Accounting for Maritime Carriers.

Philip Chi-hwa Cheng

Louisiana State University and Agricultural & Mechanical College

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A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
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in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Accounting

by

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May, 1964
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ABSTRACT

Ocean transportation is an important industry in a nation's economic policy as well as in the inventory of a nation's military strength. The operation of steamship companies involves not only ships afloat and their cargo and passengers, but also various shore activities which serve ships. Shipping management needs information with which to make decisions and exercise control. Accounting records and reports are one important source of such information. Although the basic nature and function of accounting remain the same in all businesses, no one accounting system can be applied directly to more than one industry unless the industries are identical in nature and management. In order to present a general knowledge of shipping operations and a deeper understanding of accounting for maritime carriers, this study is primarily concerned with major shipping operations as well as peculiar accounting concepts, techniques, practices, and problems of the industry.

To obtain the data included in this paper, research has been conducted and material has been reviewed and obtained from appropriate texts, periodicals, and United States government documents. In addition, direct personal correspondence and interviews with selected steamship companies have been utilized.

In general, the shipping industry may be classified as tramp shipping, liner service, and industrial carrier. Each of these
services has its variations, each performs definite functions, and each is so organized and managed as to make possible the attainment of the functions.

Shipping subsidies are financial aids to the shipping industry by a government to improve the competitive position of ocean carriers flying its national flag on the high seas. In the United States, construction-differential subsidy and operating-differential subsidy are specified by Merchant Marine Act of 1936.

The shipping law and other governmental regulations have appreciably influenced accounting policies and practices of steamship companies. The uniform system of accounts prescribed by the Maritime Administration is a framework of accounting systems for all subsidized steamship companies. The subsidized companies are largely consistent with each other in the accounting terminology, reporting forms, classification of accounts, statutory reserve funds, and valuation of vessels. Non-subsidized companies are much less consistent with each other in these accounting practices.

Despite the diversity of accounting and finance practices prevailing in the shipping industry, there is a unique feature in the operation of vessels that is commonly applicable to all steamship companies. The voyage is an accounting unit in determining operating results. That is, all freight and passenger revenues and operating expenses are recorded by vessel and by voyage. Each voyage of the individual vessel is considered as a separate venture. Freight and passenger revenues are customarily payable in advance; and vessel operating expenses are incurred during the course of a voyage. Voyages which are not completed at the end of each fiscal period become an
accounting problem. The accounting treatment of incompletely voyages may be considered in various ways.

Shipping industry taxes differ greatly from those of any other industry. This is particularly true of the federal taxation of subsidized steamship companies. Thus, special accounting treatments are required to meet tax regulations.

Standard costs and budgets are two important planning and control tools which have not been fully developed in the shipping industry. The material covered in this document is at best a starting point. It gives some indication of the types of changes that may be expected so as to provide a guide for future exploration and development. It is likely that the pace of improvements will increase and that shipping management will become increasingly scientific, in the literal sense of the word.
CHAPTER I

INTRODUCTION

It is commonly recognized that foreign trade consists not only of selling goods but also of buying goods abroad. International commerce consists of the movement of commodities in both directions across international boundaries. Exports and imports are the opposite pages of a commercial nation's ledger. Many countries and geographical areas are non-contiguous, separated by water, and the ship remains as the principal means of contact. For centuries, the ship was the main instrument of commerce and communication between countries. Generally speaking, water transportation is cheaper than air and land transportation. At the present, about three-fourths of the trade among nations is transported by waterway.¹

Ocean shipping is an industry characterized by great complexity and by a magnitude of interests. These interests include the ship-designer, the shipbuilder, the shipowner or operator, the ship mortgagee, the cargo owner, the shipper, and the consignee. To these must be added the men who serve the ship afloat and ashore - the officers, crew members, and shore workers - both of which groups bear a somewhat different relationship to the shipping process than do workers to a manufacturing

industry. Furthermore, there is the interest of government, for governments have been interested in shipping ever since ships began to sail the seven seas. However, at the vital core of the shipping industry is the shipowner or operator. Although his interests coincide or overlap at times with other interests, it is impossible for a volume as this to present the viewpoint of the many interests involved.

PLAN OF THE DISSERTATION

Due to the growth of specialization and the increasing size of firms, the separation of ownership from management has been the prevailing trend in the modern shipping industry. Management is charged by the owners with two things: (1) the preservation of the property of the business, and (2) the maximization of the profit of the business. In order to accomplish these objectives, it is necessary for management to exercise control. Accounting is a useful tool for managerial control, and it plays an important role in the shipping industry as well as in the other industries.

Thousands of volumes have been written in the area of accounting for manufacturing and merchandising industries, but very few publications have dealt with accounting for shipping industry. Since there is no comprehensive volume dealing with steamship accounting, this dissertation is intended to present a systematic writing on the subject matter in order to give a general knowledge of shipping operations and a deeper understanding of accounting for maritime carriers.

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\[2^\text{Ibid.}, \text{p. 221.}\]
Methods of Research

This study encompasses the subject matter of both steamship operations and accounting, and is designed to foster a better understanding of these two. Emphasis is placed upon application of accounting principles to the shipping business. Since little has been written in the area of accounting for steamship companies, the literature provides only partial material for this study. A complete bibliography for the study might well include all of the outstanding and pioneering work in the area.

The regulated accounting system used here in the United States is a helpful source of information. The United States Merchant Marine Act of 1936 and other governmental regulations have some effects upon accounting policies and practices.

The preliminaries are followed by a number of surveys and interviews with selected steamship companies. The information and data secured from practitioners provided valuable materials in the preparation of this volume.

Scope of Presentation

Transportation may be defined as a service which creates utility through the physical transfer of persons or commodities from one place to another. There are five major kinds of transportation, namely, railroad, highway, airway, waterway, and pipe line. All the business enterprises have their common nature. But each industry has its particular characteristics in operation, management, finance, and accounting.

This volume is not intended to show how a detailed shipping business is operated. Neither is it concerned with the general accounting
procedures and practices. It is primarily concerned with major shipping
operations as well as peculiar accounting techniques, practices, and
problems of the industry.

**Organization of Volume**

To organize the plan, the dissertation is divided into four
parts. The rest of this chapter will highlight operations of the ocean
shipping and the organizational structure of the steamship business.

Before going on to discuss the peculiarities of the steamship
accounting as it is used in the industry, it is necessary to consider
some special accounting problems and practices in the following chapter.
In connection with these phases, emphasis will be placed on subsidized
companies.

On these foundations, Chapters III through VIII will proceed to
the peculiar accounting for maritime carriers. Some special considerations
and critical analyses will be developed.

Finally, a summary and conclusion chapter will be presented.

**OPERATIONS OF SHIPPING INDUSTRY**

Ocean shipping industry involves not only the ships afloat and
their cargo, but also the many shore activities that serve the ships.
The industry can be classified under the following three major types
of business: (1) tramp shipping, (2) liner service, and (3) industrial
carrier. But it should be noted that there is no clear-cut classification since some steamship companies may be engaged in two types of

---

3Grover G. Huebner, *Ocean Steamship Traffic Management* (New
shipping. It is not uncommon that a liner company may operate some freighters under tramp service.

**Tramp Shipping**

The development of ocean shipping almost coincides with the development of the human race. Tramp shipping began the early history of the ocean transportation. A tramp can be defined as a ship not engaged in a regular schedule, but taking on cargo as offered. The tramp ship does not have regular sailing schedules and routes. Tramp shipping is rendered by vessels that may be hired to carry cargo of any kind not requiring vessels of special design, and is operated singly over any ocean route and to any destination allowed by physical conditions such as harbour depths or by legal requirements. Tramp ships are chartered either for a particular trip or for a stipulated period. They are sometimes chartered by a regular liner company to operate in the liner service, but at such times they temporarily cease to perform as a tramp service.

In general, all goods which are transported in such quantities that a vessel can be hired or chartered for the purpose of carrying them, are the natural cargo for tramp vessels. This means, primarily, full ship-lots of bulky, low-value commodities such as coal, ore, grain, cotton, lumber and logs, and scrap metal. But tramp cargo does not of necessity have to consist of bulky raw materials. If a manufacturer

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has to ship enough heavy goods such as steel products, locomotives, or agricultural machineries to fill a vessel, he almost invariably charters a tramp.

The typical tramp differs radically in its construction from the passenger liner, or even the cargo liner. It is built with a view to economy - not speed - in such a way as to fit it to as many trades and cargoes as possible. The capital and operating costs of tramp vessels are less than those of regular line vessels. Tramps are of medium size, draft and speed, and are not built for maximum speed and passenger convenience, but for maximum economy and freight capacity without sacrifice of ability to enter harbours and channels of average water depth.

Tramp owners do not need to provide themselves with permanent port facilities, nor do they need to maintain expensive, large offices, and freight-soliciting agencies or conduct advertising campaigns. They usually operate with comparatively small office staffs, and they rarely maintain foreign branches. Tramp owners usually plan the voyages of the fleet, but chartering arrangements are made through ship brokers or chartering agents located at the principal ocean ports everywhere throughout the commercial world. Tramp operators usually are small owners, sometimes owning only one or two ships, and in some instances, the masters of their ships have a financial interest in the firm. Even though tramp companies are low-cost operators, they are at a disadvantage as compared with liner companies in that tramp companies are not adapted to carry the very profitable, high-value cargo that moves in less than shipload lots and requires fast delivery. Nor do the tramps have the advantage of regular customers as have many of the cargo liners or combination passenger-cargo liners.
Beginning a number of years before World War II, there have been tendencies towards: (1) the gradual conversion of the tramp shipping into liner service, (2) successful competition of an established line where tramps have succeeded in opening up a more-or-less regular trade, and (3) the absorption of tramps by liners. However, these trends do not necessarily suggest the complete disappearance of tramp shipping.

Two merits serve as a guarantee, not only for the continued usefulness of this type of shipping, but also assure it a wide field of activity. These merits are economy and flexibility. The tramp is the chosen tool for carrying seasonal bulk commodities. It does not pay to build up a liner service for seasonal trade. Since seasonal changes do not fit into schedules, flexibility is required on the part of the carrier, and that is the decided advantage of tramp shipping.

When a cargo owner needs a ship to transport his bulk cargo, he should first sign a charter-party with the shipowner, which is a written agreement between two parties in connection with the shipment. Usually, a charter-party should at least contain the following clauses:

1. Title of the contracting parties.
2. Name and description of the vessel.
3. Cargo and quantity.
4. Remuneration and payment.
5. Laydays.
6. Loading and discharging ports.
7. Brokerage.
8. Despatch and demurrage.
9. Cancelling date.
10. Act of God clause.
11. Arbitrating clause.
12. General average clause.

^Ibid., p. 46.

13. Penalty for non-fulfillment clause.
14. Lien clause.
15. Subletting clause.

After the charter-party has been signed, the shipowner should make the vessel available for loading. The charterer should get the cargo ready for loading and prepare a place for discharging the cargo. The steamship company or its agent will issue a bill of lading upon completion of loading. The charterer usually should remit the entire amount of freight to the shipowner's bank account as designated in the charter-party before commencing to discharge cargo at the first port of destination.

**Liner Service**

The common carrier is the direct result of the demands of an expanding foreign trade. The liner is a ship that offers regularly scheduled services. When the traffic between given terminals or over particular routes becomes heavy and regular, line service is established. The ship is available for, and actually carries, a number of shipments received from different shippers consigned for delivery at various ports of destination along the ship's routes.

The number of ships in a line, and the frequency of sailing are dependent upon the volume of business. Whether a company has the same number of vessels in operation at all times will depend on the seasonal or periodical fluctuations in traffic. The company operating a freight line sometimes owns enough ships to handle only the business of the periods of lighter traffic and charters such additional vessels as may be needed from time to time.

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The ships operated in the regular line service may be grouped into passenger liners and freight liners.\textsuperscript{10} They are discussed below.

**Passenger Liners:** Passenger liners have a relatively small cargo space and mainly carry passengers. Passenger liner operators receive the greater part of their revenue from carrying passengers, although even the finest of these ships carry mail and high-value goods. Passenger liners tend to sail among a few ports at which passengers assemble. However, at certain seasons, it is a common practice for steamship companies operating luxury passenger liners to operate cruises to areas not actually related to their regular routes. Ordinarily these cruises are planned to furnish employment for the passenger liners in the so-called "off season". Steamship companies usually withdraw one or more of their luxury ships from the North Atlantic run during the winter and schedule them for cruises in the Mediterranean, in the Caribbean, or around the world.

Passenger ships of lesser magnificence are designed and built to carry fewer passengers and more cargo. Those ships that carry 80 or 100 passengers can also load several thousand tons of cargo. International regulations limit the number of passengers carried by a freighter to twelve. Any vessel carrying over twelve passengers is classified as a passenger or passenger-cargo vessel and is required to meet certain safety and construction standards established for this type of ship.\textsuperscript{11}

\begin{itemize}
\item \textsuperscript{10}McDowell and Gibbs, *op. cit.*, p. 49.
\end{itemize}
Freight Liners: - Freight or cargo liners do not necessarily have to be a different type of vessel from the tramp. It may simply be a difference in ship use, not in ship types, but the modern tendency is toward the construction of ships best suited to the particular use to which they are to be put. Freight liners may differ from the tramps in that they usually are larger, faster and more elegantly equipped.

Freight liners carry cargo exclusively, but nevertheless operate over definite routes on fixed sailing schedules. They are employed to carry the many different kinds of freight which move over routes in less-than-ship load lots. In addition, freight liners may carry bulky commodities such as grain or sugar, in order to ballast the ship. Freight liners are willing to ship these low-rate commodities so as to avoid the necessity of carrying profitless weights of ballast. Liner cargo is also called dry cargo, in contrast to the fluid or semifluid cargoes carried by tankers.

Freight liners call on a wider range of ports than do passenger liners. However, the range of ports called on by freight liners is not as extensive as the ports of tramps because freight liners often operate on triangular or quadangular routes between ranges of ports. For instance, a freight liner on the Far East - U. S. West Coast route may call at Hong Kong, Kobe, Yokohama, and Honolulu. On the west coast, the vessel may call on one or two ports, such as Seattle, San Francisco or Los Angeles, which are really the main seaports for importing and exporting industrial goods on the west coast.

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12 McDowell and Gibbs, op. cit., p. 50.
Liner operators generally use a charter-party only for relatively large amounts of shipments. It is not necessary for small shipments. Nevertheless, for both large and small shipments, the steamship company or its agent should issue a bill of lading to the shipper upon receiving the cargo.

It should be noted that the freight and passenger services of the railroads or motor carriers are distinct from one another. This distinction, however, is not so sharply drawn in the steamship companies, because almost all passenger ships carry some freight. It is true that some ships are designed to carry passengers, mail, and express almost exclusively, but the majority have considerable space for cargo. The largest and most luxurious passenger ships sailing between New York, the British Isles, and the European continent do not depend on cargo for any appreciable amount of revenue. They are representative of the highest degree of specialization in passenger vessels and have relatively small space for carrying freight. Vessels not included in this small group have larger cargo holds and fewer passenger rooms, and the freight revenue is of greater importance.

**Industrial Carrier**

An industrial ocean carrier, or privately operated carrier, is more concerned with intracompany relationships and particularly with scheduling the movement of materials in order to meet the requirements of the company's operating or production department. This type of steamship organization can easily be found in the fruit, coal, lumber, petroleum, and iron ore industries. Tanker transport is an example

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of the typical industrial ocean carrier and is discussed below.

The tanker owner usually contracts with the petroleum industry under a time charter basis. He offers the use of a fully staffed vessel for export or import of crude oil or other petroleum products within a certain prescribed area at a monthly rate per deadweight ton, makes voyages as directed by the charterer, and assumes all expenses of operating the tanker except the cost of fuel, port charges, and canal tolls. When entering into a time charter-party, these three items of expense cannot be reasonably estimated by the tanker owner, and he does not know where his vessel will be sent, but he can estimate with reasonable accuracy his expense for wages, provisions, stores, insurance expenses, depreciation charges, and repairs and maintenances. The time charter is frequently executed for a period ranging from several months to several years in length.

... The tankers are generally owned by the oil companies whose products they are distributing. Tankers may be owned outright by the refinery, by its subsidiaries, or by its affiliates.

The operation of a fleet of the industrial carrier is simpler than that of the common carrier which carries general cargoes. The former requires a simple organization structure. The organization segment responsible for operating such ships is usually called a marine department, or marine division, and is responsible for all phases of ship operation.

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14 A deadweight ton is 2,240 pounds of carrying capacity available for cargo, fuel, water, or store.

15 The Standard Oil Company of New Jersey is the owner of the largest fleet of tankers in the world. The company's tankers are owned by subsidiaries and registered under both American and foreign flags.

ORGANIZATION OF THE STEAMSHIP COMPANY

The corporate form of organization is now used by many maritime carriers in the United States. Partnership and sole proprietorship of one or more vessels were both popular and common in the United Kingdom and United States during the nineteenth century, but became inadequate with regard to capital and service when large liner operations replaced the service of the merchant-trader-shipowner.  

Organizational Structure

As far as the general form of organization is concerned, a steamship company does not differ essentially from business organizations in the other industries. Stockholders elect directors, who in turn appoint officers, such as president, vice president, secretary, treasurer, controller, and other department heads. The peculiarity of the steamship business is brought out only when the detailed organization of the various departments is studied.

The organizational structure of a steamship company varies with operation of the carrier, size of the company, geographical area covered by the business, the personal views of those in control, and other considerations. In small and medium-sized companies some functions are centered under one officer, whereas in many large companies each function is carried out by a separate department.

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17 Ibid., p. 221.
19 Ibid., p. 420.
Figure 1 on the following page shows the organization of the American President Lines, Ltd., a typical steamship liner company, and indicates how a large fleet of vessels and the many other marine properties of that particular company are organized and managed. To carry out the various functions of its steamship operations, the liner company has set up fourteen departments and eleven branches, each presided over by an executive. The company's executive office in San Francisco is the home office for the fourteen departments organized for operational purposes and the office from which basic company policies are promulgated. This company has commercial agents throughout most of the globe.

**Freight Traffic Department**

Traffic work is a sales function of a steamship company and requires a relatively large organization that is usually divided into two departments, one for freight and another for passenger business. In a small company or one less extensively engaged in the passenger business, one department may carry out both freight and passenger traffic.  

The freight traffic department is not infrequently headed by a vice president, because this department is one of most importance to the successful operation of a liner company. Because duties are numerous, the department head should devote himself in so far as possible, to administrative work and should leave the detail work to his subordinates.

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21 Bross, *op. cit.*, p. 94.
Figure 1 Organization Chart of a Large Steamship Liner Company

(Courtesy of American President Lines, Ltd.)
The freight traffic department of a tramp firm deals with one or more ship brokers who search out trade for available cargo. The freight traffic department of a liner company often deals with freight forwarders, export commission houses, or manufacturer's agents, any one of whom may control the routing of merchandise and therefore be the real shipper or customer.  

Passenger Traffic Department

Passenger liners receive the greater part of their revenue from carrying passengers. Ordinarily a vice president is in charge of the passenger traffic department and is responsible for the overall planning and direction of the passenger phases of the company's business. The department head is primarily concerned with establishing the rates of passenger fare, classifying passenger services, setting regular schedules, and so forth.

The passenger traffic department is more compactly organized than the freight traffic department because the latter has complicated procedures in cargo handling. In the case of a freight liner company, its passenger traffic is of minor importance, the passenger business may be handled by the same department that deals with freight solicitation.

Ship Operations Department

The ship operations department is the production department of a steamship company. Since a very high proportion of the company's total expenditures is to defray the cost of activities carried on by

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22 McDowell and Gibbs, op. cit., p. 129.
23 Huebner, op. cit., p. 5.
this department, its degree of efficiency and economy is a major factor in determining whether the business makes a profit.

The department is usually supervised by a vice president who is directly responsible to the chief executive for all phases of the various activities of the department. These include operating the company's ships, administering all seagoing personnel, and determining requirements and needs for stores and equipment. A close coordination should be maintained not only with other departments of the company, but also with governmental agencies, labor unions, and stevedoring companies.

**Engineering Department**

The engineering department is responsible for the maintenance, inspection, and repair of the vessels' machinery and other floating equipment as well as for the material condition of all mechanical equipment. The department is also responsible for the company's new vessel construction or conversion programs.

**Finance Department**

For a steamship company, and especially for a subsidized company, financial and accounting phases take on an aspect that differs somewhat from that of other businesses.\(^2\) The finance department is traditionally headed by a treasurer who may be the vice president of the company. The department head is concerned with accounting activities, issuing securities, maintaining insurance programs, managing the company's banking and foreign exchange relations, receiving revenues from

passenger and freight services, and disbursing money upon vouchers. 25

For a subsidized steamship company, there are problems of applying for governmental subsidies, as well as problems of investing additional capital in new vessels and in reconditioning vessels already in the fleet. In addition, a close liaison with the Maritime Administration should be made in order to fulfill all accounting requirements as prescribed by that governmental body. 26

Ship Complement

A large passenger liner carries 60 or more officers and crew members. The commander of the merchant vessel, and the sole representative of the management aboard the vessel is the master, or captain. The master has the legal authority to control all interests on a voyage.

Under the master, the operation of a ship is divided into three departments - deck, engine, and steward - and into licensed and unlicensed personnel. Figure 2 illustrates an organizational chart of a passenger liner.

In addition to the master, the licensed operating personnel in the deck department include the chief, second, third and fourth mates. Under the master in this department, there are one surgeon, nurses, and

25 In some steamship companies, accounting functions are performed by the controller who is under the supervision of the vice president-treasurer, such as American President Lines, Ltd., Delta Steamship Lines, Inc., and Lykes Brothers Steamship Co., Inc.

radio operators all licensed. The purser serves as ship bookkeeper and cashier and assists the master responsible for general affairs. The responsibility of a chief purser afloat is to the master of a vessel, and ashore to the traffic and finance departments of the steamship company.

The intricate and vital mechanical department of the ship is the charge of the chief engineer, who is responsible to the master and the steamship company. The chief engineer and his five assistant engineers comprise the vessel's licensed personnel in the engine department and supervise the work of the unlicensed engine personnel.

The steward department is headed by the chief steward, to whom the master delegates supervision of the food served, of supplies and gallery, and of the cleanliness of living quarters. Since his ship is judged more by the quality of the table set than by any other one standard, the chief steward of a passenger liner is particularly aware that the food served must meet the highest standards.
Figure 2 Organizational Chart of a Passenger Liner

(Courtesy of Delta Steamship Lines, Inc.)
CHAPTER II

SPECIAL ACCOUNTING PROBLEMS AND PRACTICES

Accounting is the language of business and thus is the primary means of communicating business data. It involves the systematic recording, classifying, summarizing, presenting and interpreting of the financial and other transactions which affect the operating results and the financial conditions of the business. The scope of steamship accounting includes the regular bookkeeping process such as the payment of bills, wages, and other disbursements, the recording of freight and passenger revenues, as well as the analysis and interpretation of the recorded data. It also includes the recording and interpretation of asset, liability, and equity accounts.

The general principles of accounting are, of course, the same in all businesses. However, the accounting problems and practices may vary among different types of industry. For this reason, the scope of this chapter is limited to some special steamship accounting problems and practices with particular attention being given to subsidized operators in the United States. A thorough knowledge of the material covered here provides the necessary foundation for the remaining chapters of the dissertation.

EFFECTS OF GOVERNMENTAL REGULATIONS

With concentration of economic power, governmental regulation of
economic activity has become more pronounced. Regulatory bodies have been empowered by laws to fix equitable rates and to impose special reporting requirements on water carriers, and have by this means exercised some influence on steamship accounting.¹

The United States government is interested in the regulation of water carriers engaged in serving four segments of trade: (1) inland waterways and coastwise trade, (2) intercoastal trade, (3) offshore trade between the United States and its territories and possessions, and (4) international trade. Water carriers operating in the first two categories are regulated by the Interstate Commerce Commission, and they are not subject to the types of regulation discussed in this chapter. The last two fall within the jurisdiction of the Maritime Administration.

The Maritime Administration has prescribed a uniform system of accounts and reporting requirements as means of exercising its control over ocean carriers. In addition, governmental regulations have considerably influenced accounting for shipping subsidies and income taxes. The subsidized liner companies have certain accounting problems not shared by the non-subsidized companies, however, all accounting problems of the non-subsidized companies are shared by the subsidized liner companies.² The governmental influences will be discussed as appropriate.


SHIPPING SUBSIDIES

Mercantile marine fleets have played a vital role in history, and their contributions both in time of peace and of war have been of the utmost value. It has become a common practice for most nations to subsidize their shipping industry for one purpose - to maintain a shipping industry able to meet the nation's minimum economic and military needs for ocean transportation. There are numerous forms of direct as well as indirect governmental aids practiced in various countries. These shipping subsidies are granted to improve the competitive position of ocean carriers flying the national flags on the high seas.

In the United States, the Merchant Marine Act of 1936, as amended, provides for two types of subsidy to compensate the ocean carriers for lower building costs which prevail in foreign nations and lower operating expenses for foreign vessels. They are: (1) construction-differential subsidy, and (2) operating-differential subsidy.

Construction-Differential Subsidy

The Maritime Administration is allowed to pay a construction-differential subsidy, under certain conditions, amounting to the difference between the cost of constructing a ship in an American shipyard and the reasonable estimated cost of constructing the same type of ship in a foreign shipyard. The law provides that the subsidy may not exceed 50 percent of the domestic construction cost.

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3 Sydney Houston, "The Steamship Business from the Accountant's Point of View," N.A.A. Bulletin, September 1, 1936, pp. 11-12.

Eligibility for construction-differential subsidy is based upon the following factors:

1. The proposed ship will be operated on a foreign trade route essential for promotion of such commerce.

2. The proposed ship is of a type adequate to meet foreign competition on a specified route.

3. The proposed ship shall meet certain specifications in regard to the navy requirements for rapid conversion as a military or naval auxiliary.

4. The steamship company possesses the financial and operating ability requisite not only to operate the proposed vessel but also to continue adequate service on the essential route.

The above requirements also apply to reconstruction of already existing ships if the Maritime Administration finds the case complying with the purposes and policies of the law. A company applying for a construction-differential subsidy must submit detailed plans to the government.

Two methods for paying a subsidy are specified by regulations.

Under the first method the Maritime Administration awards the construction contract to the low-bid American shipyard and pays the shipyard the full contract price of the new ship. The ship is then sold by the government to the American steamship company at a price equal to the estimated foreign construction cost of the ship.

Under the second method, if the steamship company prefers to make its own contract with the shipyard, the company is authorized

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to get bids and submits them to the Maritime Administration for approval. In this case, the government pays to the shipyard the sum of the construction-differential, and the steamship company pays the balance of the domestic construction price of the ship.

Analysis of the above two methods provides that the purchase price of a new ship paid by the steamship company is the same regardless of which method is employed. That is, the use of the two methods does not affect the amount of construction-differential subsidy paid directly to the shipyard or the sum of the full contract price received by the shipyard.

Occasionally, fixed assets are donated to a manufacturing company by municipalities as an inducement to locate a plant or other facilities in the area. Donations by municipalities usually take the form of land sites or buildings. The purpose and nature of these donations are different from those of the construction-differential subsidy. The municipal donation may be subject to some condition of particular performance on the part of the recipient company, such as the employment of a certain minimum number of inheritants by a given date, or continued operations over a stated period of time. Final free title to the assets is contingent upon fulfillment of the conditions specified by the municipality. In case the gift is conditional, the asset should be treated as a contingent asset pending the performance of the contractual obligation.7

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The construction-differential subsidy is designed to compensate for the cheaper cost of purchasing a new vessel in foreign shipyards since it costs more to construct vessels in domestic shipyards than it costs to build them in foreign countries. Therefore, the construction-differential subsidy is paid by the government to domestic shipyards, primarily to protect and foster the interests of the domestic shipbuilding industry. The direct beneficiary of the construction-differential subsidy is domestic shipyards, not steamship companies. Since steamship companies have the freedom to build their new vessels either in domestic shipyards or foreign shipyards, whichever is lower priced, they are not required by shipping regulations to operate the subsidized vessel for a stipulated period of time. Thus, there is no reason to treat the subsidized vessel as a contingent asset.

