash book

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ORGANIZATION CHART
 General manager
 Assistant general manager



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Operating department

Voucher distribution
Stores ledger
Plant ledger
Deferred and fixed charge record
Production and sales record
Payroll
Shop job record

The general ledger is the backbone of any accounting system, since this is the record wherein the accumulation of all facts and figures from all departments of a business are finally recorded. The amounts should be classified in the order in which they appear in the balance-sheet and profit-and-loss account, so as to facilitate, as far as possible, the preparation of monthly statements. The number of accounts should be kept at a minimum through the use of control accounts wherever practicable, in order that the preparation of the monthly trial balance may not entail an undue amount of time and labor.

All entries affecting the general-ledger, financial or operating control accounts, other than cash entries, must be entered through the journal and voucher register, which operates as an accounts-payable register and journal. The columns should be arranged to provide for the segregation of accounts payable from general-ledger items, the distribution of both to control accounts being made in the appropriate columns or through the general-ledger column in accordance with the classification of the general-ledger accounts.

A voucher jacket, showing the distribution of expenditures, should be prepared for all entries in this record and must be supported by the original invoices covering the purchase, accompanied by a copy of the purchase order and receiving report, all of which must be properly checked, signed and approved by the department heads. After proper entry of purchase vouchers has been made in the purchase register, they are turned over to the treasurer for filing according to discount or payment dates.

In the case of journal vouchers it is essential that a complete detailed explanation of each entry be made at the time the entry is prepared and this must be approved by the comptroller.

Remittances of cash, cheques, money orders, etc., on account of accounts receivable, cash sales or other sources should be recorded in the cash-receipts book and the book arranged to provide the necessary columns for the various sources of revenue. The

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net amount of cash entered in the cashbook should be deposited daily in one of the depositories. Petty-cash purchases or payment of freight bills should not be made from daily receipts but paid upon properly approved authorization out of the imprest funds.

The disbursement side of the cashbook contains the record of cheque payments and presents no problems. It is merely a record showing the date, number of the cheque (which should appear in chronological order), to whom drawn and the amount. Since all purchases and expense invoices are recorded in the voucher record, the only debit from the cash-disbursements book should be to accounts-payable control.

An individual account should be maintained for each customer, showing the charges from the route delivery sheets and the payments made on account, as shown by the supplementary cash report, supporting the entry in the general cashbook. By the use of posting machines the customers' statements can be prepared in conjunction with the daily postings to the customers' accounts so that the statements can be mailed as often as the credit terms warrant.

An imprest fund is advisable for the payment of small expense bills and other disbursements of a minor nature. The amount of the fund should be governed by the bills which are to be paid and reimbursement can be made weekly or as often as requirements demand.

To facilitate and provide for the proper distribution of cost of material and operation by departments, the installation of an operating ledger is recommended. This record eliminates numerous individual detail operating accounts from the general ledger and permits a more extensive use of controlling accounts. With the combination of the journal and the voucher register all distributions can be included in the voucher distribution record, the monthly totals representing the postings to the operating ledger. Each department is provided with a separate distribution sheet so that the cost of wages, materials and expenses can be readily analyzed to conform with the chart of organization and classification of the operating accounts.

In the manufacturing division of the business it is essential that adequate material records and proper control of the physical stores and supplies be maintained. The lack of such control and proper information as to the amount of materials on hand pre-

vents the purchasing department from making advantageous purchases and functioning properly and usually results in unforeseen losses, to be absorbed in the profit-and-loss account, which may seriously affect the operating result for the period. From experience it has been determined that the ratio of value of material to labor in the manufacture of ice cream is about 5 to 1, the cost of materials used representing approximately 50 per cent. of the total cost of sales. It is evident, therefore, that an efficient and absolute control of stores and production constitutes one of the most important functions of the manufacturing division.

An adequate record of all classes of materials and supplies should be maintained. This record should show the date, voucher and order number, quantity price, and quantity and value of materials received and issued to date, the balance representing the inventory which should be on hand at any given date.

The purchase of all materials should be made through the purchasing department, upon properly authorized requisitions, except possibly where emergency purchases may be necessary. Upon receipt of the goods set forth on the purchase order, the receiving clerk should prepare the receiving report showing the date, name of the shipper, quantity received and class of merchandise.

As far as practicable, the storage of material and supplies should be centralized in the custody of a general storekeeper, who is responsible for the proper handling and distribution. The issuance of all materials and supplies should be made on a stores requisition, properly prepared, so as to show the date, quantity and class of material required and the department which is to be charged. The requisition must be signed by a duly authorized employee and presented to the storekeeper as his receipt for delivery of the goods. In certain departments where supplies are consumed daily without requisitioning, a monthly physical inventory must be taken and forwarded to the accounting department. All requisitions must be sent daily to the stores-ledger clerk, so that the materials issued may be properly accounted for in the stores ledger. In the case of departments using supplies for which no requisitions have been issued, the posting medium for the stores ledger will be the monthly inventory.

