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THE ACCOUNTING PROCESS

THE ACCOUNTING PROCESS

A textbook covering the basic concepts, principles, and conventions of accounting as applied in enterprises operated for profit.

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TO

M. M. K.

Preface

The title page of this book identifies its content and the area of its application. But some things need to be stated concerning the point of view adopted, the precise subject matter covered, and for whom the book was written.

This book was written for beginning students in college courses in accounting. The writer's ever-growing dissatisfaction with the mechanical, bookkeeping approach really prompted him to attempt to put together a text which would start with rock-bottom concepts and assumptions and build thereon. This is most clearly evident in the repeated emphasis on the important distinction between double-entry as a concept, and the debit and credit mechanism as a mechanical implementation of that concept. The next to the last chapter is devoted to a full presentation of this distinction after the student has spent almost two terms working with double-entry and debit and credit.

There is adequate material for six semester-units of work. Experience with it at Golden Gate College indicates that the first twelve chapters can be thoroughly covered in the first semester. Although the concepts are completely new to most students a thorough grasp of them does not call for a level of abstract thinking above that required in a high school class in plane geometry.

The book should be *studied* by the student and *taught* by the instructor. Ample opportunity is afforded a teacher to clarify concepts and procedures by multiplication of illustrations. Emphasis has been placed on theory—the why. As one of the writer's students once remarked, "If one understands the theory the numbers almost fall in the proper column by themselves."

Two facts have determined the approach, viz. (1) that the primary data or raw statistics of accounting are economic data—actually price system data—and, (2) that the methods and procedures employed in accumulating, summarizing, measuring and interpreting them are essentially statistical.

These two facts call for a careful statement of premises supported by operationally useful concepts. Considerable care has been exercised in defining such important terms as asset, liability, gross and net proprietorship, the several classes of gross income and costs and expenses. Much attention has also been given to illustrating their practical application to business enterprise operations.

Selection of subject matter is determined primarily by its relevance to the central theme of modern accounting—the measurement of periodic income. Since the nature of this problem and the general approach to its solution can be well covered by illustrations drawn from wholesale and retail operations, any discussion of industrial cost accounting (really, cost bookkeeping in the conventional elementary text) has been omitted. And since the *real* problems of accounting have to do with the acquisition, use, and disposition of assets, regardless of the legal form under which the enterprise operates, only the last chapter has been devoted to a brief discussion of these legal forms and the problems which they raise.

The sequence of subject matter is ordered to the preparation of an income statement and a balance sheet. A minimum of strictly bookkeeping routine suffices for this purpose which is accomplished in the first four chapters.

This is followed by a discussion of the measurement of periodic income where all operations are on a cash basis. The student is at once introduced to trial balance, working papers, and statements. This operation is repeated for the case of cash and credit basis operations. A unique feature is the use of partial working papers to show separately the measurement of gross income for a period and of costs or expenses for a period. This serves the twofold purpose of emphasizing (1) that the measurement of gross income for a period is *wholly* independent of the measurement of costs or expenses for a period, and (2) that net income is only a difference between two such measurements.

In this portion of the book the nature of a valuation account is clearly set out and its many uses illustrated.

Explanation of the use of specialized books of original entry is deferred until the problems of income and expense measurement have been discussed. This sequence permits the methods of columnizing books of original entry to be related to the need for classes of data in terms of how they will be used.

The problems of consignments and installment sales are included both because they stem from exceedingly common business practices and because the latter affords an excellent vehicle for demonstrating the core issues involved in measuring periodic income.

Thanks are due a former colleague Dr. John Pagani, Jr. of the University of Santa Clara for material assistance in developing the final arrangement of subject matter. Mr. Russell

Taussig, M.B.A., C.P.A., read a great part of the manuscript as did one of my graduate students, Mr. H. Trenor Sheridan. To each I express sincere thanks for valuable suggestions.

The ideas in this book have developed over many years spent in teaching at college level, in professional accounting practice, in government service during World War II and as controller both in industrial operations and in retailing. Their origin, however, is rather clear cut. They stem from the writings of John B. Canning and Irving Fisher. The approach of these men to accounting and economics, respectively, is highly realistic in the sense that their ideas are operationally useful in the world of affairs.

Edward J. Kelly

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CHAPTER 1

The Environment in Which Accounting Functions

The Enterprise System. The provision of the goods and services needed for the satisfaction of human wants has always accounted for a large portion of human activity. Methods followed and means employed have changed over the centuries sometimes slowly, sometimes suddenly and with great rapidity. The most significant and revolutionary of these changes known as the industrial revolution, took place in the eighteenth century. Its cumulative effects are today the basis of some of mankind's most pressing problems.

Prior to the middle and late seventeenth century most production was carried on in the home or on the farm. True, there were warehouses in seaport cities, small shops, taverns, inns, etc.; but in total they were not important. The making of things, the cooking of food, the weaving of cloth, etc., were all performed in the home with materials and instruments owned by the family. The home was therefore the significant producing unit in society. In a very real sense the home was a business enterprise. The head of the family generally did the managing; he planned the work, assigned the several tasks to his children, determined what should be done first, and made arrangements for all the domestic activity. Even after the practice of farming out weaving developed, the home was the important producing unit—hence the term domestic economy. Indeed, the very word *economics* comes from the Greek word meaning *household management.*

Now let us consider the consequence of the wave of inventions which swamped the last half of the eighteenth century. Because the newly invented equipment was costly, needed separate housing and required larger groups of workers for efficient operation, the ownership and control became separated from operation. The factory system developed. The worker no longer owned the machines or products on which he worked. This development has continued in our day accompanied by a separation in many cases of three important elements: worker, owner, manager. Thousands of modern corporations utilize large aggregates of wealth contributed by one group, managed and controlled by a second group who employ a third group to do

the work. Although there is some overlapping of the groups it is not of practical significance. Note that one group manages and controls. This is obviously done for a purpose—the earning of a profit or net income.