It has long been recognized to record donated assets at their fair market value. In other words, the cost principle as applied to the property acquired by donation should be expected. Strict adherence to the cost principle would involve the recognition of donated assets at only the amount of costs incurred by the recipient company in acceptance of the donation. Assets should be fairly expressed, they should be neither overstated nor understated. Since

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the objective of accounting is to reflect accountability, it is appropriate for the accountant to report some value for all assets which require accountability. A major justification for recording purchased assets at cost is that cost at that time represents more satisfactory evidence of value than any other consistent basis. When a property is acquired by donation, cash outlay is no longer a reasonable basis for asset accountability. Under such circumstances, the fair market value of the property becomes the basis for a debit to the asset account and a credit to the paid-in surplus account.

Since the construction price of new vessels in domestic shipyards is higher than that in foreign countries, the construction-differential subsidy is calculated equal to the amount of the difference between the domestic and foreign construction price. On the basis of the foregoing fair market value conception, the full construction price of the subsidized vessel is charged to the asset account and the governmental subsidy is credited to paid-in surplus account. The entry on the books of the steamship company is as follows:

\[\text{Floating Equipment - Vessels} \quad xxx \\
\text{Cash} \quad xxx \\
\text{Paid-In Surplus} \quad xxx\]

It should be noted that vessels are floating equipment and that they have a substantial degree of resource mobility in a free enterprise economy. Consequently, a competitive price will be established in a free market due to the unwillingness of the buyer to pay more for a

\text{Ibid., p. 340.} \\
\text{Ibid., p. 340.}
particular vessel and reluctance of the seller to accept less.\textsuperscript{14} As far as the world economy is concerned, the domestic construction price as applied to a subsidized vessel is not the "true" fair market value. For this reason, the practice followed by steamship companies is to record the subsidized vessels at their net cost. A brief note may be made in the accounting records for the full construction price.

The entry on the books of the steamship company is shown below:

\begin{center}
\begin{tabular}{ccc}
\text{Floating Equipment - Vessels} & \text{xxx} \\
Cash & \text{xxx} \\
\end{tabular}
\end{center}

To apply for the construction-differential subsidy, accounting personnel participate in preparing reports which show the company's financial and operating ability to operate the prospective ship in the contemplated service in foreign trade. A set of financial reports is required to be submitted to the Maritime Administration for this purpose.

Operating-Differential Subsidy

The Merchant Marine Act of 1936, as amended, has provided operating-differential subsidy to the merchant fleet of the United States. This type of subsidy provides governmental assistance to the subsidized company in an amount equal to the excess of certain vessel expenses incurred by the company over comparable vessel expenses of its principal foreign competitors.\textsuperscript{15} The impression that through


operating-differential subsidy the government guarantees an American steamship company a profit is completely erroneous.  

This subsidy is carefully determined by the Maritime Administration. The payment is made to the subsidized company for the difference between American costs of ship operation in such items as wages, subsistence, repairs and insurance, and the costs of foreign competitors operating the same type of ship on the same routes when the American steamship company is at a substantial disadvantage. However, no parity payment is made for fuel, cargo handling, port charges, foreign purchases, shore employees, and administrative expenses.

A steamship company applying for the subsidy must meet the following requirements:

1. The regular service to be rendered by the company will promote the foreign trade of the United States and will compete with foreign vessels.

2. The company must operate its ships in the most economical and efficient manner.

3. The company must replace its ships as they become obsolete with ships built in American Shipyards.

4. The company must hire officers and crew members of the ships with American citizenship.

5. The company must supply its ships with materials produced in the United States and repair its ships in the United States, except in an emergency.

6. The company is required to repay the government one half of the net profit in excess of ten per cent per annum of

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the capital necessarily employed\textsuperscript{18} in the operation of the subsidized ship with profits and losses to be averaged over a ten-year period, up to the full amount of the subsidy granted.\textsuperscript{19} In good times the company may thus return all of the subsidy received.

7. A subsidized company may not include more than $25,000 salary for any officer of the company as a business expense in calculation of earnings for recapture and reserve fund deposit purposes.

To preserve funds for purchase of new vessels, the subsidized steamship company is required by the law to maintain a "capital reserve fund" and a "special reserve fund." These reserve funds are discussed in Chapter IV.

For purposes of applying for operating-differential subsidy, the accounting department should maintain special records. The amount of subsidy due from the government should be carefully calculated. The cost of each subsidizable item is worked out by the company and is checked by the auditors of the Maritime Administration. The government auditors also verify the special fund accounts in order to know whether subsidized companies comply with the law.

\textsuperscript{18} Merchant Marine Act of 1936, as amended, states that the term "capital necessarily employed in the business" does not include borrowed capital. The term is defined in Code of Federal Regulations, Title 46, Section 291.5, as amended, as "part of the net worth of a subsidized contractor in the beginning of the accounting period."

\textsuperscript{19} In actual practice, the recapture is estimated throughout the period and is retained by the Maritime Administration by reducing subsidy payments, with any necessary adjustments being made at the end of the ten-year period.
In addition, the subsidized company is required to submit to the Maritime Administration the following financial reports. A non-subsidized company, of course, will not need of these practices which a subsidized company must utilize.

1. Balance sheet - To be prepared as of March 31, June 30, September 30, and December 31 of each calendar year.

2. Income Statement - To be prepared for the period from January 1 to March 31 of each calendar year, and succeeding quarters of the calendar year.

3. Summary of vessel operating statements by service and vessel type - To be prepared for each quarter of the calendar year for subsidized and non-subsidized voyages separately.

Governmental subsidies provide an additional source of revenue not found in ordinary commercial industries. Upon the completion of a voyage, the operating-differential subsidy is carefully computed. Since the accrued subsidy is subject to final determination by the Maritime Administration, it is not collectible until audit by the governmental agency. Accordingly, such operating-differential subsidy may not be received in full during the current year. The entry on the books of the steamship company is as follows:

Accounts receivable - Maritime Administration xxx
Operating-Differential Subsidy xxx

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21Reynolds, op. cit., p. 11.

It should be noted that operating-differential subsidy contracts with the Maritime Administration do not guarantee a profit to steamship companies, but merely reimburse such companies for higher operating costs mainly due to high crew wages on American ships compared to the wages on foreign flag vessels in competition with the American ships. The subsidization on crew wages, repairs and hull insurance constitutes approximately 90% of the total operating-differential subsidy.  

It is obvious that the subsidy is merely a payment to American workers because of the high standard of living and high wages over the comparable operating costs of foreign competing vessels. Although it seems logical that the subsidy should be deducted from the specific vessel expense accounts on which the subsidy is computed, it has been found more convenient to compute the voyage results on actual revenue and actual gross expenses, and then to add the subsidy to (or deduct it from) voyage losses. This shows the new amount of voyage profit after operating-differential subsidy. The income statement presentation of the subsidy may be shown as follows:

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23This figure is substantiated by 1962 annual reports received by the writer from Lykes Brothers Steamship Co., Inc. and United States Lines Company.


25Reynolds, op. cit., p. 11.

26This form of presentation is generally used by most steamship companies in their annual reports, such as American President Lines, Ltd., Lykes Brothers Steamship Co., Inc., and United States Lines Company.
Terminated Voyage Results:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue from Vessel Operations</td>
<td>$161,924,145</td>
</tr>
<tr>
<td>Expenses of Vessel Operations</td>
<td>$166,321,789</td>
</tr>
<tr>
<td>Difference</td>
<td>($4,397,644)</td>
</tr>
<tr>
<td>Operating-Differential Subsidy</td>
<td>$38,456,972</td>
</tr>
<tr>
<td>Voyage Results</td>
<td>$34,059,328</td>
</tr>
</tbody>
</table>

Governmental aids are given to those interested in ocean transportation for economic and military reasons. By fostering its shipping interests, each nation hopes to increase its foreign trade, develop thereby its domestic industries and commerce, and thus promote its general economic progress. Shipping subsidies have taken various forms. Methods of subsidization vary with governmental policies. Some maritime countries grant a lump-sum to steamship liner companies on specified routes for carrying the mails; and others subsidize their steamship companies based on the length of the voyage for securing regular trade communications, domestic and colonial connections, and partially for the accommodation of the migration of people. If a subsidy is computed on the basis of the length of a voyage, it may be included under voyage revenue. The entry and the income statement presentation of the subsidy are illustrated below:

27 Before the passage of the Merchant Marine Act of 1936, a flat payment per annum was made to steamship companies by the United States government for maintenance of certain transatlantic service. It was called mail pay. See Reynolds, op. cit., p. 10.


Accounts Receivable  xxx
Operating Subsidy  xxx

Terminated Voyage Results:
Revenue from Vessel Operations  $145,632,780
Operating Subsidy  15,431,769
Total  $161,064,549
Less Expenses of Vessel Operations  12,476,935
Voyage Results  $ 48,587,614

If a subsidy is paid on a lump-sum basis not related to the number and length of voyages, it may be considered as other revenue. Since such subsidy is usually paid by the government once or twice a year, it is advisable to record the subsidy on the books of the steamship company when cash is received. The following are illustrations of the entry and the income statement presentation.

Cash  xxx
Operating Subsidy  xxx

Terminated Voyage Results:
Revenue from Vessel Operations  $185,798,246
Expenses of Vessel Operations  128,435,978
Voyage Results  $ 7,362,268
Other Revenue:
Governmental Subsidy  $ 4,000,000
Agency Fees  481,563
Total  $11,843,831

Income Tax Considerations

As mentioned previously, the construction-differential subsidy is actually a subsidy to the shipbuilding industry in the United States. Since this governmental subsidy is not a payment to the steamship company, it does not constitute taxable income to the shipping firm.31

30Ibid., p. 7.
The major purpose of the operating-differential subsidy is to put American steamship companies on a parity with foreign competitors which operate at a far lower cost than that prevailing in the United States. Based on this concept, it appears that the operating-differential subsidy should not be taxed. However, tax regulations specify that such income is reportable in full as received.\(^{32}\)

As it has been discussed in the preceding section, the operating-differential subsidy may be included in a steamship company's revenue or applied to reduce its expenses. So far as the United States taxation is concerned, either theory will result in the same taxable net income.\(^ {33}\)

**VOYAGE ACCOUNTING**

From the oldest known days of ocean shipping down to the present, it has been customary to account for vessel operations on what is called a venture basis.\(^ {34}\) A ship would venture forth on a long hazardous journey and might not return to its home port for many months, and sometimes years. With the passage of time, the venture became known as a voyage, and this was determined as starting and ending at the home port. With the improvement of shipbuilding, length of voyages has decreased. But the practice of accounting for each voyage has

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survived, regardless of the fact that the period of time required for a voyage may be less than a calendar month.\textsuperscript{35}

**A Unique Feature**

Voyage accounting is the principal difference between steamship accounting and that of other industries.\textsuperscript{36} The airline, railroad, or motor carrier can logically figure its revenues and expenses on the basis of a calendar month, because the results of one month may be compared with that of any other month. However, the length of a vessel's individual voyage may span several months. It is difficult to properly apportion revenue and expense items between the completed and incompleted portions of a voyage, especially when the date the voyage is to end is not known yet. Thus, the logical accounting unit for a steamship company in determining operation profit or loss of a ship is calculated on each individual voyage.\textsuperscript{37}

**Early Voyage Accounting**

Up to the late nineteenth century vessel costs were generally figured on the basis of a round trip, and most of the accounting work was done aboard the vessel by the master, because in the early days the master was practically the fiscal agent for the shipowner.\textsuperscript{38}


The master contracted most of the bills, collected freight revenues, and paid the operating expenses. At the end of each voyage the master sent to the shipowner a voyage statement showing the operating revenues and expenses. If there was any profit a draft was enclosed with the voyage statement. It is readily understood that the master of a ship was relieved as the fiscal agent long ago. However, the voyage has been retained as an accounting unit in the shipping industry.39

Present Voyage Accounting

In early days, there might be changes in vessel ownership from one voyage to another. In the present time of corporate ownership of vessels, changes occur infrequently, but the voyage has continued to be the convenient and logical accounting unit for profits. The accounting unit of operations is the completed voyage, and the accrual basis has been employed in steamship accounting.

To a tramp operator, a voyage may start with a vessel sailing in a ballast from a given port to a loading port for loading then calling at a discharge port for unloading. For instance, a vessel might sail on March 1 from Keelung, China to Los Angeles, California to load 10,000 tons of wheat, then call at Yokohama, Japan for unloading. The vessel might terminate its voyage upon completion of discharge of wheat on April 5. The period from March 1 to April 5 is called one voyage. This voyage has spent 36 days.

To a liner company, a voyage is a round trip from a given port back to the same port, and customarily ends with the discharge of the

homebound cargo, the new voyage begins with loading for the next voyage. For the practical purpose, the end of a voyage is normally taken as midnight of the day on which inbound operations are finished.\(^40\)

In voyage accounting, all revenues and expenses are classified by vessel and voyage, and each voyage of the individual vessel is considered as a separate venture. The common practice is to number the voyage by the individual vessel consecutively.\(^41\) For instance, first trip of S.S. Louisiana would be voyage number one; second trip would be S.S. Louisiana voyage number two; and so forth. A particular voyage keeps the same number for all time, and all revenues and expenses are credited or charged to the voyage account. Thus, the operating profit or loss of the particular voyage of a ship can readily be determined. Further uses of the voyage accounts may be developed by analysis, comparison, and interpretation. These will be discussed in later chapters.

\(^40\) Poole, op. cit., p. 1151.

\(^41\) Ovidio Nole, "Accounting Procedures for Steamship Companies," The Pace Student, April, 1922, p. 65.
CHAPTER III

THE ACCOUNTING SYSTEMS

"The accounting system is an organization of forms, records, and reports, closely coordinated to facilitate business management through determining certain basic and required information."¹ Since there are various types of industry, the accounting system must fit the industry. No one accounting system can be applied directly to more than one industry unless the industries are identical in nature and management. A simple system is best for a small business while a more involved system is necessary for a large enterprise. Therefore, it is inadequate to apply an accounting system of one industry to another.

In the United States the ocean shipping industry, according to its finance, has two major divisions: subsidized and non-subsidized operations. The former entirely includes so-called deep-sea liner service sailing to foreign countries. The latter is composed of steamship companies which operate primarily in the intercoastal and coastwise trade, but some of them also sail to foreign ports.² The subsidized companies have certain accounting problems and techniques not shared

by the non-subsidized companies. However, all accounting problems and techniques are almost shared by the subsidized companies.\textsuperscript{3}

The purpose of this chapter is to discuss the accounting systems of the subsidized operator and industrial ocean carrier with emphasis being placed on the former. Since the shipping operation and business organization of the tramp firms are rather simple, their accounting problems and techniques are automatically covered by that of the subsidized liner companies.\textsuperscript{4}

The classification of accounts will be explained more specifically. Forms are purposely omitted except where necessary to illustrate the application of basic accounting principles and techniques. Some of these forms are illustrated in other chapters.

SEQUENCE OF ACCOUNTING

Chronologically, the accounting procedure starts when the business transaction occurs. Accounting data are created as the financial transactions of a business are accomplished. Since the memory of human beings is limited in duration and subject to error upon recall, record-keeping is necessary in business. To meet the day-to-day requirements of management, accounting data must be recorded and processed and must be made available at the proper time to those who make decisions.

\textsuperscript{3}Marie Reynolds, "Steamship Accounting," \textit{The Woman C.P.A.}, August, 1951, p. 11.

Source Documents

Nearly every business transaction is evidenced by some written memorandum. These business papers are called source documents. Typical source documents in the steamship industry are: seaman payroll, purchase invoices, ship repair bill, fuel filled statement, marine insurance policy, agency fee memo, passenger and freight brokerage advice, canal toll receipt, lighterage slip, stevedorage report, authority for ship construction, passenger manifest, freight manifest, charter party, statement of collection from pools, and so forth. Vouchers are prepared by the evidence of source documents. These vouchers are the bookkeeper's evidence that transactions have occurred, and are the basis on which he makes the bookkeeping entries. These vouchers are then filed as permanent evidence of the transactions.

Vouchers

Almost every business organization has its voucher system which is an accounting device for the control of cash and non-cash transactions. Although the purposes and principles of the voucher system are about the same for all industries, the system must be tailored to the needs of the specific enterprise.  

In the shipping industry, four types of voucher are often used - receiving voucher, disbursing voucher, petty cash voucher, and journal voucher. Since the forms are used as a means of communicating

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6Rufino Melo, "Accounting System for an Interisland Shipping Company," The Accountants' Journal (Philippines Island), December, 1952, p. 379. This practice is also substantiated by interviews with the China Merchant Steamship Co., Ltd.; Taiwan Steamship Co., Ltd.; and Delta Steamship Lines, Inc.
The four types of voucher are discussed below.

**Receiving voucher:** - Shipping is one of the businesses that have large amounts of cash receipts every day. Because of the ease with which cash may be lost or stolen, every company should set up a system that will give effective control over cash receipts. The basic objective of cash receipt procedures and records is to make certain that all money actually collected for the company finds its way into the company treasury and that the facts of collection are accurately and promptly recorded. To achieve these ends, it is very important that collections be recorded immediately upon receipt. Steamship companies usually receive checks for passenger ticket sales and freight revenue payments. Regardless of whether the collections are made in the form of cash or check, a receiving voucher must be prepared. It is a written document on which is based the bookkeeping entry.

Figure 3 illustrates an example of the receiving voucher. The original serves as a receipt to be given to the customer for his payment. The duplicate kept by the company provides written evidence for journalizing. For accurate recording the complete account number must be shown for each entry.

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Figure 3 Receiving Voucher
(Courtesy of Delta Steamship Lines, Inc.)

Figure 4 Disbursing Voucher
(Courtesy of Delta Steamship Lines, Inc.)
**Disbursing voucher:** - The disbursing system permits no payment until a disbursing voucher has been prepared, checked and approved. All cash payments except the petty cash should be made by check. Check payments are safer than payments in currency and coin because the payee can be named specifically and the payer does not need to keep a large amount of currency on hand for making payments. Figure 4 illustrates a typical form of disbursing voucher used by a steamship company.

**Petty cash voucher:** - All significant disbursements of cash should be made by check which helps to insure that all payments are proper. However, the procedure for substantiating, approving, issuing, and recording check payments is rather costly and time-consuming. There are occasions where the amount to be disbursed is so small that it is hardly worth the effort required to pay by check through the regular routine. Thus steamship companies usually set up a petty cash fund of a stipulated amount of money. The fund is established by writing a check for the total amount of the fund. Cash is paid from the fund for entertainment, taxi hire, postage, auto or meal allowance, miscellaneous vessel supplies or service, and so forth. When the cash remaining in the fund gets below a predetermined amount, or at the end of each month, the fund is replenished.

For the purpose of recording and controlling the petty cash fund, any desired form of petty cash voucher may be used. Figure 5 is recommended for use by a steamship company. The first illustration is the face of the petty cash voucher, the second is the back which bears a description of instructions. This form of petty cash voucher is also used on the ship during its course of voyage.
Journal voucher: In the steamship company, like any other business organization, the use of special journals has taken the bulk of the entries for financial transactions out of the general journal. Although the entries in the general journal are few in number, they are usually very important and need full explanations. Before they are recorded in the general journal, these entries should be approved by a person who has reviewed the supporting documents. To accomplish these purposes, a journal voucher is customarily used in the shipping industry. This voucher may serve either as basis for journalizing entries in a general journal, or, in some instances, the journal vouchers themselves may be filed together in numerical order and thus become the general journal from which postings are made.

The form for the journal voucher is similar to that for the general journal. The principal difference is that each entry is put on a separate paper or card which provides for the signatures of those responsible for preparing, authorizing, and posting the entry. One suggested form of a journal voucher is shown on Figure 6.

Journals

The procedure of journalizing transactions is the second step of the accounting process. It is the process of accumulating and summarizing like kinds of financial facts. This may be done by means of the usual books of original entry. The record of original entry is frequently referred to as the journal, since transactions are first recorded in a journal, such as cash receipts book, voucher register, check register, freight book, ticket sales book, and general journal.8

LOCAL EXPENSE STATEMENT AND/OR PETTY CASH VOUCHER
(SEE REVERSE SIDE FOR INSTRUCTIONS)

<table>
<thead>
<tr>
<th>DATE</th>
<th>PAY TO</th>
<th>EMPLOYEE NO.</th>
<th>THE SUM OF $</th>
</tr>
</thead>
</table>

AS REIMBURSEMENT FOR THE FOLLOWING -

<table>
<thead>
<tr>
<th>ACCOUNT NUMBER</th>
<th>EXPLANATION - (SHOW NAMES, DATES, ETC., ATTACH RECEIPTs AND SUPPORTING DETAIL WHEN APPLICABLE)</th>
<th>$ AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1234</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5678</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3456</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7890</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Paid by Check No. | Requested | Approved |

Cash Paym't Rec'd |

INSTRUCTIONS

PURPOSE AND USE
Used to request reimbursement for out of pocket expenditures made by the employee for account of the company or to request payment of authorized allowances for such expenditures. Examples are entertainment, taxi hites, postage, office supplies, auto or meal allowances, miscellaneous vessel supplies or services, etc.

NO. OF COPIES AND DISTRIBUTION
Prepare in duplicate. Submit properly approved original to local company cashier for reimbursement by check or cash.

PAY TO
Insert name of employee to whom payment should be made.

EMPLOYEE NUMBER
Insert the four digit personnel number of the employee receiving payment.

DEPT., OFFICE OR VESSEL
For non-vessel expenses show the Home Office Dept., such as General, Executive, Passenger, Freight Traffic, Traffic Sales, Operations, General, Operations-Terminal, Purchasing, etc., or the Branch Office, (which is not departmentalized) such as New York, Chicago, Houston, Washington, Tennessee and St. Louis. For vessel expenses show the vessel name.

DEPT. OR VOYAGE NUMBER
For non-vessel expenses show the three digit general ledger number of the Home Office Dept., or Branch Office. (See listing at right). For vessel expenses show the voyage number.

THE SUM OF $ Show the exact total payment requested.

ACCOUNT NUMBER
For accounting department use only, make no entries here.

EXPLANATION AND $ AMOUNT
List different types of expenditures separately. Only like items can be grouped. Be descriptive and explicit. Attach additional page of explanation, if space here is not adequate.

PAID BY CHECK NO.
Will be completed by accounting department when applicable.

CASH PAYM'T REC'D
Sign here when payment is received in cash instead of by check.

REQUESTED
Name of person requesting payment.

APPROVED
Signature of Home Office Department Head or Branch Office Manager.

DEPARTMENT AND
OFFICE NUMBERS

| General Executive | 901 |
| Passenger | 902 |
| Freight Traffic | 903 |
| Traffic Sales | 904 |
| Operations General | 905 |
| Operations Terminal | 906 |
| Purchasing | 909 |
| Finance Executive | 910 |
| Accounting | 911 |
| Controller | 912 |
| Claims | 913 |
| Personnel | 915 |
| Office Services | 916 |
| New York | 922 |
| Chicago | 923 |
| Houston | 924 |
| Washington | 925 |
| Tennessee | 927 |
| St. Louis | 928 |

Figure 5 Petty Cash Voucher

(Courtesy of Delta Steamship Lines, Inc.)
**Figure 6 Journal Voucher**

(Courtesy of Delta Steamship Lines, Inc.)
The journalizing work may be consummated with respect to some facts by simply accumulating like data during the month and summarizing the figures with an adding machine and recording the totals on journal vouchers. It also may be done by having cards punched for each such transaction, which cards, when sorted, tabulated, and summarized provide data that serve as journals or become the substance for journal vouchers.

**Ledgers**

The third step of the accounting procedure is posting data to ledger accounts, which calls for bringing together all items of like kinds, both positive and negative. The chart of accounts provides a sound and logical classification of assets, liabilities, owners' equity, revenues, and expenses.

Because the work can be done more quickly, accurately, and neatly, most accounting records today can be prepared by machine. In recent years, medium-sized and large steamship companies have used extensively punch card and electronic data processing equipment in their accounting and statistical areas.9

**Financial Statements**

The fourth step calls for preparing financial statements. After completion of the adjusting entries and the post-closing trial balance, financial statements may be prepared from the adjusted data. The steamship industry, like other industries, has three main financial statements: balance sheet, income statement, and statement of retained earnings.

---

The uniform system of accounts prescribed by the Maritime Administration has adopted the theory of sequence of listing balance sheet items in such a way that the asset accounts are listed as nearly as possible in the order of their liquidity, the liability accounts in the order in which they are payable, and the equity accounts last. Figure 7 shows a balance sheet form of a subsidized steamship company. Some accounts listed in the balance sheet, such as statutory reserve funds and voyages in progress are unique items in the shipping industry.

The order of listing accounts in an income statement prevailing in the steamship business is that shipping operating revenue and expense accounts are listed first and non-shipping operation items last. The income statement of a steamship company differs in many respects from that of the ordinary commercial industry.10 The major activity of the company lies in its voyage operations. Such voyage operations can be further analyzed for managerial purposes. Figure 8 gives an illustration of an income statement form.

In addition to the aforesaid balance sheet and income statement, the regulatory agency requires a waterline operating revenue and expense statement to be prepared. A form of the statement is portrayed in Figure 9.