The plant ledger should contain details of all items of property, plant and equipment and should show the following information.

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- A. Voucher number
- B. Date purchased
- C. Description of asset
- D. Cost
- E. Depreciation rate
- F. Depreciation expense for current period
- G. Depreciation reserve provided to date

The inclusion of the depreciation reserve in the plant ledger facilitates the preparation of adjusting journal entries in the event of sale or other disposition of fixed assets.

Lack of proper control in the production department may seriously affect the operating results of any company, and this is particularly true of the ice-cream industry. That losses due to inefficient operation may be minimized several production reports are recommended, each having a different function. Collectively they constitute a record of production from the raw material through each of the various stages of manufacture to the finished product. A milk-products receiving report, prepared by the receiving clerk, under the supervision of the superintendent of the ice-cream department, should be prepared for each shipment received, showing the number of quarts or pounds of milk and cream from each shipper. After the chemist in the laboratory has made his tests and recorded his findings, the milk-products report should be transferred to the production clerk. The latter then records the quantities as shown by these various reports on a mixing-and-pasteurizing report. The receiving report is then referred to the operating-ledger bookkeeper for the purpose of checking and adjusting the prices with the amount of the invoices and to the stores-ledger clerk for recording in the stores ledger.

A daily mixing and pasteurizing production and inventory report is prepared by the production clerk for the number of batches of mix of each kind for the individual tanks, on which are indicated the quantities of different materials used and the test of each mix. The production report is a summary of the mixing and pasteurizing report and represents the total daily production. A daily inventory of milk products should be taken and forwarded to the production clerk for the purpose of comparing with the quantities used as reported by the mixing and pasteurizing department. The inventory of mix on hand, together with an inventory of the aging tanks, is shown on the production report and should be checked daily with the quantity of mix shown on the freezing-room production report.

A freezing-room report should be prepared daily showing the number of runs for each size freezer classified by flavors and the quantities produced by size of containers for each flavor, together with the total quantity of material used in the freezing room. The quantity produced is measured by actual count, after being checked against the register attached to the hopper spout. An accurate check of the number of batches for each freezer is obtained by an automatic recording instrument.

The freezing-room report should also include the inventory of bulk ice cream by flavors, which should be prepared each morning. The opening inventory plus the daily production less the closing inventory should constitute the sales and transfers for the day.

A report should be prepared by the engineer, showing the number of cakes of ice pulled daily, the amount transferred, used or sold, and the inventory on hand, in order to make the necessary entries for ice manufacturing.

In the ice-cream business, the procedure followed in obtaining customers' orders is rather unusual since the majority of the orders obtained are received via telephone and not by personal calls of the salesmen. The method in use has been termed the "call up" system, and operates in the following manner: The company employs as many order clerks as the business may warrant, who are telephone operators as well as order clerks. They start work in the late afternoon, each having a certain number of routes to cover, and also an individual switchboard. The route sheets showing the customers' name, address and telephone number, with appropriate columns for the various flavors and sizes of product are followed in detail by the order clerk, each customer being "phoned" for his order. When an order is received, it is entered on an order blank, prepared in triplicate, and then transferred to the route sheet, which, when completed will show the required quartage for each route and serves as a requisition on the hardening room. All cash orders are extended by the order clerk, showing the total amount of cash that the driver must pay to the cashier on the following afternoon. The individual order serves as a delivery ticket and, if the customer has a charge account, the original serves as the customer's invoice. The original daily route sheet and the individual order are sent to the delivery department, the triplicate copy being retained by the order department. When all orders shown on the route sheet have been checked and loaded, the driver is given the original copy and the

individual order, the duplicate being sent to the cashier, with whom the driver must settle on return.

In the case of orders which must be sent by special delivery, a special order form should be adopted, prepared in triplicate, the original being sent to the delivery department, the duplicate to the cashier and the triplicate retained by the order department. These extra orders, or special deliveries, should be entered on an extra delivery sheet and should be transferred to the daily route sheets at the close of the day's business.

The successful operation of any business is dependent to a large extent on proper control of payroll and timekeeping, minimizing as far as possible idle time and inefficient labor and obtaining one hundred cents value for every dollar spent on account of payrolls. It is primarily essential that the system of internal check, so far as the payroll department is concerned, should be "fool-proof" and not open to manipulation by an unscrupulous clerk or clerks in collusion. For this reason it is recommended that a time-keeping department, as well as a payroll department, be maintained, each functioning entirely independent of the other and yet closely coördinated as to results. The work of the timekeeper is to obtain, upon properly approved requisitions, the employees required for the various plant departments, maintain an employees' record file and check the time of the employees in reporting to and from work. All employees must use the weekly time-clock card. The timekeeper will extend the total hours, insert the wage rate and calculate the wages for each employee for the week and forward the cards to the payroll clerk in the general office.