This profit or net income is measured in dollars. The enterprise acquires goods and services[1] at a price on the market. In carrying on its activities these goods and services are consumed. Their dollar measures are called costs or expenses. The result of this consumption is the provision of other goods and services. These latter are sold at a price on the market. Their dollar measures are called gross income. If gross income exceeds costs as defined above there is a net income (profit); if the reverse is true there is a loss.

To accomplish this purpose, the earning of net income, a plan is necessary; and a plan implies organization. The unit of activity through which this is done is called an enterprise. The situation may be summarized as follows:

1. There is an objective—net income or profit.
2. There is a plan for attaining this objective.
3. An organization exists for carrying out this plan.
4. The objective, net income, is attained by producing and selling goods or services.
5. In this process services of persons and of things are consumed.
6. Wealth must be provided with which to acquire these services.
7. The directors of activity, the managers of the enterprise, need not be and frequently are not those who supply the wealth used by the enterprise.

The whole of that part of our economy which is engaged in producing and selling services and goods is made up of enterprises—from the small one—family farm to the giant corporation. It is true that the amount of wealth used, the number of people employed, the volume and kinds of services and goods produced, etc., vary greatly; it is nonetheless true that, though varying in size and in relative importance, all the essential characteristics of an enterprise are present in each of these units. For our purposes therefore the essence of an enterprise is activity organized for profit or net income.

[1] For a discussion of services see Chapter 2.

The characteristics of an enterprise set out above are economic characteristics. It is to be observed that no mention was made of legal features. Actually any one of a variety of legal forms may be adopted; but the legal form is not an essential characteristic. The enterprise may be a sole proprietorship, a partnership, a corporation, a joint stock company, etc.

The Price System. In the preceding section of this chapter we developed the concept of a business enterprise and discovered its distinguishing characteristics. One of these is the production and sale of goods and services. Let us direct our attention to the two nouns, production and sale. Production implies, and is, that one of the enterprise's activities by which services of persons and things are consumed in order to yield other services and things which can be sold. Sale is the disposition of these other services and things, usually for money.

All the services consumed in production whether they are the services of persons or of things, must first be acquired. This is done by way of purchase on the market at a price. Similarly all the produced goods and services are sold on the market at a price. The prices at which goods and services are bought by one enterprise are, obviously, the selling prices of goods and services produced by other enterprises. This whole set of prices is spoken of as the price system. In varying degrees an enterprise may control the prices of the goods and services it buys. The same is true of the prices at which it sells. For any one enterprise the degree of control is usually negligible. We therefore, quite properly, speak of enterprises facing a world of uncertainty as to prices and their consequences. Thus the management of an enterprise must take the price system as he finds it, as a part of a world he never made. It is important to note that in an economy such as ours in the United States, with a highly developed monetary system, market prices become the focal point for referrals of business decisions of all kinds. The query, "Will it pay?" is answered by data furnished by the price system. This is true even if the prices in question are those which enterprise management *expects* will prevail at some future date for even these future prices must develop out of the conditions which yield present prices.

This then is the price system: a great number of enterprises producing goods and services for sale, buying at prices determined by market conditions, selling at prices determined by market conditions, each enterprise having little or no control over the prices at which it buys or sells.

What Accounting Is All About. Since a business enterprise must use the services of persons and things in carrying on its activities, it follows that it must first acquire them. But first of all it must obtain wealth to be used for this purpose. Such wealth is contributed by investors. These latter may or may not include managers and employees. Basically then this situation exists: wealth is made available to an enterprise by a person or a group, i.e., the investor or investors, and is used by another group, managers of the enterprise. The latter are stewards, or trustees for the contributors. *Accounting is fundamentally and at rock bottom a method or procedure for accumulating data necessary to report upon the discharge of this stewardship.*

But the reporting upon the stewardship involves more than a mere showing that the legal minimum of care and prudence was exercised in preserving the wealth at management's disposal. The wealth was made available in the expectation that it would be used profitably—the investors expect a return. *The providing of data necessary and appropriate for the reporting of the results of enterprise activity is another reason for accounting.*

These first two reasons for accounting are clearly identified in the following statement of the Board of Directors of American Telephone and Telegraph Company in its 1952 Annual Report, page 7: "Each of us considers that he is a trustee for the savings of every individual who has put money in the business. It is our responsibility that the Company shall prosper." This reason for accounting is the justification for that elaborate and detailed analysis of enterprise activity, known as cost accounting. *Finally, because of taxation in all its forms, but especially income taxation, accounting is necessary.*

Nature of and Source of Accounting Data. Earlier in this chapter it was noted that an enterprise must acquire the services of persons and things in order to provide the services or produce or make available the goods which it sells. It was also noted that such goods and services are acquired at prices on a market. As a buyer of services the enterprise must part with wealth provided by investors. Therefore it must account for such wealth. The primary data for such an accounting are, therefore, market prices. The immediate source of these is the voucher or document obtained when the services are acquired. These services are consumed in the process of making other goods or services available for sale. As the latter are disposed of, additional data become available on vouchers or documents

prepared when sales are made. The basic data of all accounting, the primary statistics, are price system data and are derived from vouchers, or other documents prepared by the seller. Thus for X Company, for example, the basic accounting document or voucher is prepared by another enterprise in the case of X Company's purchases and by X Company in the case of its sales. But each enterprise is acting as a seller when the document is prepared which contains the primary statistics which become the raw data of accounting. There is one important exception to the foregoing. It is as a purchaser that an enterprise prepares the basic document covering wages and salaries, the prices of the services of persons which it buys.