The accounting sequence discussed above is primarily concerned with the preparation of the regular annual reports. They are prepared mainly for the information and use of stockholders, regulatory bodies,

---

### ASSETS

#### CURRENT ASSETS
- **Cash (incl. $ Advanced by Other Operators)**
- **U. S. Government Securities, at Cost (Market Value)**
  - $...
- **Other Marketable Securities, at Cost (Market Value)**
  - $...
- **Notes Receivable**
- **Accounts Receivable**
- **Related Companies**
- **Traffic**
- **Billed Claims**
- **Maritime Administration**
- **Miscellaneous and Accrued**

#### WORKING ASSETS
- **Shipping Inventories, at Cost**
- **Prepaid Expense (incl. Insurance of $)**
  - Less: Accrued Deposits to be made in Statutory Reserve Funds (See below)

#### ASSETS RESTRICTED UNDER MERCHANT MARINE ACT, 1936
- **Joint accounts with the Maritime Administration**, including $ (Market Value $)
  - Capital Reserve Fund
  - Special Reserve Fund
  - Accrued Deposits to be made in Reserve Funds:
    - Capital $; Special $
  - Interest Accruals for Deposit in Capital Reserve Fund
  - Deferred Operating-Differential Subsidy Receivable, Depositable in Special Reserve Fund when Collected:
    - Third Recapture Period

#### U. S. MARITIME ADMINISTRATION ALLOWANCE FOR VESSELS TRADED IN

#### INVESTMENTS
- **Securities of Related Companies**
  - **Other Investments (Market Value $)**

#### PROPERTY AND EQUIPMENT, at Cost
- **Vessels**
  - Less: Reserve for Depreciation
- **Land**
  - Less: Reserve for Depreciation
- **Other Shipping Property and Equipment**
  - Less: Reserve for Depreciation
- **Construction Work in Progress**

#### OTHER ASSETS
- **Special and Guaranty Deposits**
- **Claims Pending**
- **Space Parts (Vessels)**
- **Non-Current Receivables (Net)**
  - **Miscellaneous**

#### DEFERRED CHARGES
- **U. S. Maritime Administration Allowance**
- **FOR VESSELS TRADED IN**

### LIABILITIES AND CAPITAL

#### CURRENT LIABILITIES
- **Accounts Payable**
- **Related Companies**
- **Trade and Traffic**
- **Officers and Employees**
- **Maritime Administration**
- **Provision for Federal Income Taxes**
- **Other Taxes**
- **Unclaimed Wages**
  - **U.S. Government Securities, at Cost (Market Value)**
- **Miscellaneous and Accrued**
- **Reserves for Unrecorded Liabilities**

#### UNREALIZED INCOME AND RESERVES
- **Voyages in Progress (Net)**
- **Advance Ticket Sales and Deposits**
- **Deferred Credits**
- **Sundry Operating Reserves**

#### PAYABLES FROM ASSETS RESTRICTED UNDER MERCHANT MARINE ACT, 1936
- **Capital Reserve Fund**
  - **Long Term Debt**
    - Due within one year
    - Due after one year
  - **Miscellaneous**
  - **Receivable Profits - Maritime Administration**

#### CAPITAL AND RETAINED EARNINGS
- **Common Stock, par value $ per share**
  - **Authorized shares**
  - **Issued and outstanding shares**
  - **Capital in excess of par value**
  - **Retained earnings (approximately $ represents unrestricted earnings as at)**

---

**Figure 7 Balance Sheet**
INCOME STATEMENT

Account No. | Shipping Operations
---|---
600-670 | Water-Line Operating Revenue
700-988 | Water-Line Operating Expense
 | Gross Profit (or Loss) from Shipping Operations

Other Income:

675 | Interest Earned
685 | Dividend Income
690 | Miscellaneous Other Income
691 | Release of Premium on Long-Term Debt
 | Total Other Income

Other Deductions From Income:

960 | Interest Expense
970 | Amortization of Deferred Charges
975 | Doubtful Notes and Accounts Receivable
979 | Miscellaneous Deductions From Income
 | Total Other Deductions from Income

Net Profit (or Loss) from Shipping Operations

Non-Shipping Operations:

695 | Income from Non-Shipping Operations
995 | Expense from Non-Shipping Operations
 | Gross Profit (or Loss) from Non-Shipping Operations

995 | Overhead Expense
996 | Depreciation - Non-Shipping Property and Equipment
 | Total Expenses

Net Profit (or Loss) from Non-Shipping Operations

Net Profit (or Loss) before Federal Income Taxes

999 | Provision for Federal Income Taxes

 | Net Profit (or Loss) after Income Taxes

Figure 8 Income Statement
LYKES BROS. STEAMSHIP CO., INC.
NEW ORLEANS, LOUISIANA

WATER-LINE OPERATING
REVENUE AND EXPENSE STATEMENT

FOR THE PERIOD _________________ TO _________________

TYPE OF OPERATIONS ______________________________________

<table>
<thead>
<tr>
<th>Account Number</th>
<th>Shipping Operations</th>
<th>Revenue</th>
<th>Expense</th>
<th>Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>600-700</td>
<td>Terminated Voyage Results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>800</td>
<td>Inactive Vessels Expense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>640-850</td>
<td>Unaudited Additional Charter Hire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625</td>
<td>Operating-Differential Subsidy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>645-855</td>
<td>Terminal Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>650-865</td>
<td>Cargo Handling Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>655-875</td>
<td>Tug and Lighter Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>660-885</td>
<td>Other Shipping Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>670</td>
<td>Agency Fees, Commissions and Brokerage Earned</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>890</td>
<td>Interdepartmental Credits for Services and Facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gross Profit (or Loss) from Shipping Operations Before Overhead, Amortization &amp; Depreciation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overhead:

<table>
<thead>
<tr>
<th>Account Number</th>
<th>Description</th>
<th>Revenue</th>
<th>Expense</th>
<th>Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>Administrative and General Expense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>945</td>
<td>Management and Operating Commissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>950</td>
<td>Advertising</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>955</td>
<td>Taxes - Miscellaneous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gross Profit (or Loss) from Shipping Operations before Amortization and Depreciation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Depreciation-Shipping Property and Equipment:

<table>
<thead>
<tr>
<th>Account Number</th>
<th>Description</th>
<th>Revenue</th>
<th>Expense</th>
<th>Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>972</td>
<td>Amortization--Leaseholds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>981</td>
<td>Depreciation--Floating Equip. --Vessels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>984</td>
<td>Depreciation--Other Floating Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>987</td>
<td>Depreciation--Terminal Property and Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>988</td>
<td>Depreciation--Other Shipping Property and Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Water-Line Operating Revenue and Expense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gross Profit (or Loss) from Shipping Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 9 Waterline Operating Revenue and Expense Statement

(Courtesy of Lykes Brothers Steamship Co., Inc.)
seaman unions, and other outside interested parties. However, to be effective, accounting procedures should supply management with statements or reports at relatively short intervals. This practice enables the management to judge the profitableness of operations and the financial position before unsatisfactory situations have continued over too long a period of time. Some internal management reports will be discussed in later chapters.

CHART OF ACCOUNTS: THE INDUSTRIAL OCEAN CARRIER

In order to establish a systematic and efficient procedure for the bookkeeping process and in order to satisfy the needs of management, of regulatory bodies, and of other interested groups, a framework in the form of a chart of accounts must be constructed. The basic classification of accounts of steamship companies is based upon the framework of the accounting equation: that is, assets, liabilities, and owners' equity with subclassification of the owners' equity accounts into revenue and expense.\(^\text{11}\) This basic classification may be used by practically all kinds of business. The differences in the several types of industry activities become apparent when the subclassifications of the charts of accounts are examined.

Although the size and variety of transactions entered into by the maritime carrier will determine to a considerable extent the number and name of accounts to be included in the chart, there is actually a great similarity of account titles of the small and the large steamship

\(^{11}\)Melo, \textit{op. cit.}, p. 374.
companies. It must be kept in mind that the chart should be sufficiently flexible so that it will allow for future expansion and thus keep pace with operating developments and business growth.

A Case Study

As an illustration of the accounts used by an industrial ocean carrier, the Standard Fruit and Steamship Company in New Orleans, Louisiana will provide a case study. This company was incorporated in 1916 and has seven subsidiaries in the United States and Central America. It is engaged principally in production, exportation, and sale of bananas grown on its own plantations in Central America as well as purchased from growers in Ecuador. Major products of its subsidiaries include soap, vegetable oil, beer and soft drinks. The company charters refrigerated vessels from foreign owners for the major purpose of transporting its own bananas and other products. The company's vessels normally carry passengers and freight with weekly sailings from New Orleans and New York to Costa Rica, Honduras, Guatemala and Ecuador. Ports of entry in the United States are New Orleans, New York, Tampa, Charleston, Los Angeles, and San Francisco.

A chart of accounts of the Standard Fruit and Steamship Company is presented in considerable detail in Appendix 1. For illustrative purpose, the titles of subsidiary accounts have been omitted from the original chart of accounts. The chart went into effect on January 1, 1962.

The system of coding accounts used in this illustration is designed to be equally applicable to either hand or machine bookkeeping methods. For this reason, the number symbols have been confined to four digits, using conventional methods in digital significance coding.
Reading from left to right, each digit in the account number has a special significance. Subdivision of the major classifications are indicated by the last three digits. Thus the first digit in the chart identifies asset, liability or stockholders' equity account. The second digit designates a specific controlling account. Third and fourth digits determine the subsidiary account.

A Comparison with the Subsidized Operator

The so-called industrial or private carriers are mainly specialized vessels operated by large industrial firms for transporting the products which they use or in which they are trading. Most of the vessels are unique in design and construction for the particular industry or trade.12 Such industrial firms operate the specialized vessels for the purposes of (1) the desired exact degree of regularity and frequency of sailing schedules, (2) a reduction of the firm's freight charges, and (3) more control over the particular industry or trade in so far as its control may be dependent upon ocean shipping facilities.13

Subsidized steamship companies are common carriers. A common carrier undertakes for hire the carrying of cargo for any shipper, without discrimination, from place to place, subject to its having available vehicular space.14


As indicated in the previous chapter, subsidized steamship companies fall within the jurisdiction of the Maritime Administration. Such companies are required to adopt the uniform system of accounts as prescribed by the regulatory body. In addition to the ocean shipping accounts, a number of accounts which relate to governmental subsidies are inserted in the chart of accounts.

The main business of the Standard Fruit and Steamship Company is growing and selling tropical fruits. Since its steamship operation is an auxiliary business, the company's chart of accounts previously illustrated constitutes relatively few accounts pertaining to the shipping business. Most of the accounts in the chart are concerned with production, exportation and sale of bananas. The industrial carrier, not like a common carrier, has only one controlling account - account 9700 "General cargo and passenger operations" - dealing with steamship revenues and expenses.

CHART OF ACCOUNTS: THE SUBSIDIZED OPERATOR

Governmental agencies, in performing their duties of regulation, have generally insisted upon a certain uniformity in accounting systems of the regulated industries. The classification and number of accounts depend upon the nature and operation of an industry.

In 1938 the Maritime Commission prescribed a set of "Uniform System Accounts for Subsidized Contractors" to which subsidized

companies must adhere in rendering quarterly and annual reports to the commission.\textsuperscript{17} The uniform system of accounts went into effect on January 1, 1951. Steamship companies engaged mainly in domestic traffic, with some sailing to foreign ports, in competition with railroads and trucklines have been under the jurisdiction of the Interstate Commerce Commission since 1940. These non-subsidized companies, under the jurisdiction of the Interstate Commerce Commission, must render accounts according to the "Uniform System of Accounts for Maritime Carriers" promulgated by the agency.\textsuperscript{18} These two sets of uniform system of accounts are identical in account numbers and titles. In recent years the Maritime Administration and the Interstate Commerce Commission have collaborated in a revision of their respective accounting requirements.\textsuperscript{19} Financial statements prepared from these accounts, together with such other information as is required, are filed annually in an elaborate form of report. The basic report is the same for both regulatory agencies, but each requires a few pages of additional information not required by the other.\textsuperscript{20}

\textsuperscript{17}Since 1950 the functions of the Maritime Commission have been taken over by the Maritime Administration.


\textsuperscript{19}\textit{Steamship companies entirely engaged in the domestic traffic, under jurisdiction of the Interstate Commerce Commission, must use "Uniform System of Accounts for Carriers by Inland and Coastal Waterways" as prescribed by the commission. The account titles and arrangements of this system are not identical with those of the other two systems as mentioned above. See Code of Federal Regulations, Title 49, Section 324, as amended.}

\textsuperscript{20}\textit{McDowell and Gibbs, op. cit., p. 290.}
Outline of the Uniform System of Accounts

The uniform system of accounts for subsidized contractors which has been prescribed by the Maritime Administration is the basis for the accounting of all subsidized steamship companies. Under the system outlined by the agency, all accounts must be kept by the double entry method and must be supported by such books and records as will make possible a full analysis of entry. The accounts are grouped and numbered in accordance with their kind and function. The usual breakdown of assets, liabilities, net worth, revenues, and expenses is according to the requirement of preparing balance sheet and income statement. Also many of these accounts are subdivided further into detailed subsidiary accounts for purposes of control and management information. The clearance accounts are established to accumulate certain charges or credits for later apportionment to asset, liability, revenue, or expense accounts on the basis of nature and function.

The chart of accounts as portrayed in Appendix 2 is divided into three categories, each of which carries general and detailed instructions. The three categories are:

1. Balance sheet accounts
   Assets (100 to 399)
   Liabilities (400 to 579)
   Net worth (580 to 599)

2. Income statement accounts:
   Waterline operating revenues (600 to 624)
   Subsidies (625)
   Other shipping revenues (640 to 670)
   Other credits (675 to 699)
   Waterline operating expenses (700 to 799)
   Other shipping expense (800 to 899 and 980 to 989)
   Administrative expenses and other charges (900 to 999 except 980 to 989)

3. Clearance accounts (000 to 099)
It should not be assumed that all accounts listed on the chart are found in the ledger of every subsidized steamship company. Some companies limit their traffic operation to carry fewer passengers and more cargo and thus might not keep accounts relating to special services for passengers, for example, the bar account.

Explanation of Asset and Liability Accounts

Some of the accounts shown in the chart as prescribed by the Maritime Administration, such as cash in deposit, imprest and petty cash funds, marketable securities, notes receivable, intangible assets, long-term debts, capital stock, and surplus, are typical of comparable accounts in most industries and hence do not require further explanation. However, a number of accounts are peculiar to the steamship industry, a brief explanation of which follows:21

151 Traffic accounts receivable - This account represents accounts receivable from shippers, consignees, connecting carriers, and others arising incident to the carriage of passenger, excess baggage, freight, and mail.

155 Claims receivable - The account includes claims transferred from account 361 "Claims pending," including insurance claims which have been compiled and presented to underwriters for payment and other adjusted claims collectible within one year.

160 Maritime Administration; accounts receivable - This account records operating-differential subsidy accruals and such other current receivables as may arise from transactions between the carrier and the agency.

21 For a full explanation of these accounts, see U. S. Congress, Code of Federal Regulations, Title 46, Section 282, as amended.
171 Vessels stores, supplies, and equipment ashore - This inventory account records the cost of all stores, supplies, and equipment held for delivery to vessels at some future date.

175 Other shipping inventories - This account records the cost of all stores, supplies, and equipment held for use in the conduct of the shipping business and its auxiliaries, such as cargo handling, tug and lighters and other incidental shipping operations.

200 Unterminated voyage expense - This account records the amount of the vessel's expenses while voyages are in progress. After each voyage has been completed, the balance in the account, according to the record of subsidiary accounts maintained by vessels and voyages, are transferred to account 700 "Operating expense - terminated voyages."

In cases when inventories of vessels stores, supplies or equipment are taken and priced at the end of each voyage, the value of such inventories should be credited in this account to the terminating voyage and charged to the subsequent voyage. Subsidiary accounts are maintained by vessels and consecutively by voyages according to the classification of expenses shown in the chart of accounts.

307 Escrow fund - This account is used to record the required amounts regarding the sale of mortgage bonds to the general public. The fund is reported separately and maintained in accordance with regulations of the Maritime Administration.

337 Other floating equipment - Such as tugs, barges, launches, lighters, floating cranes, etc.

343 Terminal property and equipment - Most steamship companies possess their own terminal, land, buildings, shore cranes, trucks, and other terminal gear and equipment.
361. Claims pending - This account includes any claims in litigation, and insurance claims in process of compilation or adjustment. After adjudication of claims in litigation or adjustment of insurance claims, the amount is transferred to account 155 "Claims receivable." Deductible average insurance losses should at the same time be transferred to account 570 "Reserve for insurance."

376. Unexpired long-term insurance - Since the values of individual vessels are large, the risk of loss and damage and of liability to passengers, crew members, and the public are substantial, and the premiums consequently are a major element both in the balance sheet and in the calculation of voyage profit. Steamship companies usually find it wise to cover the vessel risk with policies extensive both in their breadth of coverage and in the amount of protection. As these premiums accrue periodic charges equivalent to pro rata insurance costs are transferred to account 200 "Unterminated voyage expense."

410. Insurance notes - This account records the face value of notes issued by the steamship company to cover deferred payments of insurance premiums.

421. Trade accounts payable - This account is used to record all liabilities currently due to trade creditors for service rendered and supplies furnished in the general conduct of the business.

422. Traffic accounts payable - This account records exchange orders and other amounts due connecting carriers, freight and passenger brokerage, amounts due for hotel reservations and sight-seeing tours; but excludes amounts due related companies, which are to be recorded in "Notes and accounts payable with related companies."
430 Maritime Administration, accounts payable - This account records all current accounts payable to the Maritime Administration, including accrued interest, that arise from transactions with that agency. The shipping company may have a small amount due the regulatory agency as refund of operating-differential subsidy on account of revenue earned between domestic ports located on its route to a foreign country or countries. Since the domestic water transportation is protected from foreign-flag competition, any operating-differential subsidy received to equalize operating costs with those of foreign competitors must be refunded to the Maritime Administration in the same proportion that revenue from the domestic carrying bears to total revenue.

489 Miscellaneous reserves for unrecorded liabilities - An account which includes reserves provided to cover known current obligations or commitments, either actual or estimated. This account should not be confused with other reserve accounts created for specific purposes.

495 Advance ticket sales and deposits - This includes the credit balance remaining in account 025 "Collections and deposits for passenger transportation," after the balances in that account have been analyzed and those relating to completed transactions have been transferred to the proper other accounts designated in the chart.

500 Unterminated voyage revenue - This account records the gross freight, passenger, mail, excess baggage, and other voyage revenue as soon as the manifests are ready for journalization. The total revenue of each completed voyage is transferred to the account 600 "Operating revenue - terminated voyages" after a vessel completes its voyage. The "Unterminated voyage revenue" is similar to a deferred credit account.
550 - Recapturable profits, Maritime Administration - If excess profits accrue to the Maritime Administration under Section 606 "recapture" provision of the Merchant Marine Act of 1936, this account is at the end of the first year in which such profits accrue, credited with the amount thereof. At the close of each succeeding year with the recapture period involved, this account is adjusted so as to reflect the new amount of such excess profits accrued to the regulatory agency of that date. The account is charged with amounts transferred to account 430 "Maritime Administration; accounts payable."

**Explanation of Revenue and Expense Accounts**

Ocean transportation is a service of the movement of goods or persons, which produces utility to satisfy human wants. In order to provide the continued service, an ocean carrier must have revenues to defray its operating expenditures. Of course, the difference between revenues and expenses represents the profit or loss. Sources of revenue of a steamship company may be divided into four major kinds as listed below:

1. Freight revenue
2. Passenger revenue
3. Mail revenue
4. Other revenue

In addition to the above classification, the governmental subsidies provide an additional source of revenue not found in ordinary commercial enterprises. The subsidy is paid to steamship companies to place them on a parity with lower foreign flag vessel operating costs.

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23 Murphy, *op. cit.*, p. 7.
Expenses of the steamship accounting are classified into the following four general groups:

1. Vessel operating expense.
2. Inactive vessels expense.
3. Other shipping operations expense.
4. Administrative and general expense.

Revenue and expense accounts of the steamship business are quite different from those of any other industry. Only a few of the accounts listed in the chart require no further explanation, and the rest of them are worthy of attention.

600 Operating revenue; terminated voyages - This account includes all revenue on terminated voyages transferred from account 500 "Unterminated voyage revenue." Revenue items recorded on completed voyages, after the transfer has been made, should be posted in detail direct to this account. Revenue items arising in connection with voyages completed in previous years should be posted to account 090 "Adjustments applicable to prior periods." Subsidiary accounts should be kept alphabetically by ships and consecutively by voyages in accordance with the classification of revenues as shown in the chart of accounts. Postings should be subdivided as between revenues earned on outbound, inbound, and intermediate legs of voyages.

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24 This classification is based on the uniform system of accounts as prescribed by the Maritime Administration.


26 For a full explanation of these accounts, see U. S. Congress, Code of Federal Regulations, Title 46, Section 282, as amended.
619 Ad valorem - This account records all revenue from the transportation of high value cargo, such as bullion, currency, precious metals, etc. The freight charges for carrying this kind of cargo is based on a percentage of the invoiced value thereof.

620 Charter revenue - This account records revenue from bare-boat and time charter.

625 Operating-differential subsidy - This account records the amount of subsidy received from the Maritime Administration under the subsidy provisions of the operating-differential subsidy agreement.

Subsidiary accounts, to which postings are made by ship and voyage, should be maintained according to the following classifications:

626 Wages to officers and crews.
628 Subsistence of officers and crews.
629 Subsistence of passengers.
630 Maintenance.
632 Repairs not compensated by insurance.
634 Shore gang repairs-upkeep.
636 Hull insurance premiums.
637 Hull insurance deductible repairs.
638 P. & L. insurance.

670 Agency fees, commissions, and brokerage earned - Should the steamship company provide agency services for other shipping companies, the fees, commissions, etc. earned are recorded in this account.

700 Operating expenses, terminated voyages - The amount of operating expense is transferred from "Unterminated voyage expense" when the vessel has completed its voyage. Subsidiary accounts are maintained alphabetically by vessels and consecutively by voyages, according to the classification of expenses as shown in the chart of accounts. The same treatment is applied to "Operating revenue, terminated voyages."

Subsidiary accounts should be maintained alphabetically by vessels and
consecutively by voyages according to the classification of revenues as shown in the chart of accounts.

735 Fuel - This account records cost of bunker coal or oil consumed during the voyage.

760 Charter hire - This account records the cost of hiring vessels from other shipping operators under time, voyage or other forms of charter.

780 Stevedoring - This account records the cost of removing and handling cargo from piles on the pier, or in the pier sheds, or from cars, barges, lighters, and stow or trim the same in or on any part of the vessel; and vice versa in unloading cargo.

795 Canal tolls - This account records the cost of tolls levied against vessels traversing the Panama and Suez canals.

800 Inactive vessels expense - It is used to record all expenses incurred during the inactive periods of vessels which are owned and controlled by the company, such as wages of officers and crews, subsistence, stores, supplies, fuel, repairs, insurance, charter hire, wharfage and dockage, port charges, etc.

850 Contributions to pools - To protect ruinous competition, some steamship companies organize "pool" agreements to allocate sailing quotas, to decide sailing schedules, and to distribute revenue on a particular route. This account is charged with contributions for each accounting period in accordance with pooling agreements by transfer from account 055 "Pool participation."

**Explanation of Clearance Accounts**

The clearance account or clearing account, although it is widely used by public utility and transportation accounting, cannot so often
be found in manufacturing and merchandising businesses. Accounts under this category are used to accumulate certain charges or credits which cannot be allocated directly to balance sheet or income statement accounts until such transactions have been completely accounted for. In the preparation of financial statements, it is necessary that these clearance accounts be analyzed and the balances reflected therein be apportioned to proper accounts on such statements. The balances in this category of accounts applicable to completed voyages must be carried to the subsequent accounting year.

001 Masters and pursers - This account is charged with amounts advanced to or collected by masters and pursers. It is credited with the net amount of vessel's payrolls, with cash advances to crew members, and with allowable expenses incurred.

005 Allotments on wages of crews - This account is charged with payments made to allotees of crew members and is credited with deductions made therefore on vessel's payrolls.

040 Bar account - This account is debited with inventory of bar supplies aboard passenger vessels at the beginning of each voyage for sale to passengers, and with all purchases of such supplies during the voyage. The account is credited with the inventory of bar supplies at the end of each voyage, and with gross sales during the voyage. At each completed voyage, the net debit balance is transferred to the "Operating expense, terminated voyages," and the net credit balance is transferred to the "Operating revenue, terminated voyages." The ending inventory is listed on the balance sheet.

27For a full explanation of these accounts, see U. S. Congress, Code of Federal Regulations, Title 46, Section 282, as amended.
045 Slop chest account - The slop chest supplies provided for sale to crew members during the voyage. It is handled by the same procedures as previously described for the bar account.

050 Foreign exchange account - All gains or losses in foreign exchange are recorded in this account.

060 Pool participation - This account is debited with contributions to pools for purposes of equalizing revenue in accordance with pooling agreements, and is credited with gross collections received from pools. At the end of year, the account is transferred to "Contributions to pools" and "Collections from pools" accounts separately.

SYSTEM OF CODING

To facilitate ready reference to the individual accounts it is desirable to assign a number to each account title. The coding system is a real convenience to refer to accounts by numbers rather than by actual titles. It requires less writing on the part of the bookkeeper. It also admits machine recording of account titles and amounts which is essential in using punch card processing or electronic data processing accounting. And the numbers further serve to classify accounts to their respective general groups.

A Case Study

As an example of the coding system used by a steamship liner company, the Delta Steamship Lines, Inc. will provide a case study. The corporation was organized in New Orleans, Louisiana, in 1919. It operates steamships between New Orleans, other U. S. Gulf ports, east coast of South America and west coast of Africa. On May 31, 1963, the company owned three passenger-cargo ships and ten cargo ships with
115,000 combined gross tonnage. A small feeder ship, under charter, is also operated in the Gulf of Guinea.

Since Delta Steamship Lines, Inc. is a subsidized operator, it must use the uniform system of accounts as its framework for accounts classification. However, accounts included in this system may be subdivided in accordance with the company's needs if such subaccounts do not impair the integrity of the accounts or records prescribed by the Maritime Administration in the Uniform system of accounts. This case study contains an explanation of how the accounts are classified between general ledger and subsidiary ledgers, and how numerical code numbers are assigned to the accounts. The complete chart of accounts of the Delta Steamship Lines, Inc. went into effect on June 1, 1963. (It contains 117 pages) Since it is unfeasible to list all of the accounts in this volume, only certain pertinent accounts will be extracted from the company's chart to demonstrate the coding system.

All the general ledger accounts of the company are divided into four groups as discussed below:

1. Group A accounts - The general ledger accounts examplified below do not have a separate subsidiary ledger. Instead, where detail accounts are necessary, they are contained in the general ledger itself. In the coding system fifteen is the maximum number of digits possible in an account number. The account numbers in this group vary from 3 digits to 9 digits, and it is necessary to show a dash (-) in all unused digits on a voucher. Examples of this group of accounts are:

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28 Gross tonnage is the entire internal measurement of the ship expressed in tons of 100 cubic feet.
<table>
<thead>
<tr>
<th>General Ledger Account Number</th>
<th>General Ledger Account Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>00505</td>
<td>Allotments on wages of crews: S.S. Del Aires</td>
</tr>
<tr>
<td>00510</td>
<td>Del Alba</td>
</tr>
<tr>
<td>00515</td>
<td>Del Campo</td>
</tr>
<tr>
<td>00520</td>
<td>Del Mar</td>
</tr>
<tr>
<td>00525</td>
<td>Del Monte</td>
</tr>
<tr>
<td>00530</td>
<td>Del Mundo</td>
</tr>
<tr>
<td>00535</td>
<td>Del Monte</td>
</tr>
<tr>
<td>00540</td>
<td>Del Norte</td>
</tr>
<tr>
<td>00545</td>
<td>Del Ore</td>
</tr>
<tr>
<td>00550</td>
<td>Del Rio</td>
</tr>
<tr>
<td>00555</td>
<td>Del Santos</td>
</tr>
<tr>
<td>00560</td>
<td>Del Sol</td>
</tr>
<tr>
<td>00565</td>
<td>Del Sud</td>
</tr>
<tr>
<td>00566</td>
<td>Del Valle</td>
</tr>
<tr>
<td>095</td>
<td>Profit and loss account</td>
</tr>
<tr>
<td>1011650</td>
<td>Cash on deposit - Domestic: Hibernia National Bank</td>
</tr>
<tr>
<td>1011680</td>
<td>National American Bank</td>
</tr>
<tr>
<td>1011700</td>
<td>Whitney National Bank</td>
</tr>
<tr>
<td>385</td>
<td>Leaseholds</td>
</tr>
<tr>
<td>421</td>
<td>Trade accounts payable</td>
</tr>
<tr>
<td>581</td>
<td>Capital stock</td>
</tr>
</tbody>
</table>

2. Group B. accounts - The general ledger accounts illustrated below are controlling accounts for separate subsidiary ledgers maintained on customary hard-copy ledger sheets. These subsidiary ledgers are posted by the NCR bookkeeping machines. Fifteen is the maximum number of digits possible in an account number. The first 3 digits are the general ledger account number. Digits 4 through 15 are subsidiary account number. In writing the account number on a voucher it is necessary to show a dash (-) in all unused digits. Examples of this group of accounts are:

<table>
<thead>
<tr>
<th>First Three Digits</th>
<th>Next Digits</th>
<th>Coding of Subsidiary Accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>165</td>
<td>4 to 7</td>
<td>Accounts receivable; miscellaneous</td>
</tr>
<tr>
<td></td>
<td>8 to 15</td>
<td>Detailed subsidiary code</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>331</td>
<td>4 to 7</td>
<td>Floating equipment; vessel</td>
</tr>
<tr>
<td></td>
<td>10 to 15</td>
<td>Detailed subsidiary code</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not used</td>
</tr>
</tbody>
</table>
3. Group C accounts - The general ledger accounts illustrated below are supported by subsidiary detail records maintained on IBM equipment. They are not hard-copy subsidiary ledgers. The general ledger controlling accounts are maintained and posted by the NCR bookkeeping machines, but the subsidiary detail record information is furnished by the IBM service bureau in the form of monthly detailed "transaction runs." The transaction runs are the equivalent of the customer subsidiary ledger sheets and are used in lieu thereof. Thus there are no subsidiary accounts on ledger sheets. Fifteen is the maximum number of digits possible in an account number. The first three digits are the general ledger account number. Digits 4 through 15 are subsidiary detail record number. When writing the account number on a voucher it is necessary to show a dash (-) in all unused digits. The entire account number must be shown for each entry. Some examples of this group of accounts are portrayed as follows:

<table>
<thead>
<tr>
<th>First Three Digits</th>
<th>Next Digits</th>
<th>Coding of Subsidiary Accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>191</td>
<td>4 to 7</td>
<td>Prepaid current insurance</td>
</tr>
<tr>
<td></td>
<td>8 to 9</td>
<td>Detailed subsidiary code</td>
</tr>
<tr>
<td></td>
<td>10 to 15</td>
<td>Vessel name code (when applicable)</td>
</tr>
<tr>
<td>201 to 299</td>
<td>1 to 3</td>
<td>Unterminated voyage expense</td>
</tr>
<tr>
<td></td>
<td>4 to 7</td>
<td>General ledger account number</td>
</tr>
<tr>
<td></td>
<td>8 to 9</td>
<td>Detailed subsidiary code</td>
</tr>
<tr>
<td></td>
<td>10 to 12</td>
<td>Vessel name code</td>
</tr>
<tr>
<td></td>
<td>13 to 14</td>
<td>Voyage number</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>Port of call code</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subsidy code</td>
</tr>
<tr>
<td>361</td>
<td>4 to 5</td>
<td>Claims pending</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Type of claim code</td>
</tr>
<tr>
<td></td>
<td>7 to 10</td>
<td>Applicable year</td>
</tr>
<tr>
<td></td>
<td>11 to 12</td>
<td>Claim number</td>
</tr>
<tr>
<td></td>
<td>13 to 15</td>
<td>Vessel name (when applicable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Voyage number (when applicable)</td>
</tr>
</tbody>
</table>
4. Group D accounts - In adapting the present general ledger accounts as previously discussed for use with IBM equipment it is deemed advisable to utilize some "open" numbers not contained in the account number prescribed by the Maritime Administration. When financial statements are prepared for other than internal use, it is necessary to group these new accounts into the classifications prescribed by the Maritime Administration.