A weekly time distribution card should be prepared by the foreman for each employee, showing the total hours spent on each operation or job. These cards should be sent to the payroll clerk promptly at the end of each week, setting forth the total hours, rate and amount for each operation and total wages for the week.

The payroll clerk, upon receipt of the weekly time cards and weekly time-distribution cards will check the extensions and compare the two cards. After adjustment of any differences, they are entered on the payroll record which is given to the paymaster for payment. The payroll clerk will summarize the distribution of the payroll from the distribution cards and prepare a voucher for entry in the voucher register and operating ledger.

A payroll record should be maintained providing for the recording of the weekly total hours, rate and amount of wages paid

each employee by departments. This will contain record of the quarterly and annual wages paid, thus showing comparative weekly totals for the period.

In work performed by the construction and repair shops, it is necessary to maintain a system which readily permits the distribution of cost, in order that the departments or units can be properly charged. For the recording of this information the shop-job system is recommended. By this system each job is assigned a number, and all material and labor charges are accumulated until the completion of the order, when proper distribution can be made to operating or asset accounts. The job-cost card, in addition to showing the charges, also records the purpose of the order, for which department it is being done, estimated cost to complete and other information for the final distribution in the accounts.

The verification of a balance-sheet reflecting the financial position of a company engaged in the ice-cream business involves certain features which are considered of sufficient importance to warrant detailed comments. The form shown on the following page is suggested for presentation to the client.

The caption "customers' notes receivable" may appear somewhat contradictory in view of the fact that it has been previously stated that the ice-cream business should be conducted on a cash basis. However, since the mechanical cabinets are sometimes sold to customers under a lease agreement, payment being made on the basis of quartage purchased by the dealer, it becomes necessary for the customer to sign a note or series of notes in favor of the manufacturer covering the purchase price of the cabinet and compressor, setting forth the details as to the method of payment and the monthly instalments. For this reason it is necessary to classify further the customers' notes according to due dates, since it is apparent that a portion of the total amount due will not be paid within the year immediately following the date of the balance-sheet. It is necessary also to set up the amount due subsequent to the close of the next year under a separate caption immediately following the current assets.

In the audit of the accounts of an ice-cream company one usually finds numerous employees' accounts included in the customers' accounts receivable. These should be classified separately on the balance-sheet. It is true that these accounts are in all probability more liquid than the majority of the customers' ac-

counts, since the company has the privilege of making payroll deductions on account of such purchases, but it is advisable that they be shown separately on the balance-sheet.

The valuation placed upon the goodwill in the balance-sheets of ice-cream companies is a subject which can be argued extensively. The majority of the larger companies today are a result of the combination or merger of several smaller units and, while goodwill usually represents the excess of cost over value received or earnings capitalized at a stated percentage, yet, in computing the goodwill paid by one ice-cream company in the acquisition of another, the amount to be paid is often predicated on the volume of business transacted in a given period, measured by the average number of quarts sold to the customers of record.

In the inventory verification, the auditor may find that certain of the raw materials are stored either in cold storage or bonded warehouses. This is true in the case of fruits and nuts, since purchases can usually be made in quantity lots and such purchases will usually exceed normal requirements and, because of insufficient storage facilities, the goods are stored. The merchandise in storage can be verified either by a certificate obtained by correspondence with the warehouse or by examination of warehouse receipts if such have been issued.

The foregoing comments relative to notes receivable also apply to notes payable, except that in the latter case the company is the maker of the note. There would be no justification for setting up as a current liability notes due one year or more subsequent to the date of a balance-sheet and jeopardizing the current position. In view of the circumstances, the notes payable should be classified according to due dates and the current debt shown as a current liability and the balance of notes maturing beyond one year from date as a deferred liability.