Appendix—Chapter 1

The coinage of terminology being a difficult task, we conventionally adopt as handles for ideas in technical fields words whose long life in a language has developed for them particular meanings and certain usages. This is particularly true in the fields of accounting and economics. Since the real problems of accounting are grounded in economics and in statistical techniques, it is helpful whenever possible to use terms which have an accepted connotation in those fields.

Three important and useful terms are price, value, and valuation. Price is a ratio; value is the product of the number of units times unit price; valuation is value adjusted by some formula to reflect, ordinarily, the effect of certain factors since the date the value was established. These concepts are illustrated below.

Suppose a group of boys possess marbles and tops. If John will exchange 35 marbles for one top, the price of tops, in terms of marbles, is 35 marbles, and the price of marbles, in terms of tops, is 1/35 top. These relationships may be written thus:

$$\text{Price of tops (in terms of marbles)} = \frac{35 \text{ (marbles)}}{1 \text{ (top)}}, \text{ i.e.,}$$

marbles are to tops as 35 are to one. Similarly,

$$\text{Price of marbles (in terms of tops)} = \frac{1 \text{ (top)}}{35 \text{ (marbles)}}, \text{ i.e., tops}$$

are to marbles as one is to 35.

Again if one 200 pound boar exchanges for 50 bushels of wheat, then;

Price of pork (in terms of wheat) $= \frac{\frac{1}{4} \text{ (bushel of wheat)}}{1 \text{ (pound of pork)}}$, i.e., a bushel of wheat is to a pound of pork as one is to four. Similarly,

Price of wheat (in terms of pork) $= \frac{1 \text{ (pound of pork)}}{\frac{1}{4} \text{ (bushel of wheat)}}$, i.e., a pound of pork is to a bushel of wheat as four is to one.

Now suppose the price of wheat is \$2.10 per bushel. Then

Price of wheat (in terms of dollars) $= \frac{2.10 \text{ (dollars)}}{1 \text{ (bu. of wheat)}}$, i.e., dollars are to a bushel of wheat as 2.10 are to one.

The value of ten bushels of wheat is price times quantity—$10 \times \$2.10 = \$21.00$. The value of one unit of anything is its price.

On the date a value is established it is also the valuation. This is sometimes referred to as original valuation or historical cost. The money measure on any date subsequent to the date value was established is a valuation. It may or may not equal value.[1]

[1] Valuation will be discussed in greater detail in Chapter 15.

CHAPTER 2

The Accounting Equations

Services and Wealth. In the preceding chapter repeated reference was made to services, the services of persons and things; that they were acquired with the wealth provided by the investors; that the services were used up in the process of providing other services and things for sale. Now let us consider the relation between services, things and wealth.

All services of whatever kind are derived ultimately from things, i.e., from physical sources. This is true even of the services of human beings. Services are desired because they satisfy human wants, some directly, others indirectly. The air we breathe directly satisfies a want; so do the food we eat, the newspaper we read, the concert we listen to, the clothes we wear. All these directly satisfy human wants. The air satisfies the body's need for oxygen, the newspaper the mind's need for information, the food the body's need for fuel, etc.

For the business enterprise, however, the services wanted and needed are those that can be utilized in the production of other services or things for sale. Let us see what some of them are. The enterprise needs the services of people; these it obtains by employing the people. It needs the services which will yield light and motive power so it buys electricity from the local public utility. Note that the sources of the services are not purchased—only the services themselves. Observe also that the services are consumed as rapidly as they are made available to the enterprise. It does not buy and store for future use the services of persons or the electric current.

A second group of services needed by an enterprise is acquired by purchasing the source of the services. This group is made up of two sub-groups. The first sub-group includes the service sources which are consumed in the process of obtaining the service. Coal and oil are physically consumed in obtaining heat. Water is similarly consumed in obtaining steam; gasoline in operating an automobile; lubricating oil in operating machinery. The second sub-group comprises service sources which are not physically consumed but which can be used once only. This is true, for example, of compounds used to hold down dust when sweeping floors. The compound is used once and disposed of. The same is true of stationery used for accounting records;

once used they cannot be used again. In a broad sense all of this second major group are known as supplies. They possess in common a very important attribute; they may be bought and stored for future use.

A third group, one of very great importance, includes service sources acquired to be sold either in the physical form in which acquired or after physical transformation or combination with other service sources. This is called the inventory. In common usage it means stock in trade. Refinements of this definition will be developed in Chapter 15. At this point it is sufficient to notice that inventories and supplies are alike so far as services are concerned. Both are service sources, both can be used once only, and both can be bought and stored. When a particular item of supplies or of inventory has yielded the service for which it was acquired it cannot be used again. But inventory differs from supplies in a very important respect. Supplies were acquired *to be used up* in the enterprise. Inventory was acquired *to be sold* to others (persons or enterprises) who use it up or resell to others in turn.