An example of the accounts with numbers different from the uniform system of accounts prescribed by the Maritime Administration is set forth below:

<table>
<thead>
<tr>
<th>Delta Account Number and Name</th>
<th>Corresponding MA Number and Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>001 - Master and pursers</td>
<td>001 - Masters and pursers</td>
</tr>
<tr>
<td>003 - Cash advances for payrolls</td>
<td>003 - None</td>
</tr>
<tr>
<td>865 - Expense of cargo handling operations - Loading stevedoring</td>
<td>865 - Expense of cargo handling operations</td>
</tr>
<tr>
<td>866 - Expense of cargo handling operations - Loading extra labor</td>
<td></td>
</tr>
<tr>
<td>867 - Expense of cargo handling operations - Discharging stevedoring</td>
<td></td>
</tr>
<tr>
<td>868 - Expense of cargo handling operations - Discharging extra labor</td>
<td></td>
</tr>
<tr>
<td>869 - Expense of cargo handling operations - Tiering</td>
<td></td>
</tr>
</tbody>
</table>

The Maritime Administration permits that all accounts included in the uniform system of accounts may be subdivided if such subdivisions do not impair the integrity of the accounts or records prescribed by the regulatory agency; see the agency's General Order Number 22.
870 - Expense of cargo
    handling operations -
    Automotive maintenance

871 - Expense of cargo
    handling operations -
    Pallet maintenance

872 - Expense of cargo
    handling operations -
    Sling maintenance

873 - Expense of cargo
    handling operations -
    Shore labor

874 - Expense of cargo
    handling operations -
    Stevedoring general

The "detailed subsidiary code" mentioned above is an alphabetical
or numerical listing of the names and numbers of all subsidiary accounts
to be used as sub-classifications of general ledger accounts. It is a
four-digit code. Group B and Group C specify when and where to use
this four-digit code.
CHAPTER IV

ASSET ACCOUNTING: CURRENT ASSETS AND INVESTMENTS

The shipping business like any other industry is selling something, but under certain conditions that make it a unique industry. As a general rule, ocean transportation is not provided on credit terms. Steamship companies usually maintain small quantities of inventory on ship or shore.

Perhaps, there is no industry or trade which is more uncertain than shipping. Prosperity in the shipping industry comes, and likewise disappears, in business cycles. A common practice followed by steamship companies is to provide ample reserves and reserve funds to assist in the withstanding of any depression in the shipping industry. Reserve funds are to be used to carry the steamship company over bad times, and also to replace vessels at the end of their useful life.

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3Ibid., p. 12.

4ROBERT B. PAUL, SHIPPING FINANCE AND ACCOUNTS (LONDON: SIR ISAAC PITMAN AND SONS, LTD., 1923), P. 11.
ACCOUNTS RECEIVABLE

Since ocean transportation is generally not furnished on credit terms, the accounts receivable of a steamship company are materially less than those of an ordinary manufacturing or merchandising company.\(^5\) Although steamship companies have plenty of grief in other respects, they are not troubled by collection problems.

Cargo Service

In fact, the bulky waterborne shipments are usually prepaid at the time of shipment. Each charter-party or bill of lading usually contains a clause which states "freight payable on signing of bills of lading, non-returnable, ship lost or not lost," or "freight to be paid in advance is due on shipment together with primage and charges, if any, and shall in no case be refunded, neither totally nor partly, whatever may befall ship and/or cargo."\(^6\) Consequently, once a shipment has been loaded, the revenue is considered as being earned.

If freight and charges are not prepaid, the same should be paid before delivery, at the rate of exchange prevailing on the date of vessel's entry at custom house at the port of discharge.\(^7\) When the shipment moves between ports on the interline, the destination carrier is responsible for the collection of the freight payments. The ocean carrier has a

\(^5\) Reynolds, \textit{op. cit.}, p. 12.

\(^6\) Hector Gripaios, \textit{Tramp Shipping} (Toronto: Thomas Nelson and Sons, Ltd., 1959), pp. 41-42

lien upon the cargo and the right to sell the same by public auction or otherwise for freight, demurrage, detention charges, fines, and losses of any kind. Thus, the steamship company is quite well protected against credit losses.

**Passenger Service**

In passenger service, it is customary for a reservation to be made before the ship's arrival at the sailing port with a deposit being paid for the reservation. Subsequently a ticket must be purchased before the passenger embarks on the ship.

When a deposit for the reservation is received, the following entry is made on the books of the steamship company.

\[
\begin{align*}
\text{Cash} & \quad \text{xxx} \\
\text{Advance Ticket Sales and Deposits} & \quad \text{xxx} \\
\end{align*}
\]

Passenger tickets may sometimes be sold in advance without any particular voyage in view. In this instance, the "Advance ticket sales and deposit" account is credited until such time as the voyage is taken, and the amount credited to a particular voyage revenue account is then offset against the advance ticket sales account.

**Treatment of Receivables**

It is evident from the above facts that a steamship company is likely to have accounts receivable relatively smaller in total than those of typical manufacturing or merchandising concerns. Such receivables as exist, other than accrued operating-differential subsidy, are likely

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to arise from interline accounts, government bills of lading unaccomplished, a few due bills from consignees on freight collect, and sundry amounts other than those due from customers. The accounting treatment of accounts receivable is quite simple and very few personnel are necessary for keeping the records.

SHIP INVENTORIES

To minimize voyage cost, steamship companies usually purchase their ship inventories along a voyage route where the prices are lowest. They also load their vessels directly from wholesale dealers and maintain only small quantities of inventory on shore. Since the consumption of ship inventories comprises a large part of operating cost of the ship, the control over acquisition and consumption of inventories is necessary.

Internal Control

An internal control over ship inventories involves purchase requisitioning, ordering, receiving, storing, consuming and record-keeping. The accountant should ascertain whether the internal control over the inventories is adequate. He also should observe whether policies and procedures regarding the handling of inventories are satisfactorily followed by all related personnel.

Before starting its voyage, the vessel should be supplied with sufficient fuel, stores, water and food to the first destination of the

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journey. The purchase requisition originates with a person who is in a position to observe that the quantity on hand is at a set ordering minimum or can foresee the need for special inventories or unusual quantities during that voyage. In essence, the chief mate of the vessel, for the deck department, or the chief engineer, for the engine room, sends a formal request to the supply division before sailing. It is a function of the supply division to observe the source of and the authority for a purchase requisition and to clear any questions or uncertainties before arranging the purchase. Then a purchase order is sent by air-mail or cable to the branch or its agent (or directly to a vendor), where the vessel calls, to supply specific quantities of described goods at agreed terms and at a designated time. The usage of the inventories is under the control of the vessel's officers.\(^\text{12}\)

The number of carbon copies for the purchase requisition and purchase order depends entirely upon the needs of the steamship company, and the forms vary with individual companies. However, all documents relating to a particular voyage should be clearly marked with the vessel name and voyage number.\(^\text{13}\)

**Inventory Pricing**

In manufacturing and merchandising industries, inventories frequently constitute the largest current assets of a business organization. The effects upon the cost of goods sold and upon the net income are different under various methods of costing of sales and


\(^{13}\)Ibid., p. 127.
pricing of inventories. Thus, inventories and their pricing are of vital importance in determination of periodic net income and in ascertainment of current financial conditions of a business.

Since steamship companies generally maintain small quantities of inventory on ship or shore, methods of inventory pricing are rather unimportant in the steamship industry. The first-in-first-out method and last-in-first-out method are easy and simple to compute, and they are widely employed by steamship companies.¹⁴

**Statutory Classifications of the Inventory**

Shipping statutes have classified the ship inventory into six categories.¹⁵ These six categories are discussed below.

**Stores and Supplies:** As distinguished from expendable equipment and spares, there are certain commodities used and consumed in the day-to-day operations of a vessel, such as consumable stores, subsistence stores, slop chest, bar stock, oil, grease, and fuel.

**Expendable equipment:** This category includes those articles, outfitting and furnishings, portable, semiportable, and detachable used in equipping a ship for service and used in the normal day-to-day maintenance and operation of the ship. These are in addition to and apart from all articles or fittings permanently incorporated in a ship's hull prior to its being equipped, and apart from items classified as stores and supplies or spare parts. Examples are steward's equipment, deck equipment, and engine equipment. Expendable equipment items

¹⁴ An interview with accounting personnel of the Lykes Brothers Steamship Co., Inc. verified this practice.

are subject to gradual deterioration and replacement, but are not readily consumed by usage.

*Spare parts:* - This category includes all items of spare and replacement parts carried for the specific purpose of maintaining and repairing mechanical and electrical equipment.

*Installations:* - This category includes items of a permanent or detachable character, generally nonportable, which are permanently installed as a part of the ship and generally necessary for the operation of the ship for its intended purposes. They are main machinery, auxiliary machinery, and permanent equipment. These are not required to be recorded on inventory lists.

*Unbroached consumable stores:* - Commodities normally packed in small quantities and of nominal value are considered as unbroached consumable stores. The container or package items such as paints, soaps and metals should not be opened and none of the contents consumed. Those items normally supplied in bulk with opened packages are also considered as unbroached stores, such as rope and cotton waste.

*Scrap and idle items:* - Any item that is worn, used, rusted, or decayed to such a degree that it cannot serve its original function, such as a worn propeller, aged wire rope, and the like.

**Required Inventory Accounting Practices**

Under an operating-differential subsidy contract, the subsidized company must purchase ship inventories produced in the United States, except in an emergency. For this purpose, the shipping act has laid down certain provisions, with which a subsidized company is required to comply. Some significant required accounting practices are discussed below.
Reporting to the Maritime Administration: - At the commencement of the first voyage of each vessel upon entrance into subsidized service or upon completion of the last voyage of the subsidized service, two copies of the inventory list of all unbroached stores and supplies, expendable equipment, and spare parts of each subsidized vessel must be sent to the Maritime Administration or its district office. A representative of the governmental agency should be assigned to observe the taking of physical inventory. 16

Recording the inventory: - Accounting entries for subsistence stores, slop chest, bar stock and fuel should be recorded separately for each vessel and each voyage. Inventories recorded in the clearance accounts entitled "Bar account" and "Slop chest account" applicable to incompletely voyages as at the balance sheet date are reflected under the balance sheet account "Inventory." 17

Overage and shortage: - The accounting entries for overage and shortage of expendable equipment and spare parts inventories should be made separately for each vessel in accordance with the following procedures: 18

1. The original expendable equipment and spare parts inventory of a vessel entering subsidized service should be capitalized and recorded in the balance sheet account "Floating equipment - vessels," as part of the acquisition cost of the ship.

2. Overage - Since the initial inventory at the commencement of the first voyage of each ship

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16 Ibid., Sections 293.3 and 293.4, as amended.
17 Ibid., Section 293.7 (a), as amended.
18 Ibid., Section 293.7 (c), as amended.
entering subsidized operation is not priced, the net overage (overages exceed shortages, and vice versa) or net shortage of expendable equipment and spare parts is determined by an item-by-item comparison of the beginning inventory with the ending inventory. When a comparison of the ending inventory with the beginning inventory discloses a net overage of the last voyage of the ship terminating prior to the ending inventory, it means that all of the purchases are not consumed during the period between inventories. The account "Store, supplies, and equipment purchased domestic" should be credited with the net overage and the corresponding account of the succeeding voyage should be charged with a like amount. (3) Shortage - When a comparison of the ending inventory with the beginning inventory discloses a net shortage, it means that items included in the beginning inventory, in aggregate, are consumed and not replenished by purchases during the period between inventories. The asset account "Stores, supplies, and equipment - purchased domestic" should be charged with the net shortage and the corresponding account of the subsequent voyage credited with the same amount.

Transferring the inventory: - In the event any item of expendable equipment or spare parts on which a construction-differential subsidy has been paid, or an allowance has been included in the purchase price of the ship is transferred to another ship, a credit memo stating such a transfer should be issued and a contra memo initiated charging the ship to which the item is transferred. ¹⁹

¹⁹Ibid., Section 293.7 (d), as amended.
RESERVE FUNDS

The United States shipping law has provided for the creation and maintenance by steamship companies of three types of reserve funds. Each company holding an operating-differential subsidy contract is required to maintain a "capital reserve fund" and a "special reserve fund."\(^{20}\) The primary purposes of these mandatory funds are to insure the prompt payments of certain obligations to the United States government, to provide funds for the replacement of subsidized vessels as required and to insure the continued maintenance and operation of subsidized vessels. Any steamship company, whether subsidized or not, which operates a vessel in the foreign or domestic commerce is permitted to establish a "construction reserve fund."\(^{21}\)

**Capital Reserve Fund**

The capital reserve fund is a replacement fund.\(^ {22}\) The subsidized steamship company is required to deposit into this fund an amount of money equal to depreciation charges each year on owned subsidized vessels and the proceeds of sales and insurance indemnities on any of these vessels which may be sold or lost.\(^ {23}\) The Maritime Administration may permit


\(^{21}\)Ibid., Section 511 (b), as amended.


voluntary deposits of earnings otherwise available for payment of dividends into this fund.  

The capital reserve fund is primarily used to purchase or reconstruct vessels and to pay mortgage notes on subsidized vessels. In case of urgent financial need and prior exhaustion of the special reserve fund, the capital reserve fund, with the consent of the regulatory agency, may be temporarily drawn on to pay debts, if operating losses on subsidized vessels have seriously depleted the company's working capital. The sum so drawn should be repaid to the capital reserve fund as soon as the company's financial condition permits.

**Special Reserve Fund**

The special reserve fund is another item peculiar to steamship accounting for subsidized companies. This fund is set up mainly for (1) paying the governmental recapture, or (2) meeting the possible future depletion of the company's working capital due to operating losses.

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24 The operating-differential subsidy contract, as required by the Merchant Marine Act of 1936, as amended, limits the dividends that may be paid from earnings of subsidized vessels to 10% per annum of the capital necessarily employed in the subsidized operations, after provisions for taxes, determined in accordance with regulations prescribed by the Maritime Administration.


26 The governmental recapture is a repayment of operating-differential subsidy to the government. The Merchant Marine Act of 1936 implies that if a steamship company can earn more than 10% per annum on its "capital necessarily employed" in the subsidized operations, the subsidy is not really needed. One-half of any such excess must be paid back to the government. The recapture is estimated annually over a recapture period of 10-years on a cumulative basis from the beginning of the period to the date of calculation. These estimates are tentatively and final determination is not made until the end of the period.
The fund may be termed as "shock absorber." The special reserve fund may also be used for financial construction of new vessels or for transfer to the capital reserve fund. For these purposes, the steamship company is required to deposit into the fund a sum equal to any profit of its subsidized operations in excess of 10% of capital necessarily employed.

**Construction Reserve Fund**

As stated early, any steamship company, subsidized or non-subsidized, can maintain a voluntary construction reserve fund. The steamship company may deposit into this fund the proceeds of sales and insurance indemnities on any of non-subsidized vessels which may be sold or lost. The construction reserve fund may be used for the purchase or reconditioning of vessels. Such a fund resembles the replacement fund under the Internal Revenue Code for owners of property in general. However, the advantage which a construction reserve fund offers over a replacement fund is that the construction reserve fund is open to the proceeds of vessels lost or sold voluntarily as well as involuntarily. Since the construction reserve fund in part serves the same purposes as a capital reserve fund, subsidized steamship companies generally do not maintain the construction reserve fund.

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31 This fact is substantiated by annual reports of the American President Lines, Ltd., Delta Steamship Lines, Inc., Lykes Brothers Steamship Co., Inc., and United States Lines Company.
**Accounting Treatments**

It must be noted that a retained profit reserve is not a fund. Funds are investments and appear on the asset side of a balance sheet, whereas retained profit reserves are part of total retained earnings and are shown in the stockholders' equity section of the balance sheet.

Funds are usually kept in the form of cash or securities that are readily convertible into cash, so that cash will be available to meet the requirements for which the fund has been created. The foregoing three reserve fund accounts are charged with cash and legal securities deposited in the funds and are credited with withdrawals therefrom in accordance with the provisions of the Merchant Marine Act of 1936. The earnings of the fund are ordinarily included in the fund.

**Income Tax Benefits**

One of the most interesting tax problems is the deposit into and withdrawal from the statutory reserve funds. Since it is unfeasible for steamship companies both to deposit into funds an amount equal to profits and also to pay income taxes thereon, the shipping law has provided for certain tax benefits. A well-known section of the shipping law states:

The earnings of any contractor receiving an operating-differential subsidy under the authority of this Act, which are deposited in the contractor's reserve funds......except earnings withdrawn from the special reserve funds and paid into the contractor's general funds or bonuses.......shall be exempt from all federal taxes.\(^{32}\)

An analysis of the above provisions indicates that the mandatory reserve funds are exempt from current income taxes. That is, the sum equal to any profit of a company's subsidized operations deposited into

such funds can be deducted from the current taxable income. On the other hand, if these funds are withdrawn for any other purposes, they become subject to income taxes in the year of withdrawal. In fact, these statutory reserve funds are not considered as tax exempt, but rather are tax deferred reserve funds. The maintenance of such funds enables the steamship company to obtain deferment of federal income taxes. As a result of the postponement of income taxes, the steamship company has the use of a sort of interest-free loan.

As already mentioned, non-subsidized steamship companies may elect to make use of two statutory reserve funds - replacement fund and construction reserve fund. These two funds are somewhat similar in purpose, except that the construction reserve fund applies only to American vessels and includes the case of a voluntary sale as well as an involuntary conversion. The shipping law provides that no gain is recognized for tax purposes if the proceeds from sales of vessels are deposited in the construction reserve fund within 60 days.33 Although the maintenance of a construction reserve fund also carries with it some income tax benefits, these are less important than the tax benefits

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33 Ibid., Section 511 (c).
attaching to the mandatory reserve funds. In actual practice, the construction reserve fund has not proved attractive and has not been used widely.

Income tax benefits of the construction reserve fund provided by the Merchant Marine Act of 1936 are similar with those of the replacement fund under the Internal Revenue Code of 1954.

CHAPTER V

ASSET ACCOUNTING: PROPERTY AND EQUIPMENT

The magnitude of the task of accounting for property and equipment of a steamship company is immense because of both the high dollar amounts involved and the almost unlimited variety and number of physical units. Most of the capital investment of a steamship company is represented by vessels, tugs, barges, lighters, floating cranes, shore cranes, furniture, fixtures, and other shipping and terminal facilities. However, this chapter is limited to that property and equipment which might be considered unique to the steamship industry. Accounting for other property and equipment, which may be found in the manufacturing or merchandising business, such as land, building, trucks, and office equipment, is not discussed in detail because there are no special problems involved.

CLASSIFICATION OF PROPERTY AND EQUIPMENT

Those assets which are of relatively permanent nature, and with which the steamship business is carried on, are known as property and equipment. The terms "property and equipment" and "capital assets" are used synonymously. These assets are maintained instead of being offered for sale, and their use provides the means of carrying on the shipping service for which a company was organized. Property and
equipment items of a steamship company are usually acquired through the
direct expenditure of money or its equivalent.

The classification of capital assets of a steamship company as
proposed by the Maritime Administration is one of the most complete
classifications for property and equipment in the shipping industry.
The classification is designed primarily for the large liner companies,
thereby automatically covering all of the capital assets of the small
steamship operators. Property and equipment of the ocean shipping
industry may be classified into the following categories.\(^1\)

**Floating Equipment:** \(\textbf{Vessel}\)

A floating object displaces its own volume of water. Not all
boats are ships. Generally speaking, a ship or vessel is a large boat
capable of navigation on the ocean, and is usually constructed for that
purpose.\(^2\) Modern vessels are invariably built of steel, unless for a very
special purpose. The vessel is purchased or built by a maritime carrier
for use in ocean transportation service between terminals. The cost of
a vessel should include its hull, machinery, appurtenances, furniture,
and fixtures necessary to equip it for service, as well as the cost of
inspection and transportation to port at which it enters service.

**Other Floating Equipment**

Floating equipment other than vessels as previously defined is
termed other floating equipment. This group of minor floating equipment

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is acquired for the purpose of loading and unloading seamen, passengers, or cargo between a vessel and the shore, that is, for use in harbor transportation service, such as tugs, barges, scows, launches, lighters, floating cranes, and so forth. The equipment includes all costs of construction or acquisition, as well as appurtenances, furniture, and fixtures to equip it for service.

**Terminal Property and Equipment**

Some steamship liner companies are engaged in terminal operations. Those capital assets which are used in the terminal operations are known as terminal property and equipment, such as terminal land, buildings, leasehold improvements, and other structures, as well as shore cranes, trucks, and other terminal gear and equipment. The cost of an asset should include its cost of construction or acquisition for use in terminal service.

**Other Shipping Property and Equipment**

Occasionally certain property and equipment items cannot satisfactorily be included under any of the previous groups and are listed under the heading other shipping property and equipment. This group of capital assets includes land, office buildings, leasehold improvements, furniture, fixtures, and any other property and equipment used exclusively in shipping operations which are not applicable to the above three groups of assets.

**Non-Shipping Property and Equipment**

Any capital assets, such as land held for future use or investments in buildings for lease purpose, which do not fall into the other classifications. With these assets a steamship company is engaged in non-shipping business.
Construction Work in Progress

The construction of a vessel or a building usually cannot be finished within one year. Such a group of assets includes all expenditures incident to the costs on vessels or other capital assets in progress of construction which can be capitalized according to sound accounting principles.

The flexibility of the above classifications will allow their expansion or contraction to fit the individual needs of the steamship company using them. Any desired degree of detail may be obtained through the use of subsidiary records on which full descriptions of property and equipment may be shown.

DISTINCTION BETWEEN ASSET AND EXPENSE ITEMS

Careful distinction between asset and expense items is one of the fundamental problems of steamship accounting and is essential for matching revenue and cost and, therefore, for the proper measuring of net income. In general, expenditures on property and equipment for ordinary repairs and minor part replacements are considered as expenses. Expenditures for new equipment and for improvements are charged to the asset account. Expenditures for extraordinary repairs and major part replacements that prolong the utility of the asset over its initially estimated useful life may be charged to the asset account or to the allowance for depreciation account. In specific cases, however, accounting treatment of asset and expense items may differ in practice, depending upon materiality, nature, company policy, accounting periods benefited, and the effect of governmental regulations.
General principles and rules need to be supplemented by a consideration of expenditures of various kinds, such as vessels, terminal facilities, and other kinds of shipping property and equipment. These are discussed below.

**Vessels**

One of the largest items appearing on the balance sheet of a steamship company is investment in vessels. Large sums are spent annually to increase this asset. The charges to this asset account usually run into millions of dollars. Expenditures in connection with the vessel may be roughly classified into: (1) purchase or contracted price, (2) improvements, and (3) repairs.

One of the greatest problems encountered in accounting for vessel expenditures is determining whether a specific item should be capitalized or charged to expense at the time of its occurrence. The purchase or contracted price of a vessel, of course, should be charged to an asset account. The inspection fees, trial runs, and other charges before putting a vessel into service are considered as part of the cost of the vessel.

Improvements may provide greater durability for an existing vessel, or they may increase the efficiency of productivity of the existing vessel. Any addition, alteration, betterment, or modification is considered as improvement to a ship. A popular misconception is that all improvements should be capitalized. In order to further develop the distinctions between asset and expense items, many companies establish

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a somewhat arbitrary policy of charging expense with all disbursements which are less than a fixed amount. The entry for an expenditure in excess of the fixed amount is determined by the nature of the expenditure. Shipping regulations have laid down some rules with arbitrary classification by dollar amount. They are presented as follows:

(1) Any improvement that does not exceed $10,000 in aggregate is considered as current expense.

(2) Any improvement that the aggregate amount is more than $10,000 but less than $50,000 is recorded as deferred charge. It will be apportioned to operating expenses of subsequent voyages.

(3) Any improvement that the total amount of expenditures exceeds $50,000 is treated as capital expenditure.

Another popular misconception is that a large expenditure should be capitalized and at best written off over a few years. Special attention should be paid to the nature of expenditures and without regard to their size. Ordinary repairs and annual overhaul merely tend to maintain a vessel in useful and efficient operating condition; they do not add to the initial cost, and they do not lengthen the life of the vessel beyond the originally estimated one. Consequently, ordinary repairs and annual overhaul are charged to operating expense.

Other Capital Assets

Of course, expenditures for terminal buildings, tugs, barges, cranes are charged to asset accounts. Often it is difficult to tell for sure whether a particular expenditure such as a gear, tool, or a repair charge will benefit future periods. The steamship company should

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follow a consistent policy in classifying each type of expenditure. Materiality also has an important bearing on the distinction between asset and expense items. For practical purposes, most companies establish a somewhat arbitrary dollar amount, say $10, $50, or $100, below which expenditures are charged to current expense regardless of the length of their estimated useful lives.

VALUATION OF VESSELS

Vessels are the sole instrument of ocean transportation, which constitute the high dollar value and the largest amount in the property and equipment account of a steamship company. Generally accepted accounting principles hold that a vessel's original costs are appropriate for accounting records and statements purposes. Cost is the price paid or consideration given. As a general rule, the cost of a vessel acquired in a non-cash transaction is determined either by the fair market value of the consideration given or by the fair market value of the property received, whichever is the more clearly evident.

Interest During Construction Period

As already mentioned, if a vessel is purchased, its cost includes the purchase price plus commission, inspection, trial run, and test charges, as well as all costs of improvements necessary to equip it for service. If a vessel is constructed instead of purchased, the cost

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includes naval architect fee, the contract price, shipbuilding supervision expense, inspection, trial run, and test charges, as well as all costs of appurtenance, furniture, and fixtures necessary to equip it for service. Interest expense accrued during the period of construction on borrowed capital used to make payments on account of construction may also be added to the cost of the new ship.\(^7\)

Interest expense incurred during the construction period may be charged to the cost of the asset. The justification advanced is that, unless the expenses can be identified with some other activity, all expenses during a vessel construction period benefit the shipbuilding either directly or indirectly. There is a reasonable objection to this practice on the ground that interest is a money cost, not a construction cost, and it can be avoided by use of the proceeds of additional capital stock. The practice of capitalizing construction period interest is no longer challenged.\(^8\)

The Maritime Administration permits steamship companies to charge to the vessel account the interest expense incurred during the period of construction on borrowed money used to make payments on account of shipbuilding, regardless of whether the construction is done by the steamship company itself or by the governmental agency.\(^9\) The interest

\(^7\)Ibid., p. 381.

\(^8\)This practice has developed in public utility accounting of regarding interest costs during construction on funds borrowed to finance construction of a capital asset as a part of asset cost. The Federal Power Commission authorizes the capitalization, not only of actual interest on funds borrowed from outsiders, but of an implicit interest charge for utility companies' own funds.

\(^9\)U. S. Congress, Code of Federal Regulations, Title 46, Section 284.1 (b) as amended, op. cit.
charge must be reduced by the interest earned on the same funds during construction. Such a capitalization of interest is allowed because no income is earned by the asset during the construction to cover the interest.