The following form of profit-and-loss account is suggested for use of ice-cream companies and, although certain variations from the form may be desired, it is indicative of the accounts usually encountered in the audit of a company of this character:

PROFIT-AND-LOSS ACCOUNT	
For the year ended December 31, 1930	
Net sales	\$0,000,000
Cost of sales:	
Purchases of milk, cream and dairy products	\$000,000
Purchases of fruits, nuts, flavors and extracts	000,000

Ice-Cream Manufacturers' Accounts

Purchases of egg products and food stabilizers.....	\$ 00,000	
Purchases of cartons and supplies.....	00,000	
Freight on purchases.....	00,000	
Increase or decrease in inventory.....	00,000	
Manufacturing expenses, per schedule "1".....	<u>000,000</u>	
Total cost of sales.....		<u>\$ 000,000</u>
Gross profit.....		\$ 000,000
Expenses:		
Selling and delivery expenses, per schedule "2"...	\$000,000	
Administration and general expenses, per schedule "3".....	000,000	
Bad debts.....	<u>00,000</u>	
Total expenses.....		<u>000,000</u>
Net operating profit.....		\$ 000,000
Miscellaneous charges:		
Interest paid.....	\$ 00,000	
Loss on machinery sold.....	0,000	
		<u>\$ 00,000</u>
Less miscellaneous income:		
Interest received.....	\$0,000	
Sundry credits.....	<u>0,000</u>	<u>00,000</u>
Net income, before income tax.....		\$ 000,000
Provision for federal income tax.....		<u>00,000</u>
Net income.....		<u>\$ 00,000</u>

MANUFACTURING EXPENSES

For the year ended December 31, 1930

Superintendents' salaries.....	\$ 00,000	
Factory wages.....	00,000	
Ammonia and calcium.....	0,000	
Coal.....	0,000	
Water.....	0,000	
Lubricants.....	0,000	
Power.....	0,000	
Insurance.....	0,000	
Repairs.....	0,000	
Sundry supplies.....	0,000	
Creamery expenses.....	0,000	
Depreciation.....	0,000	
Miscellaneous expenses.....	<u>0,000</u>	
Total manufacturing expenses.....		<u>\$000,000</u>

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SELLING AND DELIVERY EXPENSES

For the year ended December 31, 1930

Selling expenses:	
Salesmen's salaries	\$ 0,000
Salesmen's commissions	0,000
Salesmen's expenses	0,000
Telephone and telegraph	0,000
Advertising	0,000
Stationery and printing	0,000
Insurance	0,000
General selling expenses	0,000
Delivery expenses:	
Drivers' wages	0,000
Ice and salt	0,000
Repairs to cabinets, cans and tubs	0,000
Gasoline and oil	0,000
Tires and tubes	0,000
Licences	0,000
Insurance	0,000
Garage rentals	0,000
Depreciation	0,000
Livery charges	0,000
Automobile and wagon repairs	0,000
General delivery expenses	0,000
Total selling and delivery expenses	<u>\$000,000</u>

ADMINISTRATION AND GENERAL EXPENSES

For the year ended December 31, 1930

Officers' salaries	\$ 0,000
Office salaries	0,000
Telephone and telegraph	0,000
Printing and stationery	0,000
Dues and subscriptions	0,000
Legal and professional fees	0,000
Traveling expenses	0,000
Employees' ice cream	0,000
Donations	0,000
Insurance	0,000
Taxes	0,000
Depreciation	0,000
Office supplies	0,000
Sundry general expenses	0,000
Total administration and general expenses	<u>\$000,000</u>

Ice-Cream Manufacturers' Accounts

The ice-cream business is highly seasonal, since climatic conditions materially affect the volume of sales, and for this reason manufacturers endeavor to distribute operating and fixed expenses on an equitable basis in order that the months showing the larger volume shall also bear the larger expense. The distribution of the depreciation expense on the basis of production is an interesting feature in the audit of the accounts of an ice-cream company. A general idea of the seasonal trend of the business can be obtained by reference to the following table of percentages which has been established for charging off depreciation by one of the large manufacturers over a period of years:

<i>Month</i>	<i>% of annual rate</i>
January	% 04.7083
February	04.6035
March	05.9429
April	06.9992
May	10.1994
June	11.9701
July	15.2260
August	12.9527
September	09.3355
October	07.4800
November	05.7431
December	04.8393
Total	%100.0000

The annual rates of depreciation on the various classes of assets are determined by the management, as in other industries, and the percentage of the annual rate shown above is charged to profit-and-loss each month. Rates of depreciation of the several classes of assets are shown in the following table, and, while it is not intended that these be used as a standard, they are suggestive of rates usually found:

RATES OF DEPRECIATION	
Buildings:	
Brick and concrete	2%
Frame	3%
Machinery	5%
Automobile trucks	20 to 33½%
Cabinets:	
Ice and salt	15 to 20 %
Mechanical	10 to 15 %

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Cans and tubs	20%
Horses and wagons	10%
Furniture and fixtures	10%

A statement showing the volume of business transacted in gallons, the various units of cost per gallon, and the margin of profit should be helpful to a client. If the company operates from more than one location an analysis of sales by territories would be of interest to the sales department, and the necessary sales effort could be applied in the areas in which decreases are shown. From the standpoint of manufacturing it might be prudent to determine the ratio of the quantity of raw materials to the finished product and to set forth the information in the text of the report.