A fourth group of services is obtained by renting the physical source of services. The most common case is the renting of land or of land and building. Observe that the service source is not purchased. The services only are purchased. But an agreement, known as a lease, is customarily entered into whereby the enterprise binds itself to pay for the services as they become available from day to day through the passage of time.

Fifth and last are those services which are derived from purchased sources which are not themselves physically consumed as the services are made available and consumed and which can be used over and over again. Land, buildings, machinery, equipment, etc. belong to this class of service sources. Each source is a stockpile, as it were, of services. Within varying limits the services are available to the management of an enterprise at its pleasure. The services may be consumed today, tomorrow, this year, next year or a decade hence. But the enterprise buys all the services when it buys their source.

These services and service sources are obtained by exchanging for them cash (currency and bank deposits). The important service performed by cash is the making available all the types of services discussed above. In a sense it is an overall or general storehouse of services because it can be used to acquire any available service or source of service as needed. For this reason it is commonly referred to as general purchasing power.

All the service sources acquired by an enterprise are a part, but only a part, of that enterprise's wealth. They are purchased because they are needed in carrying on enterprise activities. They are wealth because they are scarce;[1] more are wanted than are available. Because they are scarce they are appropriated by enterprises, or persons, i.e., they are *owned*. For the enterprise this appropriation comes about by purchase. But the purchase is at a price on a market. Payment is made in money. The money is supplied by the investors. Therefore the stewardship of other people's wealth usually begins with the receipt by the enterprise of the investors' investment of cash. Consequently accounting must start at this same point.

Wealth, Assets and Proprietorship: The items of wealth held and used by an enterprise are called assets. Money or cash contributed by the investors is usually the first asset held by the enterprise and therefore the first for which there must be an accounting. How then is this to be done? To be sure, any written record might initially suffice. But the cash contributed will be spent for services to be consumed as rapidly as they are made available, for service sources consumed in part and stored in part for a short time and for service sources to be held for many years. As these activities take place, other services or service sources will be made available and sold at a money price. Additional cash will come into the possession of the enterprise as a result of these activities. An accounting scheme is, therefore, necessary which will make easy not only the recording of all these events involving the enterprise assets but which will provide, to the extent possible, some automatic controls to minimize errors of all sorts. The invention sometime between 1275 A.D. and 1350 A.D. of what is known as double-entry bookkeeping supplied the basic foundation upon which all present day accounting is constructed.

Let us suppose Mr. X organizes a management consultant service. He invests $1,000.00 for this purpose; that is, he deposits $1,000.00 with his bank in an account in the name of the new enterprise. The account will be used only for transactions arising out of X's consulting service activities. The cash thus deposited may be looked upon as having been dedicated to an enterprise—X's consultant service. Although the cash is the property of X we may view it in terms of the enterprise since it will be used only for enterprise activities. The enterprise holds the cash. The enterprise will dispose of it. Notice

[1] See Appendix to this Chapter.

that all the while it is X, *in his capacity as manager of the consultant service,* who will make decisions, spend cash, collect fees, etc. Also note that X is all the while the legal owner of the cash on deposit with the bank, it is X's property.

But for the purposes of accounting our concern is with the enterprise. This is not to say that a proper accounting may not be made of X's activities, as a natural person. It can and should be made. Yet the real accounting problems in the business world are the problems arising out of and connected with the activities of enterprises.

Let us consider the cash now held by X's consultant service enterprise. The $1,000.00 consists essentially of future services. They are valued at $1,000.00, the face value of the amount deposited with the bank. These future services are, in accounting terminology, called assets. They may be in money, in claims calling for money payments, or in services that may be converted into money. For the purpose of this text we will define an asset as follows: *An asset is a valuable future service (or services) in money or which can, directly or indirectly, be converted into money.*[2]

These future services are the essence of an asset. But, obviously, it is because benefits will be derived from them that they are valuable. These benefits flow, in the first instance, to the enterprise. We may, therefore, look upon these services from two points of view; 1st, as services worth so much and, 2nd, as so much worth of benefits from services. Or we may say: here are $1,000.00 of services and here also are $1,000.00 of benefits to be derived from these same services. We look first at the asset (the future services) then at the beneficial interest in them. The latter, obviously, rests with the enterprise which holds the assets. This interest of the holder and user of the assets is termed proprietorship.

The Basic Equation. Since, therefore, any asset may be viewed in these two ways, the money measure of the services (the asset) is also the money measure of the proprietorship. From this is derived what is known as the basic accounting equation:

Money measure of services = Money measure of benefits from the services.

Money measure of an asset = Money measure of proprietorship.

[2] John B. Canning—THE ECONOMICS OF ACCOUNTANCY. Copyright 1929 The Ronald Press Company, 22.

In its abbreviated form it reads

$$\$A = \$P, \text{ or } A = P$$

(1) Cash \$1,000.00 = Proprietorship, \$1,000.00

If an enterprise holds many different assets it is necessary to add up the valuations of all the assets to determine the money measure of the proprietorship.

In this case we should properly write

$$\sum_{i=1}^{i=n} \$A_i = \$P$$ [3]

Conventionally, however, the relationship is written

$$A = P$$

The reader should note most carefully that the money measure of the assets *is* the money measure of the proprietorship. When we say that assets equal proprietorship we are using a short expression for the full one of the preceding sentence. Assets and proprietorship are different concepts; they are therefore not equal to each other, but their money measures are identical. It is not true to say that assets equal proprietorship and understand it to mean that assets and proprietorship are the same thing. They are distinct concepts. Only the money measure is the same for both of them. A clear understanding of this basic relationship will materially reduce the apparent difficulty of many concepts and procedures found in the study of accounting.