**Bonus or Penalty on Construction of Vessels**

When a vessel is under construction, each day's delay in delivery is a loss to the shipowner. The shipbuilding interest often provides that if there is any unreasonable delay, through causes within the control of the shipbuilder, in delivery of the ship to the shipowner after the prescribed date, a certain amount, say $200 per each day's delay, must be paid to the shipowner as a penalty against the shipbuilder. In the meantime, if the shipowner has wanted to put the vessel into service as soon as possible, a specified amount of bonus per day payable to the shipbuilder for an early delivery may be provided in a shipbuilding contract. Some accounting treatments of the bonus or penalty on vessel construction are discussed below.

**First method:** Bonus or penalty as a charge against the operation: -

Under this method, the bonus paid by the shipowner for rapidity in delivery of the vessel should be regarded as a charge against revenue, because such bonus for an early delivery can hardly be considered as an element of ship construction cost whereby the purchase price is increased. Expedited delivery has placed the shipowner in a position to utilize the new vessel as a revenue producer at a date earlier than the contractual delivery date, and thus bonus payments appear to be a proper charge against revenue of the period. If the amount of bonus is relatively material, it may be apportioned between current and subsequent periods, the unamortized balance being carried forward as a deferred charge.
A penalty against the shipbuilder for a delayed delivery should be treated in like manner, that is to say as a credit to revenue.\(^\text{10}\)

**Second method:** Bonus or penalty as addition to or deduction from vessel cost: Since capital assets should be recorded in the accounts at actual amount of cash paid for them, the bonus or penalty should be respectively added to or deducted from the amount to be charged to the cost of the vessel.\(^\text{11}\) It is a common accounting practice to accept actual cost without attempting to adjust it to a fair value by reason of minor errors in judgement, delay, or mistakes reflected in the actual cost.

Each alternative as discussed above has its justification, either in theory or in practice. There is no complete agreement among accountants in steamship business as to the proper treatment of bonus or penalty on construction of vessels. Either one of the two alternatives may be used. For its simplicity, the second method is usually preferred.

**Vessels Acquired from a Related Company**

In some instances, vessels may be acquired from a subsidiary company, holding company or other kinds of related companies. The Maritime Administration permits a steamship company to make adjustments for the net cost of all capitalizable improvements, reconstruction, or reconditioning made by the related company. However, no adjustments


\(^{11}\) Ibid., p. 536.
may be made in regard to expenditures which are not capitalized, such as those which are treated as deferred charges.\textsuperscript{12}

DEPRECIATION OF VESSELS

The huge balances in property and equipment accounts reflect a steamship company's investment in earning assets located throughout its operating territory. The dollar value of property and equipment items of a company is composed chiefly of owned vessels. It is important, therefore, that proper provision be made for computing and recording the depreciation of vessels represented by the asset account. Depreciation is that portion of the cost of a capital asset that is systematically allocated to expense each fiscal period. The allocation is justified due to use in the carrying on of a business, the passage of time, and obsolescence.

\textbf{Depreciation on Historical Cost versus Replacement Cost}

Vessels are customarily entered in the accounting records at the price paid to acquire them. The real worth of a vessel may change with the passage of time; the accounting valuation of the vessel does not necessarily reflect what the asset is worth, except at the moment it is acquired. Since there is no intention of selling a vessel in the normal operating cycle, the original cost of the asset should be spread over its entire estimated useful life in the form of depreciation charges.

In recent years, the continued use of the historical cost concept has not gone completely unchallenged. It is unstable to the extent that

\textsuperscript{12}\textit{U. S. Congress, Code of Federal Regulations}, Section 284.1 (e), \textit{op. cit.}
the money represents general purchasing power. Depreciation of vessels based on the past costs may be considerably above or below depreciation on currently acquired vessels. Financial statements prepared in terms of historical cost reflect dollars with varying degrees of purchasing power and fail to reflect the effect of such changes on the financial position of the company and its operating results. In addition, one of the functions of the management of a steamship company is to provide a continued service with a fleet of capable vessels, rather than to engage in a single venture terminating when the vessels become obsolete. Depreciation based on historical costs may cause a possible impairment of working capital through the payment of dividends. For these reasons, voyages should bear the cost of maintaining the long run service, that is to say charging vessel depreciation at replacement cost.\(^{13}\)

However, depreciation of vessels based on replacement cost violates both the going-concern assumption and the realization concept, and is likely to overstate the actual expenses. Further, management knows that earnings must be plowed back high enough to buy new vessels when the old are worn out. Finally, for tax purposes the basis for depreciation continues to be original cost;\(^{14}\) the basis for computing gain or loss on the disposal of a vessel is the asset book value stated in terms of actual cost.\(^{15}\)

\(^{13}\) H. M. Grace, "Shipping Companies' Accounts," \textit{The Accountant} (England), August 11, 1956, p. 132.


\(^{15}\) Ibid., \textit{Internal Revenue Code of 1954}, Section 1012.
Nevertheless, the great majority of present accountants still maintain that accounting is concerned with original cost and its disposition - what actually happened and not what might have happened had conditions been different. It should be noted that the historical cost concept is accepted in steamship accounting and that depreciation of vessels is computed on their original costs.\(^{16}\)

**Factors of Depreciation**

The three factors discussed below must be taken into consideration in computing periodic depreciation.

**Cost:** As indicated early, vessels are customarily valued at actual cost of acquisition, not the cost of replacement or reproduction, including adjustments for improvements, reconstruction or reconditioning.

**Estimated life:** The generally accepted methods of vessel depreciation are based on the fundamental assumption that a vessel's value is impaired somewhat in conjunction with the passage of time.\(^{17}\)

The useful life of a vessel is often assumed to be 20 or 25 years from date of launching, that is to say from date of final delivery upon completion of the vessel by the shipbuilder to the first shipowner.\(^{18}\)

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If a vessel is not new at the time of purchase, the same estimated useful life is used after an adjustment is made for the period of time between the dates of launching and purchase.\(^{19}\)

**Residual value:** Residual value may be assumed on the basis of approximately $5 per deadweight ton depending upon the market for scrap.\(^{20}\) Although the deadweight tonnage is not the same as the estimated scrap tonnage, it is merely used in this case as a convenient form of measurement.

**Governmental regulations:** The Maritime Administration has set some rules with respect to the useful life and residual value of a vessel for subsidized steamship companies.\(^{21}\) These rules are summarized below:

1. Twenty years is the useful life for vessels delivered by shipyards prior to January 1, 1946.
2. On and after January 1, 1960 twenty five years is the useful life for vessels delivered by shipyards after January 1, 1946.
3. Residual value is deemed to be 2\(\frac{1}{2}\)% of the original construction cost; that is, the full domestic shipyard construction cost. The residual value may not exceed the purchase price to the shipowner.

**Methods of Depreciation**

Determination of the depreciation of vessels to be charged to current expense for the accounting period may be made by one


\(^{20}\) Lasser, op. cit., p. 761.

of several methods. Those most frequently used are discussed below.

**Straight line method:** The straight line method is widely used. In addition to its simplicity, this method provides a reasonable allocation of vessel cost to periodic revenue because the usage of a vessel is relatively uniform from period to period.

**Declining balance method:** The use of declining balance method is appropriate, because the decrease in productivity of the vessel is proportionately greater in the early years of its use than in later years. Another justification for its use is based on the theory that repairs tend to increase with the age of the vessel, hence the depreciation charge should decrease. As a practical matter, the amount of repair expenses of a vessel goes up year after year, and the vessel often becomes uneconomical to operate after the fourth special survey when the vessel has been in service for sixteen years.

**Sum of the years-digits method:** This method may be applied to figure annual depreciation of a vessel and yields periodic charges similar to those provided by the declining balance method.

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22 Robert N. Murphy, *op. cit.*, p. 7.

23 Ocean vessels of 100 gross tons and over are built under the supervision of one of the officially recognized classification societies, such as Lloyd's Register of Shipping in London, American Bureau of Shipping in New York, and Bureau Veritas in Paris. They have established rules and regulations for classification and construction of steel vessels and their machinery. The vessels are subject to annual surveys and special surveys at four-year interval.
Both the declining balance method and sum of the years-digits method are so-called accelerated depreciation methods. They have become more popular in the shipping industry since 1954 because of income tax considerations. In some instances, steamship companies may depreciate their vessels, which were built prior to January 1, 1946 and later were purchased from the United States government or others, on the straight line method over the remainder of the twenty-years life on the cost less residual value. On a new vessel, however, they use the accelerated depreciation methods.

Recording Funded Depreciation

A common misconception is that depreciation accounting provides a fund of cash for the replacement of capital assets. Depreciation entries merely charge operations, during a series of periods, with the cost of a capital asset previously acquired. Depreciation accounting in no way affects the cash.

It has been observed in earlier chapters that subsidized steamship companies are required to deposit into the capital reserve fund an amount equal to annual depreciation charges on vessels. The practice of funded depreciation differs greatly from that of ordinary commercial

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25 These practices are substantiated by a letter received by the writer from Isbrandtsen Company, Inc. in New York, dated May 12, 1960.
industries. Entries to record the funded depreciation are illustrated below.

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<td>Depreciation Expense - Vessels</td>
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<td>Allowance for depreciation</td>
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<tr>
<td>Capital Reserve Fund</td>
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<tr>
<td>Cash</td>
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DEPRECIATION OF OTHER CAPITAL ASSETS

Steamship companies usually have large numbers of property and equipment items other than vessels widely scattered throughout their operating area. The cost and useful life of these items vary with their kinds. Tugs, barges, lighters, and launches are now frequently estimated at about 15 years. Floating cranes and shore cranes may be given a shorter life. Furniture and fixtures may be expected to last about 10 years. The lives of all other gear and equipment are determined for each class or individual piece of equipment. At the present time regulatory bodies have not prescribed the exact period of time for depreciable furniture and fixtures. There is no uniform practice in handling the depreciation of property and equipment other than vessels. Some steamship companies employ straight line method, declining balance method, or sum of the years-digits method for computing depreciation of individual items, while others use a group depreciation plan.

PROPERTY AND EQUIPMENT RECORDS

Vast investments are made in shipping property and equipment, especially vessels. It is important that this money be expended in the most judicious manner, and controlled in such a way that the maximum benefits can be realized from such expenditures. It is evident that
property and equipment records are necessary for a steamship company. Such records not only serve the requirements for the taking of inventories for valuation purposes, but they are of importance also in securing accounting and statistical information for the preparation of financial reports.

**Vessel Records**

The records for a vessel should be kept in considerable detail, to provide information regarding purchase price and condition for insurance purposes, to furnish information regarding useful life and residual value for depreciation purposes, and to supply information regarding capital necessarily employed and statutory reserve funds for income tax deferral purposes. In recent years no segregation has been made between vessel hull and machinery, although at one time these elements were depreciated separately by some steamship companies. Manifestly, it would be quite expensive. Both the hull and machinery now are considered as one property unit and recorded together. A subsidiary ledger should be maintained, with a sheet or card for every vessel.

Figure 10 illustrates the form of vessel subsidiary ledger used by a steamship company. The ledger contains the following information, part of which will be posted from books of original entry and part of which will be recorded merely as memoranda:

- Account number
- Name of vessel
- Date of construction
- Date of acquisition
- Acquisition cost
- Residual value
- Deposit cost basis

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Economic life
Depreciation rate
Periodic depreciation provision
Information concerning tax deferred funds

Other Capital Asset Records

Steamship companies have a great variety of property and equipment items other than vessels. It is not easy to maintain satisfactory records of these items necessary for shipping operations. Property and equipment records should be designed so that they clearly locate and identify each property unit and show the cost of such property units, reconciled with book values. It is desirable that this information be available in the least expensive and most useful way.

Figure 11 shows a record of property and equipment items other than vessels. The subsidiary ledger record for each property unit contains the following information:

Account number
Name of property
Location
Custodian
Date of acquisition
Estimated useful life
Acquisition cost
Depreciation rate
Periodic depreciation provision

The sheet or card on a fully depreciated asset will be retained until the capital asset is disposed of since this ledger is an active inventory record. Only on disposal of a capital asset will the sheet be removed from the ledger.

SOME TAX FEATURES

Taxes incurred by a business enterprise usually amount to a substantial portion of the sales dollar. The impact of federal income taxes on the working capital and other portion of the business may
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<th>Year</th>
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<th>Required Depreciation</th>
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<tr>
<th>Investment of Tax Deferred Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Figure 10 Vessel Record
PROPERTY AND EQUIPMENT RECORD

Account Number:
Name of Property:
Location:
Custodian:
Date of Acquisition:
Estimated Useful Life:
Cost of Acquisition:

<table>
<thead>
<tr>
<th>Depreciation Information</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>Rate</td>
<td>Amount</td>
</tr>
<tr>
<td>First &amp; Last</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First &amp; Last</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 11 Property and Equipment Record
be severe. Tax considerations are likely to be of importance in the operation of steamship companies. Shipping industry taxes differ greatly from those of any other industry. It is the purpose of this section to present a brief discussion of some more important features in connection with property and equipment of steamship companies.

**Property Taxes**

Property taxes are a primary source of revenue for local governmental units. Nearly every asset which appears in the balance sheet of a company is subject to either real property taxes or personal property taxes. Real property taxes are levied against the land, buildings, and improvements owned by the company. Personal property taxes are levied against such assets as inventories, furniture and fixtures, trucks, cranes, stevedoring gears, and frequently against accounts receivable and even bank deposits. However deep-sea vessels, because of their location, are usually not subject to any property tax.

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27 Poole, *op. cit.*, p. 1153.

28 The sum of total municipal revenues in 1961 was $15,822,000,000 and the sum of total property taxes in the same year was $5,515,000,000, which was 34.9% of the total municipal revenues; see Orin F. Nolting and David S. Arnold, editors, "National Summary of City Financial Transactions," *The Municipal Yearbook of 1963* (Chicago, Illinois: The International City Managers' Association, 1963), p. 265.

Voluntary Conversion

The tax law provides that no gain or loss is recognized when a property held for productive use in a business is exchanged for a like kind of property to be held for the same purpose.\(^{30}\) A provision is also made in shipping law for steamship companies to trade in to the government an obsolete vessel in exchange for an allowance on the purchase price of a new vessel.\(^{31}\) The allowance is not paid directly to the steamship company trading an obsolete vessel, but is paid to a shipyard constructing the new vessel. An obsolete vessel to be eligible for trade-in must be: (1) over 1,350 gross tons, (2) at least 10 years of age for a tanker and 12 years old for a dry cargo vessel, and (3) owned by an American steamship company more than three years before the date of trade-in.\(^{32}\)

Involuntary Conversion

Ocean vessels are subject to a number of risks. If a vessel is sunk, destroyed or condemned, the insurance or condemnation proceeds amounting to more than the cost of the lost vessel are free from income taxes, provided the shipowner uses the proceeds for purchase of a replacement vessel within a certain period of time. Loss from involuntary conversion is recognized, but gain is only recognized to the extent of proceeds received that are not expended for replacement.\(^{33}\)


Similar in effect to the tax law on involuntary conversion is the treatment of transfers of vessels to the Maritime Administration. No gain is recognized if the proceeds of such transfers are placed in a construction reserve fund within 60 days.\textsuperscript{34}

**Emergency Amortization**

An emergency amortization privilege is provided by tax law for facilities that were bought or built after 1946 and certified before 1960 as necessary for national defense.\textsuperscript{35} The facility may be depreciated over a period of 60 months instead of over its entire useful life. In practice, however, this privilege has not been applied in connection with vessels to the extent that might seem likely. The reason is that if war or other national emergency occurs, the United States government will immediately requisition all shipping facilities, including vessels and shipyards. In instances where this emergency amortization privilege in regard to vessels has been used, it appears that the amortization provision has been of greater importance to steamship companies rather than the amortization itself.\textsuperscript{36}

**USING ELECTRONIC DATA PROCESSING**

Since the introduction of electronic data processing to business use, management has found it serviceable as a device of accounting

\textsuperscript{34}U. S. Congress, *Merchant Marine Act of 1936*, Section 511 (c), as amended, op. cit.


control. Appropriate control is made difficult by the large number of property and equipment items and their scattered locations of a steamship company. In order to ascertain that property and equipment recorded in the accounts exist and that the existing assets are properly recorded, it is essential that adequate detailed records be kept and that an inventory of these assets be periodically taken. Consequently, most large steamship companies have employed electronic data processing in property and equipment accounting for furnishing complete records and computing depreciation charges.

A Case Study

As an illustration of the use of electronic data processing in property and equipment accounting by a steamship liner company, the Grace Line, Inc. provides a case study. The company's system of using electronic data processing in the property and equipment accounting went into effect on January 1, 1959. The straight line method is used for computing depreciation of property and equipment that were purchased before January 1, 1954. All items purchased after that date are depreciated on the sum of years-digits method and all depreciation amounts are determined as of the individual depreciation dates.

Some important features of the system are summarized as follows:

1. Where separate records are needed for tax and corporate purposes, two complete decks of property and equipment cards are maintained and the cards of each deck are identified by a significant punch in card column 80.

2. There is a single card for each asset. The columns of the property and equipment cards contain the following data:
Card Column | Description
--- | ---
1 to 6 | Property and equipment account number
7 to 11 | Account name
12 to 17 | Location - Department and port
18 to 26 | Asset identification
27 to 41 | Asset description
42 | Transaction identification
43 to 44 | Year of purchase
45 to 46 | Monthly depreciation
47 to 48 | Annual depreciation
49 to 51 | Estimated useful life in months
52 to 54 | Remaining estimated useful life in months
55 to 62 | Total capitalized cost
63 to 70 | Beginning depreciation reserve
71 to 78 | Ending depreciation reserve
79 | Method of depreciation
80 | File code A, B, or G (Use 1, 2 or 3 respectively)

3. Property and equipment cards are run monthly to compute monthly depreciation. In addition, at the end of each year the following schedules are prepared as indicated below: (1) A detailed schedule shows the asset account number, account name, location, asset description, transaction identification code, month of disposal, monthly depreciation, annual depreciation, useful life, capitalized cost, beginning depreciation reserve, and ending depreciation reserve. (2) A detailed schedule shows the same information as (1) above only on the tax depreciation basis rather than on the corporate depreciation basis. (3) The above two schedules are each supported by the detailed information concerning purchase, transfer, trade-in, retirement, and disposal. (4) An analysis report of the tax provision is prepared according to asset groups and within asset groups according to methods of depreciation. (5) A report projecting corporate depreciation is prepared as at October 31 for the following year. This is used as a basis for budgeting purposes.
CHAPTER VI

REVENUE AND EXPENSE ACCOUNTING

Steamship companies sell space in a vessel for the conveyance of goods and persons between port of loading and port of discharge. Compensation for the sale of this space is expressed in terms of freight and passenger rates. In this chapter general principles of ocean rate-making as applied to various shipping revenues are described briefly. Accounting for revenues and expenses is treated in considerable detail. Finally, brief comments are also made with respect to foreign taxes and federal income taxes.

OCEAN SHIPPING RATE-MAKING

General principles of ocean shipping rate-making are often expressed by terms cost of service, value of service, and charging what the traffic will bear.¹ Individual rates are determined by numerous factors, such as types of ocean carriers, classes of services, localities of transportation and kinds of commodities. The transportation of commodities and passengers constitutes a large part of the world's vessel tonnage and the carriage of mail is relatively small in amount.²

²Ibid., p. 212.
This section is confined to the discussion of freight and passenger rate features.

**Freight Rates: Liner Service**

The rate-making of the liner service differs greatly from that of tramp shipping. The freight charged for the transportation of liner cargo is based upon weight or measurement. The term tonnage as applied to freight differs radically from that applied to vessels. Revenue tonnage is the tonnage on which freight is computed. A weight ton is usually 2,240 pounds in international trade, frequently 2,000 pounds in domestic trade in the United States. A metric ton is almost the same as a long ton of 2,240 pounds. A cubic ton is usually 40 cubic feet and is a unit used in measuring certain commodities.

Almost all steamship liner companies join one or more related ocean conference agreements. In effect these agreements are primarily concerned with freight rates covering either all cargo or leaving a few commodities subject to open rates. The agreed rates apply to all members of the conference. Conference rates, usually agreed upon for a period of time by the members and frequently published, are less elastic than tramp cargo rates. Tramp cargo rates usually reflect the immediate supply and demand conditions and are usually established for the particular situation by direct bargaining at the time.

In the establishment of shipping tariffs, numerous factors should be considered such as volume and character of the cargo, packaging, stowage, relationship of weight to measure, heavy lifts, and extra lengths, costs of operation, port facilities and regulations, return cargo, and competitive matters.⁴

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In ocean shipping, there is little class grouping for rate-making purposes. In this respect, ocean liner rate schedules differ substantially from those prevailing in the railroad industry where rates are prescribed for particular commodities in detail. 5

Freight Rates: Tramp Operation

In the tramp operation a vessel's space is chartered. There are several forms of chartering, but the most common are bareboat charter, time charter, and voyage charter. 6 The former term refers to the charter-party in which the charterer pays all expenses. In the time charter the shipowner pays certain operating expenses such as seaman wages, and consumable stores, while a voyage charter is one where all expenses except cargo handling charges are borne by the shipowner. These contracts are discussed in more detail in the following section.

The influences determining charter rates differ from those described in connection with liner rates mainly in that charter rates are subject to more free competition and fluctuate widely with the supply of tramp tonnage and the demand for such tonnage from time to time depending upon the quantity of cargo available and the number of vessels available at the present time or at the future dates to carry the cargo. Charter rates, in some instances, may change many times a day at principal ports of the world. 7 The bidding offer of charter

5 Berglund, op. cit., p. 214.
7 Berglund, op. cit., p. 216.
rates usually includes the cost of sailing in ballast from a given port to the loading port or from one unloading port to another.

Passenger Fares

The ocean passenger fare covers transportation, accommodations and meals. Fares are quoted in terms applicable to adult individuals. Children between certain ages are usually carried at half rates.

Since passenger fares are constructed on the basis of mileage, there is no recognition of the tapering principle which characterizes freight rate structures. The grouping of passenger services depends largely upon the size, speed, and accommodations of the vessel.

Ocean fares are not directly subject to tramp competition although some tramps carry a few passengers. Direct competition is limited to the liners themselves and in some routes is subject to control by conference agreements through which passenger services and fares are stabilized. In general, ocean passenger fares fluctuate less than do freight rates, but they are less steady than railroad fares. 8

FREIGHT REVENUE

The revenue of a steamship company is derived largely from freight and passenger services. These are two principal methods of acquiring revenue and each of them requires more or less special treatment as far as accounting is concerned.

8 Berglund, op. cit., pp. 218-219.
Liner Freight Revenue

Liner vessels carry a variety of general cargo. Freight revenue arises from revenue tons determined by weighers and measurers of cargo at the pier and from rates specified by certain rate clerks who know the large and complicated tariffs. The tonnage and rates are entered on the bills of lading, which are serially numbered and issued for the given voyage. When a bill of lading is issued to a shipper, it acts as evidence that the cargo has been received from that shipper to be carried by the vessel to a port of destination.9

Freight is computed on the basis of information described in the bill of lading. Freight revenue may either be prepaid at the loading port, or payable at the destination port depending upon arrangements with shippers. The place of payment determines whether the accountability is in the originating office or destination office. A bill of lading must clearly state the terms of payment inasmuch as the release of the cargo at destination depends on this information.

The freight manifest is an accounting and shipping document. At least four copies of the freight manifest are prepared by the freight traffic department or its agency at the port of loading based upon bills of lading. The freight manifest contains the following information:

Name of vessel
Port of loading and date of sailing
Port of destination
Number of bills of lading
Mark of packages
Number of packages and contents

Name of shippers and consignees
Notify address, if any
Weight
Cubic measurement
Freight rates
Gross freight revenue
Rebate
Net freight revenue
Freight prepaid or collect

The freight traffic department keeps one copy of the freight manifest. The remaining three copies are sent to the vessel's purser, accounting department and destination office. The number of carbon copies depends entirely upon the needs of the company and the number of destinations for the given voyage.

Freight manifests are the source documents for the revenue accounting entry. It is of extreme importance that such manifests be verified and reviewed before journalizing can be accomplished. An illustrative entry is presented below:

Cash (for prepaid freight) xxx
Agency (at port of destination) xxx
Branch (at port of destination) xxx
Unterminated Voyage Revenue xxx

On the completion of the voyage the amount in the account "Unterminated voyage revenue" is transferred to the account "Operating revenue - Terminated voyages." For management analysis and control purposes, both of these accounts may be classified as shown below:

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10 If a steamship company is a member of a shipping conference, it frequently grants a rebate on the freight paid by a shipper, provided that the shipper has not made any shipment by a steamship company outside the conference.

1. By classification of revenues.
2. By alphabetical name of vessels.
3. By consecutive number of voyages.
4. By port of call, such as load and discharging ports.
5. By subsidy, if any.

Another important activity performed by the accounting department is the analysis of manifests. Since freight revenue collected often includes carrying cargo for a connecting carrier, it is essential that the revenue from such services be apportioned to the connecting carrier. These earnings are divided on the basis of agreements between carriers.

Most large steamship liner companies have applied electronic data processing to freight accounting. This type of system is able to choose between minimum and actual charges in freight billing and is also able to determine applicable weight or measurement as bases for freight rates. When a shipment is booked and the bill of lading is prepared, a pre-punched card is prepared for each shipment of freight and for the loading and discharging ports. Complete rate information is also punched with the weight or measurement tons of the individual shipment. A pre-punched card carrying all basic information relating to that shipper is matched with the individual shipment card. Both of the cards are processed through the electronic machine which provides a statement of freight revenue for attachment to the bill of lading. One of the copies of the statement serving as a due-bill is sent to the shipper for freight payment. Electronic data processing makes it possible to have all accounting and statistical information concerning
the shipment available in detail almost as soon as loading is completed.  

**Tramp Freight Revenue**

For a tramp company the major variation from the foregoing section lies in the treatment of freight.  

A liner vessel carries general cargo at predetermined rates under the terms of a bill of lading, whereas a tramp vessel often carries a bulk cargo under the terms of a voyage, time or bareboat charter. Some special features of accounting for voyage, time, and bareboat charters are discussed below.

**Voyage charter:** - Freight revenue is computed on the basis of actual quantity, within specified limits, loaded on the vessel. The accounting entry for a voyage charter is about the same as for liner freight revenue, but in addition to the bills of lading and freight manifest, the charter-party should be carefully reviewed. The charter-party is a contract between the shipowner and the charterer, in which payment terms differ greatly from those of a liner's bill of lading.

The terms of a voyage charter usually provide for a certain number of days for loading and unloading cargo. The period is called lay-time or lay-days. When a vessel is under a voyage charter, each day's delay in loading or unloading is a loss to the shipowner. Demurrage is compensation received by the shipowner when the lay-time exceeds that agreed upon in the voyage charter at either loading or unloading ports. Depatch is a reward payable by the shipowner to the

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charterer for loading or unloading a vessel in less than the specified lay-time. The rate of demurrage is customarily double the rate of despatch.\(^\text{14}\)

There are three different views concerning the treatment of demurrage and despatch money. Under the first method, the demurrage received by the shipowner is credited to the vessel's current voyage revenue and despatch money paid to the charterer is charged against its current voyage revenue. The advocates of this alternative maintain that despatch money sometimes actually means a concealed reduction in the rate of freight. Despatch money is computed on the basis of a rate of loading or discharge. In some instances, the rate of loading or discharge is out of proportion to the quantity of cargo which the charterer can actually load or discharge with the existing terminal facilities at his disposal without incurring extra expenses. For its simplicity in use, this method is preferred. However, this method has a shortcoming in that it does not disclose the gross amount of freight revenue in a particular voyage.

Another approach considers despatch money paid to the charterer as the vessel's "other voyage expense" and credits the demurrage received to the vessel's "other voyage revenue." This method is logical in that it avoids a distortion of the gross amount of freight revenue.

The third method shows the demurrage or despatch money as an addition to or deduction from the freight revenue of a vessel's succeeding voyage. The theory implies that expedited loading or unloading has placed the shipowner in a position to utilize the vessel

\(^{14}\text{Murray, op. cit., p. 334.}\)
as a revenue producer at a date earlier than the agreed date, and thus a despatch payment appears to be a proper deduction from the freight revenue of the vessel's following voyage. This method is too theoretical and tends to cause additional clerical work in handling demurrage or despatch money. Also, since a demurrage or despatch payment constitutes a very small part of freight revenue, this method is seldom used.

**Time charter:** - This is the leasing of a vessel by a shipowner to a charterer for a stated period of time at a stipulated rate per deadweight ton per calendar month or for two or more consecutive voyages between certain territories. The shipowner provides salaries and wages, repairs, and consumable stores; and the charterer is responsible for the payment of fuel, cargo handling, and port charges.

The accounting treatment of a voyage charter differs from that of a time charter. The revenue and expenses of a voyage charter are recorded on the basis of voyage accounting. The revenue and expenses of a time charter are accounted for tax purposes on a daily basis.\(^{15}\)

**Bareboat charter:** - As the name indicates, the shipowner leases a vessel to a charterer for a certain period of time at a stipulated rate per deadweight ton per calendar month. The charterer pays all operating expenses of the vessel, including salaries and wages, fuel, repairs, consumable stores, cargo handling and port charges. The charterer obtains the complete control of the vessel which he is operating as if the vessel belonged to his own fleet. The charter revenue and vessel depreciation are recorded on a monthly basis.

\(^{15}\)Ibid., pp. 336-337.
No problems are involved in the accounting for incompletely voyages when the time charter or bareboat charter is used. This is true, since the determination of profit or loss on each voyage is of no significance. Revenues arising from time and bareboat charters are credited to "Charter revenue" account and related expenses are charged to "Charter expense" account.

PASSENGER REVENUE

Good passenger service results from an endless chain of courteous and efficient operations by everyone associated with a steamship company. Everyone works toward the same goal - to secure and retain more passengers and to support the means by which they are assured of a safe, pleasant, and comfortable journey, which leaves them with the desire to travel by ship again.

The available space of the proposed voyage of a passenger liner is allocated in advance among company's branches and agents which are located along the ports of call of the vessel. Each branch and agent is notified of the number of cabins that they may sell and they, in turn, keep the passenger traffic department informed of actual and anticipated bookings.

Passenger revenue arises almost wholly from space assigned by branches or agents to a customer who has purchased a ticket before he embarks. A very small amount of charges for excess baggage and unaccompanied baggage may be added to the passenger revenue.

Also in a passenger liner there may be revenues from operation of a barber shop, beauty shop, laundry, or bar. All such must be considered as part of the vessel's voyage earnings. Since these represent a quite small amount of the total revenue, the amount of revenues and expenses applicable to such activities may first be entered in proper clearance accounts. On completion of a voyage, net earnings, if any, are transferred to the voyage revenue account.

Branches and agents are furnished with tickets that are pre-numbered and the passenger traffic department and accounting department keep a record of the ticket numbers which are furnished to each branch and agent. All tickets are stamped to show the date of sale. Tickets sold are recorded in the passenger manifest. The passenger manifest prepared by an agent or branch contains the following information:

Name of vessel  
Voyage number  
Ticket number  
One way or round trip  
Name of passenger  
Origin and destination  
Class of fare  
Amount

Based on the passenger manifest a credit entry is made in the "Unterminated voyage revenue" account of the home office. Upon the completion of a vessel's particular voyage, the amount is transferred to the account "Operating revenue - Terminated voyages." The passenger manifest is a source document for journalizing. Passenger manifests and tickets collected from passengers aboard the vessel should be carefully verified by the accounting department before entries are made.
MAIL REVENUE

Revenue arising from the transportation of mail is the third source of revenue for steamship companies. The mail is carried according to certain international agreements which fix the minimum charges to be paid. Higher rates may be granted in the form of governmental subsidies.

During the fiscal year ending June 30, 1962, the amount paid by the United States government to steamship companies for the conveyance of surface mail to foreign countries was $10,500,000. The amount of charges accrued payable to the foreign countries for transit services performed in connection with the surface mail of this nation was $317,000. The revenue accrued to the United States for the handling of surface mail originated in the foreign countries was $2,200,000.¹⁷

The transportation of mail between the United States and foreign countries is performed over routes arranged under contract between the government and steamship companies for terms of not more than two years. According to regulations, the postmaster general of the United States is limited as to the amount which may be paid for the conveyance of the mail, that is, to a vessel of American registry this payment is not to exceed eighty cents a pound for other articles and to a vessel for foreign registry it is not to exceed the sea transmit rates fixed from time to time by the Universal Postal Union Convention.

Based on the above information, revenue from mail service may be divided into the following sources:

1. United States mail; foreign - This includes revenue from the conveyance of United States mail between foreign ports or between domestic and foreign ports.

¹⁷These figures are substantiated by a letter received by the writer from the United States Post Office Department, dated June 21, 1963.
2. United States mail; coastwise and intercoastal - This includes revenue from the conveyance of United States mail between the ports of the fifty states of the nation.

3. Foreign mail - This includes revenue from conveyance of mail of countries other than the United States.

Accordingly, separate records are maintained on the basis of these classifications. Revenue from mail service represents a relatively small amount of the total revenue; likewise expenses for handling the ocean mail are a small part of the total. Thus detailed records are not needed.

Services rendered to governmental agencies are usually not paid immediately after completion of the service. An entry is made for transportation of mail by debiting traffic accounts receivable from the United States Post Office Department, if United States mail, and crediting a vessel's particular voyage account.

OTHER REVENUE

This group of revenues represents that derived from the operation of terminal facilities, agency fees, commissions, and so forth. The operation of terminal facilities does not affect voyage accounting, it is a separate branch of the shipping business. Accounting for such operations does not much differ with that used for any terminal. Accounting for agency services will be discussed in the next chapter.

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\[18\] Berglund, op. cit., p. 212.
VESSEL OPERATING EXPENSE

Expenses that are necessary to the maintenance of the transportation service of a vessel on any voyage are referred to as vessel operating expenses. They may include seaman wages, payroll taxes, contribution to welfare plans, subsistence, stores, fuel, repairs and maintenance, vessel depreciation charges, insurance premiums, agency fees, commissions, port charges, cargo handling expenses, canal tolls, and other voyage expenses.

The account "Unterminated voyage expense" is charged when these expenses incur. Upon the completion of a voyage the amount in this account is transferred to account "Operating expense; terminated voyages." For management analysis and control purposes, both of these accounts may be classified as shown below:

1. By classification of expenses.
2. By alphabetical name of vessels.
3. By consecutive number of voyages.
4. By port of call, such as loading and discharging ports.
5. By subsidy, if any.

Through the mechanism of controlling accounts, the vessel operating expenses of the steamship company are summarized in total in the general ledger. The detailed expense accounts, which are quite numerous, depending upon the size of the company and the analysis of its accounting data, are usually kept in subsidiary expense ledgers. In the past a large bound book was generally used as an expense ledger and posted by hand. Recently bookkeeping machines and electronic data processing have been introduced to vessel expense accounting. Due to the difficulty in handling this type of work by the conventional method, card records or loose-leaf ledgers have replaced the bound books.
INACTIVE VESSEL EXPENSE

As noted previously, to a tramp, a voyage may start with the vessel sailing from a given port to a loading port for loading then calling at destination for unloading. To a liner, a voyage is a round trip from a given port back to the same port, and customarily ends with discharge of the homebound cargo. The interval between the completion of a voyage and the commencement of a new voyage is called the inactive period. This may occur when the vessel is waiting for loading the next shipment, or it may be due to repairs and annual overhaul, or to other various reasons. Some expenses such as seaman wages, subsistence and port charges incur during the period regardless of inactivity of the vessel. There is no uniformity of opinion among steamship accountants concerning the treatment of inactive vessel expenses. Three available methods are discussed below.

The least complicated method is to consider the inactive time as overhead. When a vessel is laid up on account of low freight rates or other reasons, the inactive expenses are charged to the profit and loss account, either directly or through the inactive vessel expenses account, and are not allocated over the vessel voyages in the way that idle time is distributed in factory costs.19

The advocates of another method maintain that most reasons for delay in starting a new voyage are due to the benefit of that voyage. The cost of inactive period of one voyage should be absorbed by the

succeeding voyage. This method is to absorb the cost of the inactive period by having the completion date of one voyage and commencement date of another voyage coincide. This is a simple treatment, but it cannot be used in a situation where the vessel's inactive period is too long.

Those who follow the third method believe that all completed voyages of the vessel during a particular year should bear the cost of inactive periods. That is, the cost of inactive periods should be allocated to all completed voyages of the vessel during the year on the basis of a predetermined rate. Expenses incurred in the inactive period are charged to an account "Inactive vessel expense" pending later allocation. For the purpose of analysis and allocation, the account may be subdivided as below:

1. By classification of expenses.
2. By alphabetical name of vessels.
3. By inactive period number.
4. By port of call.
5. By subsidy, if any.

OTHER SHIPPING OPERATIONS EXPENSE

In operation of a large fleet of vessels, some steamship liner companies ordinarily provide auxiliary shipping services for its own vessels or for the vessels of others, such as terminal, cargo handling, tug and lighter operations. Such operating expenses often represent a high percentage of the total expenses of a steamship company, and so are worthy of careful handling and analysis.

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20 Murphy, op. cit., p. 7.
21 Ibid., p. 8.
Expenses of terminal operations include expenses incurred in the maintenance and operation of terminal facilities by a steamship company, such as salaries, wages, rent, heat, light, power, repairs, depreciation, and insurance expenses. Subsidiary accounts may be kept in accordance with the principal classification of expenses. The amount of expenses should be apportioned to the services rendered for the company's own vessels and for the vessels of others.

Subsidiary expense accounts may be maintained according to the operations of cargo handling, such as loading stevedoring, discharging stevedoring, shore labor, tiering, automobile maintenance, sling maintenance, and so forth. Detailed expense accounts for tug and lighter operations may also be kept. These expenses should be transferred to such individual voyage accounts as benefit from the services rendered.

**ADMINISTRATIVE AND GENERAL EXPENSE**

All the expenses incurred in the general office and in the administration of the shipping business as a whole are included here, such as officer salaries, employee wages, legal and accounting fees, rent, heat, light, power, communication expenses, office supplies, traveling expenses, and so forth. These are items of a general character that cannot be directly charged to a particular vessel's voyage account. Subsidiary accounts may be maintained separately by offices or departments and by classification of expenses.

Practices followed by steamship companies in connection with the ultimate treatment of administrative and general expense may be summarized as below:
First alternative: Some steamship companies advocate allocating the overhead against their vessels, voyage by voyage. This is a logical treatment and widely adopted, because individual voyages are benefited with the administrative services. The allocation of overhead calls for managerial decisions making it an integral part of business planning and policy formulation.

Second alternative: Some very small companies keep their administrative and general expenses in separate accounts and transfer the overhead against profit and loss at the end of the fiscal period. This practice is based on simplicity and economy, inasmuch as they operate very few vessels.

TREATMENT OF INCOMPLETED VOYAGES

In shipping industry the voyage has been customarily used as the accounting unit. The revenue and expense are sorted by vessel and voyage. However, the length of a voyage is indeterminate. To start and end between the first and last days of a calendar period would happen only by a matter of chance. For the purpose of reporting to outsiders, however, the calendar year is the usual accounting period. Most corporate by-laws require an annual report to the stockholders, and income tax reporting is also on an annual basis. In addition, the calendar year as the steamship accounting year is prescribed by the United States shipping statutes for the purpose of sending financial statements to the government.

Since financial reports should be made at the end of each fiscal period, voyages which are not completed at that time become an accounting
problem. The revenues and expenses of an incompleted voyage may be treated in various ways.

The least complicated method is to disregard the adjustment for incompleted voyages. The theory implies that incompleted voyages are likely to be rather uniform at the ends of successive fiscal years. Reasonably accurate results might be obtained, if incompleted voyages are consistently ignored from year to year and no adjusting entries are made therefor. When this method is adopted, all revenues received and expenses incurred are directly recorded in the terminated voyage accounts instead of recording in the unterminated voyage accounts. As a general accounting principle, revenue is considered to be realized at the time a voyage is completed, or when a service is rendered. This method places income realization in periods removed from the proper period and is rarely used.

Another method is to estimate the completed portion of a given vessel's voyage revenues and expenses on the percentage of completion. This method accepts the theory that accurate determination of periodic net income or net loss is important to the efficient management of steamship companies and using the estimate method would obtain a more accurate operating result than using the deferment method. In fact freight and passenger fares are usually prepaid at the time of shipment and operating expenses are incurred during the course of the voyage. The adjustment for the incompleted voyage would necessarily be on a strictly estimated basis which could result in a lesser degree of accuracy because of numerous expense items involved. Further, the cost of using this method would be greater than the value of benefits derived.
The third method is to treat the amount left over in the unterminated voyage revenue account as a deferred credit and the amount of expenses applicable to the incompleted voyage as a deferred charge. Thus, the net operating results would not be distorted by increasing them for voyages not yet completed at the end of a fiscal period. Voyage revenue and expense items shown in the income statement are those applicable only to voyages completed within the fiscal period. This method has been approved by the tax authority and is used by most steamship companies.\(^22\)

**FOREIGN AND FEDERAL INCOME TAXES**

Most steamship companies have their branches in principal cities of the world and receive freight and passenger revenues from foreign countries. These companies may become liable to taxes imposed by such foreign countries. At the present, maritime countries have gradually been interested in adopting arrangements for reciprocal tax exemptions for shipping income. Because of the difficulties of determining taxable foreign shipping income and the different tax regulations prevailing in various countries, the reciprocal exemption commends itself as being both fair and practical.\(^23\)

The tax law provides that foreign taxes can be treated as a tax credit and are deductible from federal income taxes. The credit,

\(^22\)Ibid., p. 7.

however, is limited by the ratio of a steamship company's foreign taxable income to its total taxable income.  

Although some accountants contend that income taxes are not an expense, steamship accountants generally maintain that income taxes are an expense that should be charged to operations. There is no uniform practice in handling income taxes in the shipping industry. Some steamship companies make provisions for income taxes in their monthly statements, and adjust their final returns at the end of the year, subsequent to the closing of the books. Other companies compute taxes at the end of the accounting year and no adjustments are made during the year.  


25 These practices are substantiated by two letters received by the writer from United States Lines Company, dated May 2, 1960 and Isbrandtsen Company, Inc., dated May 12, 1960.
CHAPTER VII

AGENCY, BRANCH, AND SHIP ACCOUNTING

Several thousand vessels scattered over the oceans are currently engaged in a traffic provided by hundreds of ports in all continents. Every day these vessels solicit freight and passengers; and, likewise, shippers and travellers continually demand ships for transportation. The complicated task of bringing together the vessels, and the freight and passengers so that one may be profitably hired and the other economically carried is performed largely by ship agents and brokers. The agent is frequently a ship broker. Agents and their correspondents are located in all seaports of the world.

Steamship companies usually establish branches at principal cities along the sailing routes of their vessels. If a steamship company arranges for a vessel to call at a port at which it maintains no branch, the company will find it necessary to make use of an agency to take care of its vessel. Where a steamship company does maintain its own office, it may provide this agency service to other companies.

The vessel is an operating unit in the steamship company. There are financial activities occurring on the voyage of a vessel. Thus, the ship accounts must be maintained on the vessel in order to record its financial transactions.

This chapter is devoted to a discussion of some important aspects of accounting for agencies, branches, and ships. In addition, since
steamship companies must deal with foreign currencies, a discussion of the accounting problems involved in the handling of foreign exchange and in the preparation of foreign consolidation statements is necessary.

CHARACTERISTICS OF AGENCY AND BRANCH

A common practice in the shipping industry is to use an agency when a company's vessel calls at a port where the company does not have its own facilities and personnel. The nature of steamship agencies differs somewhat from that of many other industries.\(^\text{1}\) The steamship agent performs all the functions involved in the shipping operation, including husbanding ships, soliciting cargo, selling passenger tickets, supervising minor vessel repairs, purchasing ship stores, and paying port charges and cargo handling expenses on behalf of the shipowner.

Although both agencies and branches perform these common functions for vessel operations, the two differ widely in legality, organization and control. Some important characteristics of agency and branch are discussed below.

The Agency

The legal relation which exists between the shipowner and the agent is that of principal and representative.\(^\text{2}\) From a legal standpoint, a contract usually regulates the rights and duties of both parties. Agreements are usually written although oral arrangements have often


\(^{2}\)Ibid., p. 35.
proved satisfactory. But the relations of the parties are, for the most part, governed by the customs of the shipping industry.

An agency, from the standpoint of a steamship company, is a separate business entity that is independent of the company. For the comparison of the agencies' services, sometimes the steamship company may change from one agency to another if there are several steamship agencies at one port.

Agents are sales representatives, not the employees of a shipowner. There is a difference in the nature of the remuneration paid to agents and that paid to employees. Agency fees for husbanding vessels customarily are paid on a lump-sum basis, $400 for each vessel calling at one port for a period not exceeding 10 days. Commissions for soliciting freight are computed on a percentage of cargo tonnage basis. Commissions for selling passenger tickets are paid to the agent on a percentage of fares collected by the agent.

Generally, a working fund for payment of vessel expenses is provided for the agency by the steamship company before a vessel arrives at the port. Replenishment of the working fund is made by the steamship company when its next vessel calls at the port serviced by the agency.

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4 Ibid., p. 50.


The Branch

The branch relationship is an independent operating unit, but it is organizationally one of the internal units of a steamship company. The home office, naturally, is in a position to assist its branches by giving direct support, and in the meantime, exercising adequate control over them. Branches may keep some of the freight and passenger revenues in a local bank; and checks for local expenses may be drawn from this account by the branch manager.7

It is clear from the above discussion that an agency merely exercises the same functions as a sales representative, while the branch exercises most of the functions of an independent business organization, subject only to the supervision and control of its home office. The accounting system of a branch must obviously be adapted to the requirements of the home office.

Since the branch relationship is practically an internal operating unit, its accounting problems are different from those of a typical steamship agency. The accounting methods used by the typical steamship agency and the steamship company’s branch are discussed separately in the following sections.

AGENCY ACCOUNTING

Since the activities of the steamship agent consist of husbanding ships, solicity cargo, selling passenger tickets, and paying port

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charges and cargo handling expenses on behalf of the shipowner, it is necessary to maintain a system of accounts which reflects and accumulates in detail the information of financial transactions. Financial transactions of a steamship agency may be roughly divided into: (1) the agent's own asset, liability, proprietor's equity, revenue and expense items; and (2) the shipowner's revenues and expenses.

In this section the accounting for the above two divisions of agency financial transactions are first discussed. The method of handling agency accounts by the shipowner are then mentioned.

**Handling the Agent's Own Financial Transactions**

The principal sources of the agency's revenue are: (1) agency fees, (2) commissions, and (3) brokerage. Agency revenue arises from fees received for husbanding vessels. The agency fees are paid on a fixed sum basis for each vessel calling at one port. Commissions are received for services performed in soliciting liner freight and in selling passenger tickets. Brokerage revenue is usually derived from soliciting tramp cargo. Subsidiary accounts should be maintained separately for the three major sources of revenue. Any charter party, in connection with the commission or brokerage, always contains a clause such as "The shipowner is to pay a commission of... per cent to the broker on any hire paid under the charter, but in no case less than is necessary to recover the actual expenses of the broker and a reasonable fee for his work. If the full hire is not paid because breach of charter by either the shipowner or the charterer, the breaching party is liable therefore to indemnify the broker against
his loss of commission." Therefore, the revenue is considered to be realized when agency services are rendered.

Expenses of a steamship agency include salaries, travelling expenses, telephone and telegraph, rent, light, office supplies, and miscellaneous expenses. The first three items usually represent a relatively high percentage of the total expenses.

The asset, liability, and proprietor's equity accounts of a steamship agency do not differ a great deal from those of other businesses. However, the current account with shipowner is unique. This account is discussed in the following paragraph.

 handling the shipowner's revenue and expense items

An agency does not need to keep a complete set of accounting records for this group of financial transactions. It is a universal practice in the shipping industry for steamship agents not to advance money for the payment of expenditures for shipowners. The steamship company usually furnishes the agency a working fund that is large enough to cover payments for its ship operating expenses at the port before the vessel's arrival. This working fund is operated somewhat like a petty cash fund. The agency's records can be kept in columnar cash books in which are recorded the cash received from a particular steamship company and its freight and passenger revenues, and also

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the detailed record of the cash paid out. Since an agency may offer agency services for a number of steamship companies, a special column in the cash books is provided for recording the transactions of a particular steamship company. Receipt from a steamship company of monies for the fund is recorded on the agency's books by a debit to the cash account and a credit to a current account with the specific steamship company. The entry is reversed to record a payment from the fund. To separate the steamship companies' cash from its own deposits, the agency may maintain a special bank account for all steamship companies.

Upon the completion of a vessel's calling at a port, at least two copies of the statement of collections and disbursements should be prepared. The statement must contain the name of the vessel, voyage number, date of arrival, date of departure, and port of calling as well as a summary of cash receipts and disbursements. This is the necessary information that a steamship company must record in its vessel voyage account. One copy of the statement of collections and disbursements accompanied by the supporting evidence - in the form of receipts or invoices - is sent to the steamship company. The other copy is retained by the agency.

Steamship companies may, for proper control over freight and passenger revenues, request their agencies to deposit all receipts and collections in a local bank to the credit of the steamship company. In such cases, the agency maintains a very low balance of cash in the working fund account. Replenishment will be made by the steamship company when its next vessel calls at the port.

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11 S. L. Shah, "Internal Auditing in a Shipping Company," Cost and Works Accountant (India), January, 1959, p. 82.
Handling the Agency Accounts

Since steamship companies frequently have agencies scattered throughout their operating territory, the numerous agency accounts present an interesting problem. The steamship company should maintain a complete accounting record showing the collections and disbursements of each agency individually, as well as the revenues and expenses incurred at a particular port for each vessel and for each voyage.

The steamship company, in handling the agency accounts, should keep its records in such a manner as to show:12

1. The cash sent to an agency for the payment of agency fees and vessel expenses.
2. The freight revenue collected by the agency.
3. The passenger tickets sold by the agency.
4. The remittance made by the agency to the steamship company.
5. The balance of the agency account.

Remittance of the cash to an agency is recorded on the books of the steamship company by a debit to the agency account and a credit to the cash account. The agency account is a controlling account. If there is more than one agency, subsidiary records should be maintained for each agency.

Upon receipt of the statement of collections and disbursements and its related bills, amounts must be verified before recording the transactions on the books of the steamship company. If the statement is accompanied by a remittance of collections, the following entries show how the transactions are journalized on the books of the steamship company.

company. Various subsidiary records of revenues and expenses should be kept separately by vessels consecutively by voyages. These have been discussed in the preceding chapter.

(1) Revenues and expenses reported by the agency:

Unterminated Voyage Expense xxx  
Agency Account xxx  xxx
Unterminated Voyage Revenue xxx

(2) Remittance of collections sent by the agency:

Cash xxx  xxx
Agency Account

It should be noted that the above facts, much abbreviated, are for the purpose of illustration. In practice, there are many accounting procedures involved.

BRANCH ACCOUNTING

The branch is operated as a separate business unit, but is ultimately subject to control by the home office. The former has a fairly complete set of double entry books with its own ledger. It is necessary to keep some of the same records in the home office and in the branch, but the number of these records depends entirely on the degree of control exercised by the home office.

Steamship companies obtain financial data from a very large number of domestic and foreign branches, agencies, vessel pursers, and connecting lines. It is a common practice to require detailed reports from all these sources and to perform almost all activities at the home office.13

Centralized Accounting at Home Office

Centralization of accounting as practiced in the shipping industry seems to have considerable merit. The functions of steamship accounting are much the same as that of any other transportation carrier accounting, but must be further prepared to handle any problem involving accounting peculiar to shipping. The airway, railroad or steamship industry performs similar services but with different equipment and under different conditions. Since transportation methods are different, airway or railroad accounting is not applicable to the steamship business. There are comparatively few accountants familiar with ocean shipping operations.

The steamship accounting department should have specialists in that field of accounting. Centralized accounting systems are better able to make use of specialists in the main office. Thus, a large volume of work can be handled with greater flexibility of personnel and a higher degree of work specialization.

Furthermore, the problem of foreign exchange tends to promote accounting centralization. Today, most nations have exercised control over the foreign exchange. It is a method of safeguarding a country against an adverse balance of payments. Steamship companies receive most freight payments in foreign currencies. It is not so easy to get these foreign currencies remitted to the home country. For this reason,

15Ibid., p. 12.
16Reen, op. cit., p. 9.
steamship companies usually require the shipper or the charterer to make freight payments at the home office rather than foreign branches or agents, in United States dollars or British pound sterling, two of the non-restricted and stable currencies in the world. This leads to the centralized accounting in the home office.

Finally, the accounting system used by marine carriers is prescribed by the Maritime Administration. Because of interrelationship and the allocation of sundry income and expenses, it is not convenient to keep different portions of the accounts on different bases. For all practical purposes, the regulatory accounting system must be fully utilized by subsidized steamship companies. Centralized accounting can increase uniformity in procedure, simplify administration, strengthen internal control, and reduce the necessary scope of examinations by both internal auditors and public accountants.

It should be noted that it is exceedingly important for all branches to use the same account classifications as the home office, and that the various bookkeeping records and internal reports should also be similar in form and use. Otherwise great confusion may result, particularly where a steamship company has many branches. Comparison between different branches would also be made correspondingly difficult.

**Reporting to Home Office**

The branch of a steamship company keeps a fairly complete set of books in which it records financial activities occurring in the branch operating territory, such as cash received from the home office.

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18 Shah, *op. cit.*, pp. 77-78.
collections of freight and passenger revenues, payments of vessel bills, and the recording of branch office expenses. Since the home office controls the operations of all vessels and maintains a complete set of revenue and expense subsidiary ledgers for all vessels, the branch does not need to keep detailed records for these transactions. However, the branch should send periodic reports concerning vessel revenues and expenses that are incurred in the branch operating area. Figure 12 illustrates a form of the statement of freight and passenger manifests used by a steamship company.\(^{19}\)

The total freight and passenger revenues collectible at the branch as shown in Figure 12 plus collections on preceding voyages, other cash receipts and cash balance less accounts receivable and cash disbursements during the period gives the total ending cash balance which should agree with the cash book. The home office maintains control over the branch accounts through the cash receipts and disbursements summary.

The original manifests from the vessel purser are source documents for the home office in making entries to the freight book and passage sales book. The freight and passenger revenues are then posted to the general ledger. In the meantime, the statement of freight and passenger manifests is verified against the original manifests. The branch is notified of any discrepancies.

**Illustrative Entries on Branch Books**

If a shipment is transported from one branch to another, and the freight is payable at destination, the branch at the port of destination should debit cash and credit its home office current account.

\(^{19}\)Melo, *op. cit.*, p. 377.
--- Branch

Statement of Freight and Passenger Manifests

Vessel _____ Voyage No. _____ Date. _____ To ___

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Freight</th>
<th>Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Origin</td>
<td>Destination</td>
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<td></td>
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<tr>
<td>Sub-total</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary:

Total freights and fares collectible at origin as above $ xxx
Add: Collections on previous voyage $ xxx
   Other cash receipts xxx
   Last cash balance XXX XXX
Total cash $ XXX
Deduct: Accounts pending collection XXX
Total cash receipts as per cash book $ XXX
Deduct: Expenses and other payments XXX
Balance in favor of home office $ XXX

Analysis of cash balance:

Cash on hand $ XXX
Cash in bank XXX
Total $ XXX

Figure 12 Statement of Freight and Passenger Manifests
No branch should maintain an account with any other branch; all interbranch transactions should be cleared through the home office current accounts.

Following are illustrative entries on the books of branches as well as the home office:

1. Freight payable to a branch at the port of originating:
   - Cash (for prepaid freight) xxx
   - Accounts Receivable (for credit granted) xxx
   - Home Office Current xxx

2. Freight payable to a branch at the port of destination:
   - Cash (for freight paid before delivery) xxx
   - Accounts Receivable (for credit granted) xxx
   - Home Office Current xxx

3. Statements received by the home office:
   - Branch (at port of originating) xxx
   - Branch (at port of destination) xxx
   - Freight Revenue xxx

**Depreciable Assets**

Property and equipment items in the branch are sometimes carried on the home office books. This practice is followed by some steamship companies when depreciation rates are to be uniformly applied to certain groups of property and equipment, whether used by the home office or the branch, and when insurance policies are to be purchased by the home office for all assets.