The Modified Basic Equation. In the real world of business enterprise the basic equation as developed above is rarely found. Conventional business practices bring into it a third term. We must now further develop the equation to include this term. Enterprises borrow money and acquire services and service sources under terms calling for later payment. Such events create liabilities. *A liability is a service valuable in money (usually but not necessarily the payment of money) which an enterprise is under obligation to render to a person or to another enterprise.*[4]

Suppose then, that X orders \$15.00 worth of stationery on account. This means that he receives the stationery now and

[3] See Appendix to this Chapter for explanation of symbols.

[4] John B. Canning—THE ECONOMICS OF ACCOUNTANCY. Copyright 1929 The Ronald Press Company, 55.

agrees to pay for it later. Clearly the stationery is an asset—valuable future services. In terms of the basic equation we write:

(2) + Stationery $15.00 = + Proprietorship $15.00

This is correct because the enterprise has acquired an asset valued at $15.00. This means future services valued at $15.00. It also means $15.00 of benefits from the services. The interest in this measure of the benefits is proprietorship.

But this is not all. The enterprise is under obligation to render a service, valuable in money, the payment of $15.00. This obviously means a reduction in the total benefits to be derived from all the assets of the enterprise, *which will remain with it.* The expectation of the seller of the stationery and of X is that payment therefore will be made out of the assets of the enterprise which acquired the stationery. But if assets leave the enterprise, so do the benefits which go along with them. Also if there is an agreement to turn over certain assets, the amount agreed upon can be set up only by reducing the total benefits remaining with the enterprise. In this case the agreement calls for the payment later on of $15.00. This is, therefore, the measure of the reduction in benefits remaining with the enterprise. But the sum of all benefits is the sum of the dollar measure of the assets. This may be termed the gross benefits. The sum of dollars agreed to be paid is the measure of the liabilities. The amount of benefits which must be given up because of the liabilities must be deducted from the gross benefits flowing from *all* assets in order to arrive at the net benefits, i.e., the benefits to be retained by the enterprise. The dollar measure of the latter is net proprietorship or net worth. The term proprietorship is used as a synonym for both net proprietorship and net worth. If there are no liabilities, gross and net are identical in amount. Where liabilities exist, net proprietorship is to be understood.

In the instant case proprietorship must be reduced by $15.00 to allow for the obligation to pay that sum later. In equation form we write:

(3) Asset $ 0 = − Proprietorship $15.00
+ Liability $15.00

Now let us add equation (2) and (3)

(2) + Stationery $15.00 = + Proprietorship $15.00
(3) 0 = − Proprietorship $15.00
+ Liability $15.00
Sum (4) + Stationery $15.00 = + Liability $15.00

The positive and negative changes in proprietorship cancel each other. Only the liability remains. There has been no *net* change in proprietorship. The purchase of the stationery did not result in any *net* change in proprietorship. This is most important. The reader should thoroughly understand this analysis. A great variety of business transactions bring about no *net* change in proprietorship. One of their forms is equation (4), above. Other types will be analyzed later.

We are now in a position to write the modified basic equation. Let us add equations (1) and (4):

(1) + Cash \$1,000.00 = + Proprietorship \$1,000.00
(4) + Stationery \$15.00 = + Liability \$15.00
Sum: (5) + Cash \$1,000.00 + Stationery \$15.00 =
+ Liability \$15.00 + Proprietorship \$1,000.00

The full dress form of this modified basic equation is

$$\sum_{i=1}^{i=n} \$\,A_i = \sum_{j=1}^{j=m} \$\,L_j + \$\,P$$

Conventionally it is written,

$$A = L + P$$

This equation should be read thus: the money measure of the assets is equal to the money measure of the liabilities plus the money measure of the proprietorship. From the manner in which the equation was built up it should be clear that P is determined as follows:

(1) Find the money measure of A and the money measure of L
(2) Subtract the money measure of L from the money measure of A: the residue is the money measure of P
(3) Set up A = L + P, or A − L = P

The reader should carefully observe the fact that P is a residue. It is the *excess* of the *money measure* of the assets over *the money measure* of the liabilities. In accounting literature it is also called net worth. Notice the adjective "net". The use of this adjective implies a gross worth. This gross worth or gross proprietorship is the money measure of the assets. But the enterprise has bound itself to render valuable services (usually but not necessarily the payment of money) to persons

or other enterprises. The money measure of such services is the money measure of the liabilities. Therefore it is not possible to define proprietorship in any terms other than to say that it is a difference. For the purpose of this text the definitions given for asset and liability will enable one to know whether or not a particular money measure is one or the other or neither. But this cannot be done for proprietorship or net worth. It is a residue only and cannot be qualitatively defined.

Transactions and the Equation. In the preceding sections there were developed the fundamental concepts out of which were derived the basic equation and its modified form. Two events sufficed to provide the basic data; a contribution of cash by an investor and a purchase of stationery on account by the enterprise. Now let us consider the various changes in A, L and P that are possible and the type or types of transactions that bring about these changes.

In the following schematic arrangement A, L and P refer to total assets, total liabilities, and net proprietorship, respectively; a to a specific asset, l to a specific liability, and p to a *change* (+ or −) in P.