**Reciprocal Accounts**

The branch ledger contains an account called "home office current," which is credited with the value of everything received, directly or indirectly, from the home office and debited with the value of all items sent, directly or indirectly, to the home office. This account in the branch ledger is a proprietorship account showing the net investment made by the home office in the branch.
The home office maintains in its ledger a reciprocal account to the home office current account, which is known as the "branch current." Whenever an amount is credited to the home office current account in the branch books, a similar amount must be debited to the branch current account in the home office books. The balances of these two accounts should always be the same, or, if not the same, should be reconcilable.²⁰

These two accounts are merely controlling accounts. A separate branch current account is provided in the home office ledger for each branch. These branch current accounts may be placed in the current or other assets group of account in the home office ledger. The home office current account and the branch current account are eliminated from each balance sheet in preparing the consolidated statement.

Foreign Branches

The same general principles used in accounting for domestic branches apply to foreign branches.²¹ After the foreign branch has been established, principal problems are concerned with the valuation of the foreign financial transactions in terms of the currency of the home office. The net results of the financial activities of the various foreign branches, which have been recorded in terms of one or more currencies, must be recognized on the home office books in United States dollars. These problems are discussed in the later section.


SHIP ACCOUNTING

The first problem in accounting for a vessel on a voyage is to provide for payment of minor expenses by the master or the purser. This may be done by the establishment of a working fund under the imprest cash system.22

As it has been stated in the first chapter, the purser aboard a vessel serves as the ship's accountant. However, accounting is very simple. The vessel does not keep a complete set of double entry books. Only a simple record of cash receipts and disbursements is maintained.23 Separate cash books are maintained for different currencies, recording money advanced from the home office or received from its branches or agencies and various payments during the voyage. On a passenger liner, cash sales from the operation of concessions such as the bar and barber shop are accumulated in cash registers and turned over to the purser who keeps cash records on the vessel. Upon the completion of the voyage, the purser submits a statement of receipts and disbursements for each currency, together with all paid vouchers to the home office for verifying and recording. The home office reimburses the fund before the start of the next voyage.

When the home office advances cash to the vessel, an entry is made in a clearance account on the home office books as follows:

Masters and Pursers
Cash

Based on the verified statement of receipts and disbursements, the following entry is made on the home office books:

Operating Expense - Terminated Voyage
Masters and Pursers

The preceding entries indicate how the home office maintains its records so that the results of financial activities on the vessel can be further analyzed. The masters and pursers account is a controlling account, and a subsidiary record is provided for each vessel.

FOREIGN EXCHANGE ACCOUNTING

Accounting problems in handling foreign exchange are encountered when a company extends its activities beyond the territorial limits of its country. Many deep-sea steamship companies have branches in the principal cities of the world and have their agencies scattered throughout most of the world. Naturally, they must deal with a large amount of foreign exchange every day.

Handling Foreign Exchange

Current exchange rates vary from day to day as the result of changes in the demand for and supply of foreign exchange between two countries. Supply and demand are affected by the relative volume of international transactions. They are also affected by transactions involving debtors and creditors in other countries. International trade may become a commercial speculation because the operating profit or loss can be completely wiped out or offset by a sudden change of the exchange rate. In many instances, the transfer of funds between nations is subject to strict governmental control. Some countries limit or
block the conversion of their money into foreign currencies. For these reasons steamship companies often require the shipper or the charterer to make freight payments in United States dollars or British pound sterling since these are some of the non-restricted and relatively stable currencies in the world. In the case of American steamship companies, foreign currencies are almost immediately converted into United States dollars. This practice may reduce both the risk of foreign exchange rate fluctuations and much of the work of maintaining and converting accounts kept in foreign currencies.  

**Recording Foreign Exchange**

Steamship companies record any gain or loss on foreign exchange by entering it in an account called the foreign exchange adjustment account. At the end of the year the balance in this account is transferred to an account known as miscellaneous other income or the account miscellaneous deductions from income, as the case may be.  

**Consolidating Financial Statements**

Basically, the methods of accounting for foreign branches are similar to those for domestic branches; but the problems are complicated by the fact that the accounts of the home office are kept in terms of United States dollars, whereas the accounts of a foreign branch are maintained in terms of currency of the country in which the branch is located. The home office will want to know its total

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operating results and financial position at the end of each fiscal period and will therefore want to combine its branch financial statements with those of the home office. Some problems arise in connection with the conversion of the foreign financial activities from the foreign country to United States dollars. Insofar as property and equipment items are concerned, their cost should be carried in terms of the exchange rate on the date of their acquisition. However, the value of the current assets and current liabilities should be converted into dollars, for balance sheet purposes, by using the exchange rate in effect on the date of the balance sheet prepared.\textsuperscript{27}

\textsuperscript{27}For an excellent discussion of the conversion from foreign to domestic currency, see Shin Min Yui, \textit{Foreign Exchange Accounting} (Unpublished Ph. D. dissertation, Department of Accounting, Louisiana State University, 1945), pp. 56-72.
CHAPTER VIII

COST ACCOUNTING

In its early days, cost accounting was applied primarily to the problems involved in the production of goods because in most manufacturing firms the complexities of production call for a close control of operations. In recent years, the scope of cost accounting has been extended to include the functions of distribution and administration. The methods of cost accounting are also applied by firms whose business is neither the production nor the distribution of commodities but which are engaged in rendering services, such as railroads, public utilities and steamship companies.

Cost accounting, however, has not been fully developed yet in the shipping industry. Possibly one reason for this is found in the extreme difficulty of obtaining a proper distribution of cost elements. Freight rates are not entirely determined by a mathematical computation of costs and are usually the result of influences of the world shipping market. Normally, freight rates are increased to compensate for higher costs; but the world-wide excess of vessels in contrast to cargo availability may make rate adjustments, which would otherwise be justified, difficult to attain.¹ In some instances, an increase in

freight rates coupled with rising costs of production, may place a nation's products at a competitive disadvantage in foreign markets and thereby tend to reduce the volume available for export from the country. Although accounting for costs in the shipping industry has no rate-making objective, it should not be assumed that the general level of shipping rates can long remain below the general level of costs without serious consequences.²

This chapter reviews some methods of allocating indirect voyage costs and administrative costs. Also, budgetary accounting and standard costs as applied to cost control are considered. Finally, the problem of costing joint passenger and freight traffic is examined.

COST ELEMENTS

Voyage accounting, as already noted, is basically job order cost accounting, tailored to meet the requirements of the shipping industry. Records are maintained for each vessel and voyage as a separate job. A cost system should provide for the segregation of every expenditure made directly or indirectly in the creation of the completed ocean shipping service from the basic information. The expenditure may first be classified on the basis of function or activity. The business of a steamship company is divided into two distinct activities - one, the vessel afloat on the sea, and the other, shore services to the vessel.

Accordingly, ocean shipping costs are divided into the following three major groups for the purpose of accounting: (1) direct voyage

²Ibid., p. 5.
costs, (2) indirect voyage costs and (3) administrative costs. One purpose of the classification just given is to enable the costs of operating the vessels and of administering the steamship company to be ascertained separately.

**Direct Voyage Costs**

The direct voyage costs comprise the expenses that can be chargeable directly to a particular voyage and, therefore, need no further allocation. Some direct voyage costs of operating the vessel are illustrated below:

- Wages
- Payroll taxes
- Subsistence
- Repairs and maintenance
- Stores, supplies and expendable equipment
- Fuel
- Fresh water
- Wharfage and dockage
- Fumigation
- Tonnage taxes
- Harbor dues
- Tug and lighterage
- Canal tolls
- Stevedorage
- Agency fees
- Freight and passenger commissions
- Cargo handling expenses

These costs are incurred solely as a result of producing the transportation service necessary to move the volume of traffic. They could have been avoided if the transportation service had not been rendered.

It should be noted that some costs listed above such as wages, payroll taxes, subsistence, fuel, fresh water, and wharfage and dockage do not fluctuate in response to changes in the volume of traffic; but they do vary with the length of voyage. Other costs such as stevedorage, freight and passenger commissions, and cargo handling expenses fluctuate with the volume of traffic in a more or less direct ratio.
Repairs and maintenance, stores, supplies and expendable equipment may vary with the length of voyage and the volume of traffic. Fumigation, tonnage taxes, canal tolls, and agency fees neither fluctuate in the same direction as changes in the volume of traffic nor the length of voyage. The term "variable cost," then, may refer to different bases in steamship accounting. Some costs vary more or less directly with the length of voyage. Others vary with the volume of traffic. Other direct costs, such as taxes, may be considered as fixed expenses. Nevertheless, all the above illustrated costs can be specifically traced to the voyage.

Indirect Voyage Costs

Certain items of expense such as vessel depreciation, insurance, annual overhaul, and inactive vessel expenses are incurred indirectly with voyages performed. These expenses are termed indirect voyage costs in regard to the voyage service. They remain constant in total regardless of the volume of traffic.

The indirect voyage costs are incurred in behalf of the operation of a vessel as a whole, and are charged to voyages on the basis of some predetermined overhead rate. If insurance or major overhaul expenses were charged to a single voyage at the time of their incurrence or payment, it would give rise to a widely fluctuating charge as between one voyage and another.

Administrative Costs

Administrative costs are those expenses which are incurred in the direction, control and administration of the steamship company as a whole. A typical selection of such costs includes: office salaries, rent, light, heat, taxes and communication expenses. These expenses
can be avoided only by abandoning the entire business, or at least a considerable part of the business.

ALLOCATION OF INDIRECT VOYAGE COSTS

Certain items of the vessel operating expense may be accurately charged to a particular voyage for which they are incurred, and other items may be allocated only approximately. In computing the result of a voyage operation, the indirect voyage costs should be added together with the direct voyage costs in order to determine total cost. A proper allocation of the indirect voyage costs is necessary in order to bring about managerial control over vessel operations.

Estimate of Indirect Voyage Costs

Since the annual amount of each vessel's depreciation, insurance or repair expenses varies with the specific type of vessels, the first step in estimating these expenses used by a voyage is the segregation of different expenses by vessel types. Estimation can be accomplished on the company's past records. Previous accounting records yield information pertaining to the behavior of the expenses. Present depreciation methods and insurance policies of vessels provide an additional source of information for the estimate. The foregoing sources of the data used in estimating indirect voyage costs for the coming year should be coupled with judgments of future events.

Selection of Bases

Once the indirect voyage costs have been estimated, it is necessary to decide upon the base to be used in applying these costs to the various voyages. There is no standard basis for allocating indirect voyage
costs to voyages. The allocation may be made by the voyage-day basis or the gross revenue basis.\(^3\)

The **voyage-day basis**: - The period of a voyage expressed in number of days is called voyage-days. Since the master of a vessel must keep an official log book, it is a primary source of information for estimating a vessel's voyage-days for the coming year. The contents of a log book are specified by shipping regulations. In this book, a sort of official diary, the master records the daily observations, vessel runs, weather conditions, as well as unusual occurrences such as icebergs in certain latitudes, an encounter with a derelict and the rescue of crew members of an abandoned vessel.\(^4\)

The underlying theory in using the voyage-day basis is that most indirect voyage costs are incurred on a time basis. Items such as depreciation, insurance, and inactive vessel expenses are used up over a period of time and any method employed in applying indirect voyage costs should take this time factor into consideration. The voyage-day basis fulfills this time requirement in that the more days spent on a voyage, the greater the indirect voyage costs charged to the voyage.


The source of data used in determining the burden rate is primarily the company's past records coupled with predictions of future events. The computation of this rate is based on the following formula:

\[
\text{Rate} = \frac{\text{Estimated Indirect Voyage Costs}}{\text{Estimated Voyage Days}}
\]

The gross revenue basis: - Advocates of using gross revenue as the allocation basis maintain that every sales dollar should bear the indirect voyage costs. This approach is fair and justified. However, voyage overhead items are uncontrollable costs and no relationship exists between the overhead and gross revenue.

When using this method, the charge to a particular voyage is computed by dividing total estimated indirect voyage costs by expected gross revenue for the next year. Since the annual amount of each vessel's depreciation, insurance, repairs, or inactive vessel expenses is not exactly the same as that of others, it must be computed separately for each type of vessel using the following formula:

\[
\text{Rate} = \frac{\text{Estimated Indirect Voyage Costs}}{\text{Expected Gross Revenue}}
\]

APPORTIONMENT OF ADMINISTRATIVE COSTS

It is the desire of management to attempt an approximation of net profit from a voyage. In order to complete the voyage report and to include all expenses applicable to the voyage, a portion of the cost of maintaining general offices of the steamship company should be included in the cost of making the voyage.

Problem of Selecting a Proper Basis

In order to avoid confusion and error, it is necessary to keep clearly in mind the distinction between vessel tonnage and cargo tonnage
mentioned previously. A gross ton is 100 cubic feet of a vessel's enclosed space, while a deadweight ton is 2,240 pounds of carrying capacity available for cargo, fuel, water, or stores.

The construction and superstructure of a passenger vessel differ greatly from those of a freight vessel. Accordingly, the measurement of the two types of vessels expressed in terms of tonnage is not the same. The measurement of a passenger vessel is usually expressed in terms of a gross tonnage and a freight vessel in deadweight tonnage, although the latter may also be expressed in gross tonnage.

The apportionment of administrative costs to voyages may be made by gross tonnage for passenger vessels, and by deadweight tonnage for freight vessels.\(^5\) In case a steamship company operates the both types of vessels, gross tonnage may be used as the apportioning basis.

**Illustrative Allocation Procedures**

It is as impossible to devise an extremely accurate method of allocating administrative overhead in the shipping industry as it is in manufacturing business. However, procedures are available which achieve satisfactory accuracy of apportionment. A review of past records yields some indication of the magnitude of the administrative expenses, inasmuch as they tend to be fixed with regard to traffic volume. However, once these expenses have been estimated, it is necessary to find a basis of apportionment.

In a frequently used apportionment method, administrative costs are allocated to vessels according to their gross tonnage. For

\(^5\) McDowell and Gibbs, *op. cit.*, p. 305.
example, assuming that total administrative expenses and total gross
tonnage owned for the next year are estimated at $12,000,000 and 240,000
tons respectively.

\[
\text{Administrative cost per ton} = \frac{\text{Total Administrative Expenses}}{\text{Total Gross Tons}}
\]

\[
= \frac{12,000,000}{240,000} = 50
\]

Next, the amount of administrative costs to be apportioned to
a given vessel can be computed from the above by multiplying the cost
per ton ($50) by the vessel's gross tonnage. Assuming that a vessel's
gross tonnage is 15,003, the apportional cost would be $750,150
($50 \times 15,003 \text{ tons}).

Furthermore, the administrative cost per voyage-day would be
computed by dividing estimated voyage-days into the vessel's share of
such cost. Continuing the above example, assume the vessel's estimated
voyage-days to be 330. The administrative cost would be $750,150/330,
or $2,673 per voyage-day.

Finally, assuming that the vessel's voyage is 20 days, the amount
of administrative costs to be applied to this voyage would be $2,673 \times 20
days, or $53,460. In this manner, the amount of administrative over-
head allocable to each voyage may be estimated.

**STANDARD COSTS**

One of the most important duties of any cost accounting system
is to provide information to be used in the control of costs. Standard
costs are the backbone of many cost control systems. The major function
of standard costs is to provide a means of testing the efficiency of
vessel operations through a comparison of actual costs with standards
set upon the basis of possible achievement.
Setting Standards

Standards may in some instances be determined by averaging actual voyage costs for several recent years. In others, the best previous voyage performance may be taken as the standard. These methods of setting standards have the merit of simplicity. However, for the most satisfactory results from the use of standards, a study of past performances of voyages should be made in order to yield sufficient data for the establishment of reasonable standards.

Since shipping provides a service rather than a tangible product, there are no raw materials, and, naturally, no raw material standards. However, the cost method may be used in analysis and control of labor and overhead.

Vessel officers and crew members are highly unionized, and their unions represent a variety of affiliations. Union contracts stipulate in great detail the duties of men in the various ratings, including working rules, provisions for base pay, overtime and penalty pay, and fringe benefits. Within the categories of different unions, a study of standard time or individual operations may be made. Overtime titles may be classified for each of three deck departments - deck, engine, and steward. These three departments are subdivided into licensed and unlicensed personnel.6

Standards represent the best estimate available for what voyage costs should be after eliminating inefficiencies and other controllable factors. It is better to set standards, for purposes of both achievement

---

and control, on the basis of a long rather than a short period of time. Standard costs are subject to revision only when factors that enter into their determination have basically changed.

**Analysis of Variances**

Unlike most manufacturing processes in which the predominant portion of conditions affecting production rates are human-made and hence can be measured and controlled, ocean shipping conditions are partly determined by nature. An investigation should be made as to whether a variance from standards is favorable or unfavorable. Interpretation of causes for variance must be made with sound common sense and technical shipping knowledge. For instance, an investigation of the vessel's log book reveals rough weather at sea which could have caused a decrease in the mileage per ton of fuel consumption. Evidently, a variance due to rough weather would show an excessive cost over the standard which could not be avoided. If under fair weather conditions fuel consumption exceeds the standard, a further investigation by inquiring of the master and chief engineer should be made immediately after the completion of a voyage. Perhaps the investigation would disclose some causes for the unfavorable variances, such as machine trouble, poor grade of fuel, or careless operations.

Management cannot investigate every variance. There must be some criteria established to determine whether the variance is substantial enough to be investigated. For example, it may be company policy to investigate only those variances exceeding 10% of the standard. In practice, it is usually discovered that a standard cost procedure can be advantageously combined with budgetary control. The
methods by which budgetary control can be accomplished are covered in the following section.

BUDGETARY CONTROL

One of the primary functions of management is to plan for the future and to build a merchant marine fleet for the carrying out of such plans. A plan itself does not establish control. Control is established when actual results are compared with budgeted results and the variations and their causes are determined.

The operating budget presents the anticipated profit and loss of the shipping activity. The budget is particularly important because it is designed to measure the performance of the people responsible for making the business a profit-earning organization. Since the capital budget and financial budget used in the shipping industry do not differ from those used in other industries, this section is devoted to discuss the unique operating budget.

Revenue Budgeting

Methods of operation used by steamship companies whereby freight and passenger traffic loading are known in advance for each voyage makes the use of a budget system in shipping industry easier than in any other industry. Unlike ordinary commercial businesses, steamship companies are able to estimate, with a high degree of accuracy, the expected revenues of a given voyage.

Prior to the start of each voyage of a vessel an estimate of passenger revenue based upon passenger reservations can be prepared. Similarly the estimates of revenue to be derived from freight and mail
services are made. Freight revenue is computed by cargo tonnage multiplying rates.

Annual or monthly forecasting is usually dependent upon the outlook of general business conditions, international trade and the steamship company's participation in a particular route. The degree of accuracy which can be accomplished in forecasts varies with the type of shipping. The conference freight rate is more stable than the bulk cargo rate which fluctuates widely depending upon demand and supply of vessels for shipments. Consequently, liner companies can more accurately forecast their revenues than tramp firms.

**Expense Budgeting**

Once a vessel's proposed itinerary is settled, the direct voyage expenses required to carry it out can be calculated. The activity computed for deck, engine, and steward's departments is the basis for budgeting labor costs. Officers and crew members are payable under an agreement known as ship's articles, which are required by the country in which the vessel is registered. The labor cost estimate is expressed in terms of both vessel-day and dollar amount.

Fuel cost represents the cost of fuel consumed to propel the vessel and does not include any coal or oil used in galley stoves, and so forth. Since fuel consumption on the sea is greater than that at the port, a voyage period may vary greatly according to the mileage sailed, the speed of the vessel, the number of ports called, the time consumed in cargo handling, and even weather conditions. A vessel's engineer log book provides the basic source of information concerning the vessel's fuel consumption.
Cargo handling expenses normally represent a large percentage of a liner's total cost of any voyage. Steamship liner companies usually have stevedoring data at various ports in the world. The estimate of cargo handling expenses is based on the handling time and cargo quantity to be loaded and discharged.\(^7\)

Overhead items applicable to a particular voyage are computed on the basis of predetermined rates and voyage-days.

**Control of the Budget**

Upon the completion of a voyage the actual figures for both revenue and expense items are obtained and compared with the estimates. The complete history of each voyage, from an accounting viewpoint, is then written up. The net result is what practically amounts to a complete profit and loss statement for each completed voyage of each vessel.

One illustrative form of an estimated performance summary is shown in Figure 13. This summary indicates actual results compared with the estimated figures together with a column as to the amount by which the actual figures exceed or are below the budget. Explanations are called for in connection with all significant variations.

A further control of expenditures, especially those in connection with vessel repairs which is a considerable item, is maintained by means of a repairing requisition submitted at the end of each voyage to the budget control office through the channel of communication by the vessel's responsible officers. This requisition gives in detail the repairs to be made and the estimated costs.

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### VOYAGE PERFORMANCE SUMMARY

<table>
<thead>
<tr>
<th></th>
<th>Budget</th>
<th>Actual</th>
<th>Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outward Tons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inward Tons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passengers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Tons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Direct Voyage Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages: Straight time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overtime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extras</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsistence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stores, supplies and equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance and repairs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel: ___ Sea days @ ___ bbls. per day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>___ Port days @ ___ bbls. per day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stevedoring and other cargo expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wharfage and dockage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commissions, fees and brokerage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous expense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charter use hire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total direct expense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total voyage profit or loss</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indirect Voyage Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation @ per day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance @ per day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual and special survey @ per day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactive vessel expenses @ per day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative expenses @ per day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voyage profit or loss including indirect expense</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voyage profit or loss per day</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 13 Voyage Performance Summary**
JOINT COSTS

A continuing outstanding problem in steamship accounting is related to the treatment of costs in the instance of joint passenger and freight traffic. Joint costs are those incurred in the performance of more than one service at the same time. The objective of costing joint services is to assign a fair share of the joint costs to the separate services.

Difficulties in Costing Joint Services

First, the entire designing of and the construction of a vessel are affected by the addition of passenger service facilities. The space occupied by these facilities is provided partly by taking space from what would otherwise be freight space and partly by enlarging the superstructure of the vessel. The freight capacity of the vessel is affected by a change in the safe loadline, by the added weight of the superstructure, by the change in center of gravity, and by the weight of additional bulkheads. The effects upon the freight deadweight capacity are not proportionate to the factors affecting freight cubic capacity. 8

Again, since prestige and public recognition have considerable effect upon the amount of freight a steamship company obtains, some liner companies look on the passenger service as an important factor in maintaining their prestige and public recognition. A freight vessel may delay sailing and shift to another pier in order to obtain desirable

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8 McDowell and Gibbs, op. cit., p. 304.
cargo. The passenger vessel operates under predetermined schedules and is not able to delay sailing.  

Furthermore, the faster speed required for the passenger service involves a higher equipment and maintenance cost. Any increase in speed requires a larger percentage increase in the consumption of bunker fuel and in the cost of engines.

Finally, the loading and unloading of passengers requires a vessel to remain at pier for only a few hours while the handling of freight requires much time in port for the vessel. The longer time a vessel remains in the port, the higher operating costs incur to the steamship company.

All the above factors influence the use of a vessel carrying both freight and passengers, and all make the allocation of costs of these two activities more difficult.

**Methods of Allocating Joint Costs**

Although absolutely accurate allocation of operating costs to passenger and freight services is probably impossible, some allocation methods are available which appear satisfactory. These methods and the areas in which their use is appropriate are described below. All figures used in the illustrations are assumed.

**First Method:** - Freight vessels carry only up to 12 passengers since their chief purpose is to obtain profitable cargo. Their sailing schedules and ports are uncertain. Costs incurred for the few passengers

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9Ibid., p. 305.


11McDowell and Gibbs, op. cit., p. 304.
in a freight vessel are very low as compared with passenger vessels. In this case the revenue from passenger service is deducted from the total voyage costs. The following is an illustration of ascertaining passenger and freight costs:

Total voyage costs $450,000
Deduct revenue from passenger service $5,400
Costs for carrying freight $444,600

This allocation method may also be used in the operation of luxury passenger liners. Since the principal purpose of luxury passenger liners is to carry passengers, the greater part of their revenues is derived from passenger services, although even the finest of them carries high-value freight.

The first method treats the relatively important service as the sale of a by-product. The method has the merit of simplicity, but it is a reporting device rather than a costing procedure.

Second method: Some passenger vessels of lesser stature can carry about 100 passengers and can also carry several thousand tons of freight. In this case allocation of costs may be made according to the space used for passenger cabins and that used for cargo holds. The allocation of joint costs is illustrated in the following example.

<table>
<thead>
<tr>
<th></th>
<th>Cubic Feet</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger cabins</td>
<td>$400,000</td>
<td>$208,000</td>
</tr>
<tr>
<td>Cargo holds</td>
<td>600,000</td>
<td>292,000</td>
</tr>
<tr>
<td>Total</td>
<td>$1,000,000</td>
<td>$500,000</td>
</tr>
</tbody>
</table>

The second method accepts the theory that the costs are proportionate to the space occupied. This method also has its merit of simplicity; but the theory indicated is not always true since both the
construction costs and operating costs of a passenger vessel are usually higher than those of a freight vessel.

**Third method:** Another basis of allocating joint costs is in proportion to the sales value of the freight and passenger services. An illustrative computation is shown below.

<table>
<thead>
<tr>
<th>Service</th>
<th>Revenue</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger service</td>
<td>$300,000</td>
<td>$222,000</td>
</tr>
<tr>
<td>Freight service</td>
<td>$400,000</td>
<td>$296,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$700,000</strong></td>
<td><strong>$518,000</strong></td>
</tr>
</tbody>
</table>

In manufacturing operations, one of the purposes of cost accounting is to provide a basis for estimating the cost of a product and sometimes for the setting of a profitable price. In the shipping business, however, no direct relationship exists between ocean freight rates and the cost of the shipping service. If the rate entirely depended on cost, the third method would involve a certain amount of circular reasoning.

**Fourth method:** If the vessel is a freighter, even though there may be passenger accommodations for 12 persons, the whole amount of costs is charged to the freight and no allocation is required. In the case of a passenger vessel, the allocation of costs is made on the basis of the vessel's construction costs. For example, assume that the construction cost of a passenger vessel is $6,000,000 and that of a freight vessel without regular passenger accommodations is $5,100,000. In other words, the freight vessel construction cost is 85% of the passenger vessel construction cost. The ratio is used as an allocation basis.

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The fourth method possesses considerable logic. It should be noted, however, that a vessel's operating costs are not in proportion to its construction costs.

**Fifth method:** Expenses such as passenger subsistence, waiter wages and other expenses incurred on behalf of the passenger service are assigned directly to the passenger traffic. Some expenses cannot be changeable directly to either the passenger service or freight traffic, such as fuel, seaman wages and port charges. These expenses are allocated on a reasonable basis.

This direct costing method has made a significant improvement. However, the allocable amount constitutes a great part of the total costs. The direct assignment of the small percentage of the total costs may not prove the advantage and purpose of costing joint services.

The above analyses indicate that the existence of joint costs has created one of the most serious and widely debated costing problems of the shipping industry. Certain items of expense, of course, can be accurately assigned to the freight or passenger service for which they are used, but most other items may be allocated only approximately. An estimate based upon the space occupied by passenger and freight services or other bases is not exact, and therefore not absolutely dependable. Presently, an exact allocation of joint costs to freight traffic and to passenger service cannot be made. A vessel is taken as the unit. However, the methods mentioned previously represent an endeavor to approach a scientific plan.
CHAPTER IX

SUMMARY AND CONCLUSION

This chapter presents a comprehensive summary of the study. It is organized along the same lines as the previous chapters with the shipping business presented first and then the unique accounting problems and practices of the shipping industry. Finally, a brief commentary of recommendations and conclusions is mentioned.

THE OCEAN SHIPPING BUSINESS

Shipping is undoubtedly one of the most economical forms of transportation. Today, about three-quarters of all trade among countries is transported by waterways. Since foreign trade depends largely upon the shipping industry, the business of ocean transportation becomes of greater importance to a nation's economy than ever before in shipping history.