	Equations	
Transaction	**In Symbol**	**In factual detail**
1. Contribution by investors	+ a = + p	+ Cash $100,000 = Proprietorship $100,000
I.	A = P	Cash $100,000 = Proprietorship $100,000
2. Cash payment of $400 for one month's rent of store premises	− a = − p	− Cash $400 = − Proprietorship $400
II.	A = P	Cash $99,600 = Proprietorship $99,600
3. Cash receipt of $15 for one month's rent of desk space	+ a = + p	+ Cash $15 = + Proprietorship $15
III.	A = P	Cash $99,615 = Proprietorship $99,615
4. Purchase of $10,000 of merchandise for cash	+ a − a = 0	+ Merchandise $10,000 − Cash $10,000 = 0
IV.	A = P	Cash $89,615 + Merchandise of $10,000 = Proprietorship $99,615

5. Sale for $500 cash of merchandise which cost $400	+ a − a = + p	+ Cash $500 − Mdse $400 = + Proprietorship $100
V.	A = P	Cash $90,115 + Mdse 9,600 = Proprietorship $99,715
6. Purchase of $1,000 of merchandise on account	+ a = + l	+ Merchandise $1,000 = + Liability $1,000
VI.	A = L + P	Cash $90,115 + Mdse $10,600 = Liability $1,000 + Proprietorship $99,715
7. Paid $700 on account of merchandise purchase of $1,000	− a = − l	− Cash $700 = − Liability $700
VII.	A = L + P	Cash $89,415 + Mdse $10,600 = Liability $300 + Proprietorship $99,715
8. A note given for the $300 balance due on purchase of merchandise	0 = − l + l	0 = − Acct Payable $300 + Note Payable $300
VIII.	A = L + P	Cash $89,415 + Mdse $10,600 = Liability $300 + Prop $99,715

There are several matters of importance to consider with reference to the foregoing equations: First of all note that numbers 1 and 3 are identical as to form but that they are different in an important respect; 1 arose from the act of investing in the enterprise while 3 resulted from the receipt of a payment for a service. Both events are properly described as transactions. Numbers 3 through 8, arose out of arrangements entered into with a view to earning net income. They are operating transactions in the strict sense. The bulk of accounting problems arise out of them. It is not implied that the problems arising from the relations with investors are not important; rather that the problems which are really at the heart of accounting, and which can be resolved by accounting techniques arise almost entirely out of transactions of the types numbered 3 through 8.

Secondly, note that every change in P was consequent upon a change in A or in L. These transactions (1 through 8) illustrate once again the fundamental proposition that P is a function of A and L and that, in consequence of this relationship, all changes in P must be *caused by* changes in A or in L. Stated otherwise, all changes in P must come through changes in A or in L.

Thirdly, observe that the equations numbered II through VIII reflect the cumulative effect of the successive transaction equations numbered 2 through 8. This is the result of the application of a simple but basic axiom in mathematics: when equals are added to equals the results are equal. We started with value of A, L and P all equal to zero. The investors contributed $100,000 cash. This provided the data for the initial equations (1 and I). After setting up each transaction in equation form it was possible to derive the resultant total picture or equation after each transaction by adding to the initial equation the first transaction equation, etc. Thus the equations numbered 1 through VIII may be considered total equations, those numbered 1 through 8 transaction equations in the broad sense, and those numbered 2 through 8 as transaction equations in the enterprise operation sense.

Lastly, note that the total equation is always in the form of A = P or A = L + P. No matter how many separate asset or separate liability subdivisions are maintained, we still have only two primary categories of items—assets and liabilities. From their measured dollar magnitudes P is derived: P = f (A,L), i.e., P is a function of A and of L.

The careful reader will have noticed that the eight transaction equations are representative of types 1 through 6 as listed below:

Equation Type	Corresponding transaction equations
1. $+a = +p$	Nos. 1, 3, 5
2. $-a = -p$	No. 2
3. $+a = -a$	No. 4
4. $+a = +1$	No. 6
5. $-a = -1$	No. 7
6. $0 = -1 + 1$	No. 8
7. $0 = -p + p$	None
8. $0 = -1 + p$	None
9. $0 = +1 - p$	None

All possible combinations of changes in A, L and P are included in the list of nine types. Observe that no more than two categories (i.e., two of the three categories A, L and P) or two classes of a single category (i.e., two different assets, two different liabilities or two subdivisions of proprietorship) are included in any one type. For example the transaction $+a -a = +1$ is not included because it reduces to type 4, $+a = +1$.

Similarly +a −a = −p is excluded because it reduces to −a = −p, type 2.

A few remarks are in order as to why types 7, 8 and 9 are not illustrated. Type 7 is represented by two situations neither of which is a transaction in the operating sense. As will be shown later number 7 may arise in correcting an erroneous statistical classification of a change in or subdivision of P. It also may arise from a change in the relative interest in P of two or more classes of investors.

Two quite different events may result in type 8. One of them is of very rare occurrence in the history of a given enterprise. Creditors do not, in the ordinary course of business, forgive indebtedness. In the event of impending bankruptcy it does happen. To preserve an enterprise creditors may scale down their claims in the hope of recovery if the enterprise subsequently prospers. Since this book deals with the accounting for enterprises which expect to continue operations this type 8 is not illustrated.

The other event resulting in type 8 arises from a prepayment for services, such as a newspaper or magazine subscription. When such prepayment is received the following equation results:

(1) +Cash $12 = +Subscriptions Received in Advance $12
The right hand member a liability account. But the liability is to be settled not by the payment of money but by the rendering of another service the delivery of the newspaper or magazine. When that service is rendered the enterprise may properly set up the following equation:

(2) +Accounts Receivable $12 = +Subscription Revenue $12
The Account Receivable and Subscriptions Received in Advance are counter claims, and are eliminated by the following equation:

(3) −Accounts Receivable $12 = −Subscriptions Received in Advance $12

Type 9 conventionally results when a corporation board of directors declares a dividend. Under the law a liability is created in the amount of the dividend. It is to be observed that this situation arises because of the legal form under which the enterprise operates. Illustrations will be presented in Chapter 26.

Analysis of The Equations. A careful scrutiny of equations 1 through 7 will show that each fits perfectly into the analysis out of which the basic equation was derived. In each case an asset was acquired or was given up or one asset acquired and one given up. In each case only the *net* change in proprietorship was recorded. In each of the equations 1, 2 and 3 the *net* change and the gross change are identical in amount and of the same algebraic sign. In 1 and 3 the change is positive, in 2 negative. But it is otherwise in equations 4 through 7.

Consider equation 4. Merchandise of $10,000 was acquired in exchange for cash of $10,000. The equations were written as follows:

Symbols	Details
$+a - a = 0$	+Merchandise $10,000 −Cash $10,000 = 0

Both in symbols and in detail the transaction equates to a zero change in proprietorship.

Earlier in this chapter, however, we found that proprietorship was associated with every asset. How then do we explain the foregoing equation? The answer lies in the fact that no *net* change in proprietorship results from this type of transaction and that the measures of the gross changes are neither significant nor useful to management. (Later on we will learn that certain gross changes in proprietorship are very important.) When cash was exchanged for merchandise there was a two-way movement of assets; $10,000 of merchandise came into the enterprise and $10,000 of cash left the enterprise. This was accompanied by a corresponding two way change in proprietorship. If we set out all details we have the following:

$+a = +p$; +Merchandise $10,000 = +Proprietorship $10,000

$-a = -p$; −Cash $10,000 = −Proprietorship $10,000

Now if we add the two equations both in symbols and in details we have:

$+a - a = 0$; +Merchandise $10,000 −Cash $10,000 = 0

This is number 4 as first set up. The increase in proprietorship of $10,000 and the corresponding decrease are *not* recorded. The *net* change in proprietorship is zero. Hence proprietorship does not enter into the equation at all.

When we look at number 5 however, we note that a *net* change in proprietorship did take place. Merchandise which cost $400 was sold for $500 cash. The details may be set out as follows:

$+a = +p$; +Cash $500 = +Proprietorship $500

$-a = -p$; −Merchandise $400 = −Proprietorship $400

A summation yields the form in which 5 was orginally set up, viz.

$$+a\ -a\ =\ +p\ -p;\ +\text{Cash }\$500\ -\text{Merchandise }\$400\ =\ +\text{Proprietorship }\$100$$

Again the reader will note that only the *net* changes in proprietorship are recorded.

Now let us consider equation 6. Here $1,000 of merchandise was purchased on account, i.e., the merchandise was acquired and payment therefore agreed to be made later. The details follow:

$$+a\ =\ +p;\ +\text{Merchandise }\$1{,}000\ =\ +\text{Proprietorship }\$1{,}000$$
$$0\ =\ -p\ +1;\ 0\ =\ -\text{Proprietorship }\$1{,}000\ +\text{Liability }\$1{,}000$$

Summing we have:

$$+a\ =\ +1;\ +\text{Merchandise }\$1{,}000\ =\ +\text{Liability }\$1{,}000$$

There was no *net* change in proprietorship. The amount by which the proprietorship was increased as the result of the enterprise acquiring $1,000 of merchandise was exactly offset by the decrease in proprietorship occasioned by the creation of the liability to make payment therefore.

Equation 7 presents a slightly different case. Setting out the details we have:

$$-a\ =\ -p;\ -\text{Cash }\$700\ =\ -\text{Proprietorship }\$700$$
$$0\ =\ -1\ +p;\ 0\ =\ -\text{Liability }\$700\ +\text{Proprietorship }\$700$$

Summing the two equations yields:

$$-a\ =\ -1;\ -\text{Cash }\$700\ =\ -\text{Liability }\$700$$

Again the changes in proprietorship offset each other so we set out only the change in an asset and in a liability.

In a similar manner we can set out the details of equation 8.

$$0\ =\ -1\ +p;\ 0\ =\ -\text{Account Payable }\$300\ +\text{Proprietorship }\$300$$
$$0\ =\ +1\ -p;\ 0\ =\ +\text{Note Payable }\$300\ -\text{Proprietorship }\$300$$

Summing we have

$$0\ =\ -1\ +1;\ 0\ =\ -\text{Account Payable }\$300\ +\text{Note Payable }\$300$$

From a careful study of the foregoing analysis the reader will observe that every transaction was recorded in such a way as to show changes in assets, liabilities *and* proprietorship. Recalling that the term proprietorship in the equation A = L + P means *net* proprietorship or net worth, it follows that the equation form for recording transactions *always* reports *gross* changes in A and L but only *net* changes in P.