Types of Shipping Business

The shipping industry may be classified into three major types of business: (1) tramp shipping, (2) liner service, and (3) industrial carrier. However, there is no clear-cut classification since some steamship companies may occasionally be engaged in two types of shipping business.

In practice, the tramp shipping and the liner service differ from each other in many ways other than mere regularity of sailing
schedules. Special types of vessels are required for the operation of these two kinds of shipping. The tramp vessel is built with a view of economy in such a way that it may be used as many trades and cargoes as possible. Tramp vessels are of medium size, draft and speed. They are constructed to carry cheap, bulky cargo in shipload lots. In general, tramp vessels carry food and raw materials from all parts of the world. Since chartering arrangements are made through ship brokers, tramp owners do not need to maintain expensive, large offices and conduct advertising campaigns. In tramp shipping, a charter-party - which is a written agreement between the shipowner and charterer in connection with the shipment - should be signed before the commencement of loading cargo.

Liner vessels provide a shipping network for the distribution of manufactured goods. These vessels are constructed for high speed and passenger convenience. Vessels carrying over twelve passengers are classified as passenger ships. Cargo liners call on a wider range of ports than do passenger liners. Steamship liner companies have offices and agents in large cities, and advertisements in newspapers and magazines keep the travellers and shippers fully informed regarding the transportation services furnished.

Industrial ocean carriers or privately operated carriers are a specialized type of shipping such as tankers and refrigerator ships. These vessels are specially constructed and operated to meet the requirements of a particular company or trade. The operation of a fleet of these vessels is simpler than that of the liner service which carries general cargo.
Organizational Structure

The corporate form of organization is now used by many maritime carriers in the United States. Various factors such as the size of the carrier, the geographical area covered by the operation, the predominant type of traffic, and the philosophy of the management determine a company's organizational structure. Nevertheless, most steamship companies have a traffic department, ship operations department, finance department, and accounting department.

The master or captain of a vessel is the commander of the merchant ship, and the sole representative of the management on the vessel. Under the master, the operation of the vessel is divided into deck, engine, and steward departments, with licensed and unlicensed personnel.

Steamship Accounting

Accounting is concerned with the systematic recording, classifying, summarizing, and interpreting of financial data of a business. The general principles of accounting are the same in all businesses. However, each industry has its own special accounting problems and peculiar accounting practices.

Governmental Regulations

Steamship companies engaged in carrying (1) offshore trade between the United States, its territories, and possessions, and (2) international trade are regulated by the Maritime Administration. Governmental regulations have substantially affected accounting practices and techniques.
Shipping Subsidies

Shipping subsidies are primarily granted by a government to improve the competitive position of ocean carriers flying its national flag on the high seas and to enhance the capability of the merchant marine fleet serving as a naval and military auxiliary in time of war or national emergency. In the United States, construction-differential subsidy are provided by the Merchant Marine Act of 1936. To apply for these subsidies, a set of financial reports is required to be submitted to the Maritime Administration at specified dates.

The construction-differential subsidy is intended to offset the higher cost of constructing ships in United States shipyards than in other shipbuilding centers of the world. This subsidy is paid directly to the American shipyard in recognition of the high wages and high material costs as compared with construction costs in the foreign shipbuilding industry. The practice followed by steamship companies is to record the subsidized vessel at its net cost.

The operating-differential subsidy paid to a steamship company is a sum equal to the excess of certain vessel expenses incurred by the company over comparable vessel expenses of its principal foreign competitors. For income statement presentation, the subsidy may be included in a steamship company's revenues or applied to reduce its operating expenses.

The construction-differential subsidy does not constitute taxable income to the steamship company. Tax regulations provide that the operating-differential subsidy be considered as taxable income.
Accounting Systems

Since the shipping business of non-subsidized companies is relatively simple, their accounting problems and techniques are automatically covered by those of the subsidized liner companies. The uniform system of accounts prescribed by the Maritime Administration is the basic accounting system for all subsidized steamship companies. The chart of accounts is divided into three categories: (1) balance sheet accounts, (2) income statement accounts, and (3) clearance accounts. Each of the first two categories is subdivided into groups and each group is again subdivided into a number of accounts to accumulate the information concerning the financial position and operating results of the steamship company. Detailed instructions describe the various specific items that are to be charged or credited to each account.

Industrial carriers are mainly specialized vessels operated by industrial firms for carrying products which they are engaged in manufacturing or processing. A chart of accounts of Standard Fruit and Steamship Company is presented for the illustrative purpose. The industrial carrier, not like a common carrier, has few accounts concerning shipping operations.

As subsidiary ledgers become numerous and large numbers of accounts are kept in them, identification and location of accounts by descriptive title can be cumbersome and time consuming. Therefore, some system of coding is used that will enable quick and easy reference to accounts. Coding is also essential in punched card or electronic data processing systems. The case study of Delta Steamship Lines, Inc. is an example of the coding system as applied to the shipping industry.
Accounting for Assets

In general, transportation does not provide credit sales. The accounts receivable of a steamship company are considerably less than those of an ordinary commercial firm.

Steamship companies usually keep a relatively small amount of inventories on shore, and their vessels are furnished stores along the voyage route where the prices are lowest. The first-in-first-out and last-in-first-out methods of inventory valuation are widely used in the shipping industry. Shipping regulations specify procedures in handling inventories for subsidized companies.

Capital and special reserve funds are mandatory for subsidized steamship companies. A construction reserve fund may be maintained by subsidized or non-subsidized companies. The maintenance of such statutory funds enables the steamship company to obtain the postponement of federal income taxes.

The capital assets of steamship companies can be grouped into vessels, other floating equipment, terminal property and equipment, non-shipping property and equipment, and construction work in progress. One of the largest items in the capital assets is investment in vessels.

The cost of a vessel includes payments to the shipyard, naval architect's fees, inspection fees, trial runs, and interest expenses incurred during the construction period. Depreciation of vessels is computed on the basis of historical costs rather than replacement costs. The useful life of a vessel is usually estimated to be 20 or 25 years from the date of delivery of the vessel by the shipyard to the first shipowner. Straight line and accelerated depreciation methods are widely used in the shipping industry. Shipping industry taxes differ
greatly from those of any other industry. Vessels are usually not subject to any property tax. Tax benefits of voluntary conversion or involuntary conversion on a vessel have been considered.

**Accounting for Revenues and Expenses**

Sources of revenue of a steamship company can be classified as (1) freight revenue, (2) passenger revenue, (3) mail revenue, and (4) other revenue. Each classification requires somewhat different treatment as far as accounting is concerned. The place of freight payment determines whether the accountability is in the office of originating or the office of destination. Passenger tickets are usually sold before the passenger embarks. The conveyance of mail is performed over routes arranged under contract between the government and steamship companies.

Expenses of a steamship company may be divided into four general classifications: (1) vessel operating expense, (2) inactive vessels expense, (3) other shipping operations expense, (4) and administrative and general expense. They are treated, based on their nature, in various ways.

In voyage accounting, all revenues and operating expenses are sorted by vessels and by voyages, and each voyage of the individual vessel is considered as a separate venture. This basis of accounting facilitates proper matching of operating expenses against revenues of a vessel for a particular voyage. The following three methods may be used in handling the revenues and expenses of an incompletely voyage: (1) ignore any adjustments for the incompletely voyage, (2) estimate the percentage of the voyage completed, and (3) defer the amount of revenues and expenses.
Agency Accounting

The nature of steamship agencies differs somewhat from that of many other industries. The relationship of the shipowner and the agent is that of principal and representative. A working fund is provided to an agency by the steamship company for payments of vessel expenses. The steamship company should maintain records for the following transactions: (1) the cash sent to an agency, (2) the freight and passenger revenues collected by the agency, (3) the remittance made by the agency to the steamship company, and (4) the balance of the agency account.

Branch Accounting

A steamship company's branch performs most of the functions of an independent business, subject to the supervision and control of the home office. The system of centralized accounting is used by steamship companies. The branch keeps a fairly complete set of books in which to record all transactions occurred in the branch's operating area. Since the home office calculates voyage results, the branch does not need to keep detailed records for vessel revenues and operating expenses.

Ship Accounting

The purser aboard the vessel serves as the ship's accountant. A working fund of cash is used by the vessel to meet small expenditures during the course of voyage. The accounting problems of using the working fund are relatively simple, and the purser prepares only the basic record of transactions, such as cash advanced from the home office or its branch, revenues received from concessions, and various payments made during the voyage. Separate cash books are maintained for different currencies.
Cost Accounting

Ocean shipping costs may be classified under three major groups: (1) direct voyage costs, (2) indirect voyage costs, and (3) administrative costs. A direct voyage cost is any cost that can be specifically traceable to a particular voyage, such as wages, fuel, stevedorage, and so forth. An indirect voyage cost is any cost that cannot be identified with a particular voyage, such as vessel depreciation and insurance. Administrative costs are typically represented by office salaries, rent, and communication expenses.

The full cost of operating a vessel should include not only direct voyage costs, but also indirect voyage costs. Indirect voyage costs may be allocated to a voyage by the voyage-day basis or the gross revenue basis.

The apportionment of administrative overhead may be made by gross tonnage for passenger vessels, and by deadweight tonnage for freight vessels. When a steamship company owns both types of vessels, gross tonnage may be used as the allocating basis.

A standard costs system can be employed in controlling voyage costs. The analysis of variances must be made with sound common sense and shipping knowledge. The criterion of investigating the variance may be made on the basis of an arbitrary percentage. An investigation should be made if a variance exceeds the percentage set as a standard.

Budgeting is another tool for management control of vessel operations. Freight revenue is estimated by cargo tonnage multiplying rates. The estimate of passenger revenue is based on passenger bookings. Expenses are estimated separately for deck, engine, and
steward departments. Actual results can be compared with the estimated figures in the voyage performance summary.

Several available methods may be used in the allocation of joint passenger and freight services. The simplest method is the by-product approach. A second method is to allocate joint costs according to the space used for passenger cabins and that used for cargo holds. A third method of allocating joint costs is in proportion to the sales value of the passenger and freight services. The last method used in the allocation of joint costs is based on the construction costs of the vessel.

COMMENTARY

This document has described the concepts, techniques, practices, and problems of steamship accounting as they exist at present-day. The subject matter differs somewhat from accounting likely to be found in any other industry. However, it should be noted that the basic principles and functions of accounting remain unchanged in all businesses, regardless what peculiar accounting problems and practices are to be discovered.

Although ocean shipping is an important industry in a nation's commercial policy as well as in the inventory of the nation's military strength, it is not a most attractive business enterprise. Hence, there are few people interested in the field of accounting for maritime carriers.

Millions of dollars are spent annually to increase vessel tonnage. Not many industries require as large an investment to provide the capital assets, in proportion to total investment, as does the
shipping industry. Governmental assistance programs are needed for the promotion and prosperity of the industry. It is, therefore, a common practice for marine countries to subsidize their shipping industry for the essential foreign trade routes and for national defense. The limitations and restrictions that accompany the financial aids are designed mainly for the objective of protecting or securing the government's interest and not for regulatory purposes. The governmental regulations, however, have considerably influenced steamship accounting. Subsidized steamship companies are largely consistent with each other in the accounting terminology, reporting forms, classification of accounts, statutory reserve funds, and valuation of vessels. Non-subsidized steamship companies are much less consistent with each other in these accounting practices. The shipping industry taxes differ substantially from those of any other industry, especially the federal taxation of subsidized steamship companies.

Cost accounting in the shipping industry is relatively new, and it has yet to be fully developed in the industry. Many difficulties are to be overcome and various problems are to be solved. The control of voyage costs is important and essential in steamship companies. Therefore, the material herein is at best a starting point. The purpose of this study is to give some indication of the types of changes that may be expected so as to provide a guide for future investigation and exploration.
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SELECTED BIBLIOGRAPHY

Books


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**Periodicals**


Shah, S. L. "Internal Auditing in a Shipping Company," *Cost and Works Accountant (India)*, (January, 1959), pp. 77-86.


**U. S. Government Documents**


**Unpublished Material**

## APPENDIX 1

### CHART OF ACCOUNTS: STANDARD FRUIT AND STEAMSHIP COMPANY

**Current Assets:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>0100</td>
<td>Regular bank accounts</td>
</tr>
<tr>
<td>0200</td>
<td>Imprest bank accounts - Payroll</td>
</tr>
<tr>
<td>0300</td>
<td>Imprest bank accounts - General</td>
</tr>
<tr>
<td>0400</td>
<td>Restricted bank accounts</td>
</tr>
<tr>
<td>0500</td>
<td>Cash on hand - Imprest funds</td>
</tr>
<tr>
<td>0600</td>
<td>Cash on hand - Nonimprest funds</td>
</tr>
<tr>
<td>0700</td>
<td>Cash in transit</td>
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<tr>
<td>0800</td>
<td>Marketable securities</td>
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<tr>
<td>1000</td>
<td>Notes receivable - Trade</td>
</tr>
<tr>
<td>1100</td>
<td>Notes receivable - Employees</td>
</tr>
<tr>
<td>1200</td>
<td>Notes receivable - Other</td>
</tr>
<tr>
<td>1300</td>
<td>Accounts receivable - Trade</td>
</tr>
<tr>
<td>1400</td>
<td>Accounts receivable - Traffic</td>
</tr>
<tr>
<td>1500</td>
<td>Accounts receivable - Employees</td>
</tr>
<tr>
<td>1600</td>
<td>Claims receivable</td>
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<tr>
<td>1900</td>
<td>Accounts receivable - Other</td>
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<tr>
<td>2000 to 2200</td>
<td>Not used at the home office</td>
</tr>
<tr>
<td>2400</td>
<td>Fruit in transit</td>
</tr>
<tr>
<td>2600</td>
<td>Stamps and documents</td>
</tr>
<tr>
<td>2900</td>
<td>Materials and supplies</td>
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**Investments and Deposits:**

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<tr>
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<tr>
<td>3000</td>
<td>Advances to planters and contractors</td>
</tr>
<tr>
<td>3100</td>
<td>Guaranty deposits</td>
</tr>
<tr>
<td>3300</td>
<td>Miscellaneous securities and investments</td>
</tr>
<tr>
<td>3500</td>
<td>Miscellaneous deposits</td>
</tr>
<tr>
<td>3700</td>
<td>Intercompany accounts</td>
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**Property and Equipment:**

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<td>4000 to 4500</td>
<td>Not used at the home office</td>
</tr>
<tr>
<td>4600</td>
<td>Other equipment</td>
</tr>
<tr>
<td>4700</td>
<td>Steamships</td>
</tr>
<tr>
<td>4800</td>
<td>Leasehold improvements</td>
</tr>
<tr>
<td>4900</td>
<td>Capital expenditures in progress</td>
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<tr>
<td>5000 to 5500</td>
<td>Not used at the home office</td>
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<tr>
<td>5600</td>
<td>Reserve for depreciation - Other equipment</td>
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<tr>
<td>5700</td>
<td>Reserve for depreciation - Steamships</td>
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</tbody>
</table>
Reserve for depreciation - Leasehold improvements
Reserve for depreciation - Capital expenditures in progress

Deferred Charges and Prepaid Expenses:

6000 Untermiated voyage expense
6100 Deferred cost of fruit
6200 Prepaid insurance
6300 Prepaid interest
6400 Prepaid rent
6500 Prepaid advertising, promotion, etc.
6600 Organization expense
6700 Suspense accounts
6800 Other deferred charges

Clearance Accounts:

6900 Clearance accounts

Current Liabilities:

7000 Notes payable
7100 Accounts payable - Trade
7200 Accounts payable - Other
7300 Accrued liabilities
7400 Dividends payable
7500 Estimated taxes on income

Long-Term Liabilities:

7600 Long-term liabilities

Deferred Credits:

7700 Untermiated voyage revenue
7800 Other deferred credits

Other Liabilities:

7900 Other liabilities

Reserves:

8000 Estimated vessel survey costs
8200 Other reserves

Minority Interest:

8300 Equity of minority stockholders

Net Worth:

8400 Preferred stock
<table>
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<tr>
<td>8500</td>
<td>Common stock</td>
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<td>8600</td>
<td>Paid-in surplus</td>
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<tr>
<td>8700</td>
<td>Statutory appropriation of foreign earnings</td>
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<tr>
<td>8800</td>
<td>Earned surplus</td>
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<tr>
<td>8900</td>
<td>Treasury stock</td>
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Revenues and Expenses:

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<tr>
<td>9000</td>
<td>Banana sales</td>
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<tr>
<td>9100</td>
<td>Cost of fruits</td>
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<tr>
<td>9200</td>
<td>Other cost of bananas</td>
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<tr>
<td>9300</td>
<td>Direct steamship expenses</td>
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<tr>
<td>9400</td>
<td>Domestic stevedore expenses</td>
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<tr>
<td>9500</td>
<td>Selling expenses</td>
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<tr>
<td>9600</td>
<td>General and administrative expenses</td>
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<tr>
<td>9700</td>
<td>General cargo and passenger operations</td>
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<tr>
<td>9800</td>
<td>Miscellaneous operations</td>
</tr>
<tr>
<td>9900</td>
<td>Other income and expense</td>
</tr>
</tbody>
</table>
APPENDIX 2

CHART OF ACCOUNTS: SUBSIDIZED OPERATORS

Balance Sheet Accounts

Assets:

100  Cash
101  Cash on deposit; domestic
106  Cash on deposit; foreign
111  Imprest and petty cash funds
114  Cash on hand and in transit
115  Special cash deposits
120  Marketable securities
130  Notes receivable
140  Notes and accounts receivable; related companies
150  Accounts receivable
151  Traffic accounts receivable
155  Claims receivable
160  Maritime Administration; accounts receivable
165  Accounts receivable; miscellaneous
169  Accrued accounts receivable
170  Inventories
171  Vessels stores, supplies, and equipment ashore
175  Other shipping inventories
180  Non-shipping inventories for sale
185  Non-shipping inventories for consumption
189  Miscellaneous inventories
190  Other current assets
191  Prepaid current insurance
192  Other prepaid current expenses
199  All other current assets
200  Unterminated voyage expense
210  Subsistence - Purchased domestic
225  Stores, supplies, and equipment - purchased domestic
300  Special funds and deposits
301  Capital reserve fund
302  Special reserve fund
303  Construction reserve fund

---

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
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<tbody>
<tr>
<td>304</td>
<td>Insurance funds</td>
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<td>306</td>
<td>Debt retirement funds</td>
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<tr>
<td>307</td>
<td>Escrow funds</td>
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<tr>
<td>308</td>
<td>Construction funds</td>
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<tr>
<td>309</td>
<td>Other special funds</td>
</tr>
<tr>
<td>310</td>
<td>Restricted funds</td>
</tr>
<tr>
<td>312</td>
<td>Special and guaranty deposits</td>
</tr>
<tr>
<td>315</td>
<td>Investments</td>
</tr>
<tr>
<td>316</td>
<td>Securities of related companies</td>
</tr>
<tr>
<td>320</td>
<td>Non-current receivables; related companies</td>
</tr>
<tr>
<td>325</td>
<td>Cash value of life insurance</td>
</tr>
<tr>
<td>328</td>
<td>Other investments</td>
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<tr>
<td>329</td>
<td>Reserve for revaluation of investments</td>
</tr>
<tr>
<td>330</td>
<td>Property and equipment</td>
</tr>
<tr>
<td>331</td>
<td>Floating equipment; vessels</td>
</tr>
<tr>
<td>332</td>
<td>Reserve for amortization and depreciation; vessels</td>
</tr>
<tr>
<td>337</td>
<td>Other floating equipment</td>
</tr>
<tr>
<td>338</td>
<td>Reserve for amortization and depreciation; other floating equipment</td>
</tr>
<tr>
<td>343</td>
<td>Terminal property and equipment</td>
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<tr>
<td>344</td>
<td>Reserve for amortization and depreciation; terminal property and equipment</td>
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<tr>
<td>349</td>
<td>Other shipping property and equipment</td>
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<tr>
<td>350</td>
<td>Reserve for amortization and depreciation; other shipping property and equipment</td>
</tr>
<tr>
<td>353</td>
<td>Non-shipping property and equipment</td>
</tr>
<tr>
<td>354</td>
<td>Reserve for amortization and depreciation; non-shipping property and equipment</td>
</tr>
<tr>
<td>359</td>
<td>Construction work in progress</td>
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<tr>
<td>360</td>
<td>Other assets</td>
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<tr>
<td>361</td>
<td>Claims pending</td>
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<tr>
<td>362</td>
<td>Spare parts</td>
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<tr>
<td>364</td>
<td>Notes and accounts receivable from officers and employees</td>
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<tr>
<td>365</td>
<td>Interest accruals for deposit in capital reserve fund</td>
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<tr>
<td>367</td>
<td>Deferred operating-differential subsidy receivable</td>
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<tr>
<td>368</td>
<td>Other non-current notes and accounts receivable</td>
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<tr>
<td>369</td>
<td>Reserve for doubtful notes and accounts receivable</td>
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<td>370</td>
<td>Maritime Administration allowance for obsolete vessels</td>
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<tr>
<td>374</td>
<td>Miscellaneous other assets</td>
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<tr>
<td>375</td>
<td>Deferred charges and prepaid expenses</td>
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<tr>
<td>376</td>
<td>Unexpired long-term insurance</td>
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<tr>
<td>380</td>
<td>Advances to employees for expenses</td>
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<tr>
<td>384</td>
<td>Debt discount and expense</td>
</tr>
<tr>
<td>385</td>
<td>Leaseholds</td>
</tr>
<tr>
<td>386</td>
<td>Organization and pre-operating expenses</td>
</tr>
<tr>
<td>389</td>
<td>Deferred prepayments and other deferred charges</td>
</tr>
<tr>
<td>390</td>
<td>Goodwill and other intangible assets</td>
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<tr>
<td>391</td>
<td>Goodwill</td>
</tr>
<tr>
<td>399</td>
<td>Other intangible assets</td>
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</table>
Liabilities:

400 Notes payable
401 Bank loans
410 Insurance notes
414 Other short-term notes
415 Notes and accounts payable; related companies
420 Accounts payable
421 Trade accounts payable
422 Traffic accounts payable
428 Officers and employees accounts payable
430 Maritime Administration; accounts payable
438 Dividends payable
439 Miscellaneous accounts payable
440 Accrued taxes payable
459 Other accrued accounts payable
479 Other current liabilities
489 Miscellaneous reserve for unrecorded liabilities
495 Advance ticket sales and deposits
500 Unterminated voyage revenue
525 Long-term debt
526 Mortgage notes; Maritime Administration
527 U.S. Government insured merchant marine mortgage bonds and mortgage notes
534 Other long-term debt
540 Other liabilities
541 Non-current payables; related companies
549 Non-current notes and accounts payable; officers and employees
550 Recapturable profits; Maritime Administration
554 Miscellaneous liabilities
555 Deferred credits
556 Premium on funded debt
558 Miscellaneous deferred credits
565 Operating reserves
566 Reserve for repairs
570 Reserve for insurance
571 Reserve for pensions and welfare
579 Miscellaneous operating reserves

Net Worth:

581 Capital stock
585 Capital stock subscribed
587 Discount on capital stock
590 Capital surplus
595 Appreciation surplus
598 Earned surplus; appropriated
599 Earned surplus; unappropriated
Income Statement Accounts

Water Line Operating Revenue:

600  Operating revenue; terminated voyage  
601  Freight; foreign  
605  Freight; coastwise and intercoastal  
608  Passenger; foreign  
612  Passenger; coastwise and intercoastal  
615  U. S. mail; foreign  
616  U. S. mail; coastwise and intercoastal  
617  Foreign mail  
619  Ad valorem  
620  Charter revenue  
624  Other voyage revenue

Subsidies:

625  Operating-differential subsidy

Other Shipping Revenues:

640  Collections from pools  
645  Revenue from terminal operations  
650  Revenue from cargo handling operations  
655  Revenue from tug and lighter operations  
660  Revenue from other shipping operations  
670  Agency fees, commissions, and brokerage earned

Other Credit Accounts:

675  Interest income  
685  Dividend income  
690  Miscellaneous other income  
691  Release of premium on long-term debt  
695  Income from non-shipping operations

Water Line Operating Expenses:

700  Operating expense; terminated voyages  
701  Wages  
708  Payroll taxes  
709  Contributions; welfare plans  
710  Subsistence; purchased domestic  
714  Subsistence; purchased foreign  
715  Stores, supplies, and equipment; purchased domestic  
724  Stores, supplies, and equipment; purchased foreign  
725  Other maintenance expense  
735  Fuel  
740  Repairs performed; domestic  
749  Repairs performed; foreign  
755  Insurance; hull and machinery  
757  Insurance; protection and indemnity
759 Insurance; other
760 Charter hire
764 Other vessel expense
765 Agency fee and commissions
770 Wharfage and dockage
779 Other port expenses
780 Stevedoring
789 Other cargo expenses
790 Freight brokerage
793 Passenger brokerage
795 Canal tolls
799 Other voyage expense
800 Inactive vessels expense
850 Contributions to pools
855 Expense of terminal operations
865 Expense of cargo handling operations
875 Expense of tug and lighter operations
885 Expense of other shipping operations
890 Interdepartmental credits for services and facilities
900 Administrative and general expense
901 Salaries of officers
902 Wages of employees
905 Legal and accounting fees and expenses
910 Rent, light, heat, and power
915 Communication expenses
920 Office supplies, stationery, and printing
925 Membership dues and subscriptions
929 Entertaining and solicitation
930 Travelling expenses
931 Insurance and bond premium
932 Pensions and relief
933 Postage
934 Maintenance of office buildings and equipment
944 Miscellaneous
945 Management and operating commissions
950 Advertising
955 Taxes, miscellaneous
972 Amortization; leaseholds
980 Depreciation; shipping property and equipment
981 Depreciation; floating equipment; vessels
984 Depreciation; other floating equipment
987 Depreciation; terminal property and equipment
988 Depreciation; other shipping property and equipment

Other Debit Accounts:

960 Interest expense
970 Amortization of deferred charges
971 Amortization; debt discount and expense
973 Amortization; organization and preoperating expense
974 Miscellaneous amortization expense
975 Doubtful notes and accounts receivable
979 Miscellaneous deductions from income
995 Expense of non-shipping operations
Depreciation; non-shipping property and equipment
Provision for federal income taxes

Clearance Accounts

001 Masters and pursers
005 Allotments on wages of crews
010 Agents and branch houses
012 Sub-agency operations
015 Related companies; accounts current
025 Collections and deposits for passenger transportation
030 Collections on unrecorded freight manifests
035 Advance and prepaid beyond charges, and miscellaneous manifested items
040 Bar account
045 Slop chest account
050 Foreign exchange account
055 Pool participation
060 Stores, supplies, and equipment aboard vessels
090 Adjustments applicable to prior periods
095 Profit and loss account
VITA
VITA

Philip Chi-Hwa Cheng, son of the late Mr. and Mrs. Huan-Ju Cheng, was born in China on November 4, 1923. He received the degree of Bachelor of Science with a major in finance from the National Chiaotung University, China in 1947. In 1952 he passed the uniform examination for chartered accountants in China and was awarded a chartered accountant certificate by the Chinese government.

From 1953 to 1958 Mr. Cheng accepted a position as assistant manager and chief accountant at Taiwan Steamship Co., Ltd., Japan Branch in Tokyo, Japan. During that time he was enrolled in the Graduate School of Meiji University, Japan, and received the degree of Master of Arts with a major in transportation in 1958.

Mr. Cheng entered the Graduate School of Oklahoma State University in 1959 and graduated in 1960, receiving the degree of Master of Science with a major in accounting.

Since September, 1960 Mr. Cheng has attended the Graduate School of Louisiana State University, the recipient of a graduate assistantship in the Department of Accounting from 1960 to 1963. He is at present an assistant professor of accounting at East Tennessee State University. With a major in accounting, he is now a candidate for the degree of Doctor of Philosophy at the May, 1964 commencement.
EXAMINATION AND THESIS REPORT

Candidate: Philip Chi-Hwa Cheng

Major Field: Accounting

Title of Thesis: Accounting for Maritime Carriers

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature]

[Signature]

[Signature]

[Signature]

Date of Examination:

March 24, 1964