In equation 5, for example, the *gross* changes in cash and in

merchandise were recorded but only the *net* change in proprietorship. Later on the reader will learn that, in actual fact, gross changes in proprietorship are recorded for certain types of transactions, e.g., number 5 in the foregoing sequence. But in all cases such as are illustrated by equations 4, 6, 7 and 8 only the *net* change is recorded. For these types of transactions no changes in proprietorship are recorded since the net change is zero. The recording of all *net* changes in proprietorship is the outstanding characteristic of the basic equation and the modified basic equation.

It is this property or characteristic of the accounting equation (both forms) which is known as the double-entry principle. As has been shown every change in asset or liability is accompanied by the corresponding net change in proprietorship. Regardless of the technical procedure followed in recording the transactions of an enterprise the principle of double-entry is applied so long as every change in any asset or any liability is accompanied by the corresponding change in proprietorship. We may at this stage of our study of accounting define double-entry accounting as any procedure for recording the transactions of a business enterprise which accompanies any change in assets or liabilities with the corresponding change in proprietorship. Depending upon the usefulness of the data to management and investors the recorded changes in proprietorship may be gross or net.

Appendix—Chapter 2

Statistical Symbols.

The relationship set out in the basic equation can be more fully expressed in symbols. Suppose an enterprise holds a given number of assets. Let this number be represented by n. Identify each asset by means of a capital A with its corresponding number as a subscript, thus A_1, A_2, $A_3 \ldots$, $A_i \ldots$, A_n. A_i stands for the ith asset, i.e., any one of the assets. Now set up the basic equation *for each asset,* as follows:

$$\begin{array}{rl} 1\text{st} & A_1 = P_1 \\ 2\text{nd} & A_2 = P_2 \\ 3\text{rd} & A_3 = P_3 \\ \vdots & \vdots : \vdots : \vdots \\ \vdots & \vdots : \vdots : \vdots \\ i\text{th} & A_i = P_i \\ 10\text{th} & A_n = P_n \end{array}$$

We have as many equations as we have assets. Remember that in every case we first determine the money measure of the asset and we have *at once* the money measure of the proprietorship. Now if we sum them we have,

$$\sum_{i=1}^{i=n} \$ A_i = \$ P,$$

or conventionally,

$$A = P$$

Σ is capital sigma of the Greek alphabet and is called the summation operator. $\sum_{i=1}^{i=n} \$ A_i$ means: add up all the items like $\$ A_i$ where i takes on successively all integral values from 1 to n. This symbolism will be found useful throughout accounting as an aid to clear presentation of basic relationships.

Notice that the P's were not added. The money measure of each of the assets was determined. The sum of these measures *is* the money measure of P, i.e., P applies total A. For the enterprise, therefore, $\sum_{i=1}^{i=n} \$ A_i$ *is* P where L is zero.

The same reasoning applies to the modified basic equation, A = L + P. It may be written,

$$\sum_{i=1}^{i=n} \$ A_i = \sum_{j=1}^{j=m} \$ L_j + \$ P$$

Here the separate liabilities are identified by numerical subscripts where j takes on successive integral values from 1 to m where m is the number of separate liabilities. Here P is the excess of total A over total L. It is not possible to identify any asset with P or with any L.

Functional Relationship. Throughout accounting many relationships exist which can best be expressed by the simple mathematical notation of a function. When two or more magnitudes vary according to a definite pattern of relationship, it is often possible to discover the nature of the pattern and express it in mathematical form. Thus from elementary algebra we have

$$y = a + bx$$

In this relationship y is a function of x, i.e., the magnitude of y depends upon the magnitude of x. Conventionally y is used to represent the dependent variable and x the independent variable. In general terms it is customary to write

$$y = f(x) \text{ i.e., y is a function of x.}$$

When we write $y = a + bx$ we have indicated the particular functional relationship between y and x. Once a and b are known it is possible to find the magnitude of y which corresponds to each and every possible magnitude which x may assume.

Again we may have a relationship pattern between more than two variables. Thus we might have occasion to write

$$y = f(u, v, w, x, z)$$

In this case y is a function of five independent variables.

This functional relationship concept can well be applied to the modified basic equation $A = L + P$. Let us write it thus, $A - L = P$. Then we may write $P = f(A, L)$ i.e., proprietorship is a function of asset money measures and liability money measures. The particular function is

$$P = A - L \text{ or } P = \sum_{i=1}^{i=n} \$A_i - \sum_{j=1}^{j=m} \$L_j$$

Scarcity. Services and service sources are scarce whenever they must be paid for. The air we breathe is free. More is available than is needed or wanted. It is available for the taking. The contrary is true for practically everything else. Supplies are not free for the taking. There are not enough to go around. What is available goes, therefore, to those who can and will pay for it. The amount that must be paid is determined primarily by the relative scarcity of the item i.e., the relationship of the quantity available to the many uses to which people wish to put it.

CHAPTER 3

The Account and Statistical Classification

Strengths of the Equation Form. In the preceding chapter a series of transactions was set up in equation form. Cumulative equations were derived by the simple procedure of adding to the preceding summary each new transaction equation. Each transaction equation reflected the effect of a business transaction on a specific asset, a specific liability and upon proprietorship. Each cumulative equation showed the dollar amount of *each* asset, *each* liability and proprietorship after giving effect to all the transaction equations included in it.

The primary advantage of the equation form is its capacity to disclose arithmetic error. Since the initial investment and each transaction were set out as an equation their sum must be an equation. Inequality of the two sides of any cumulative equation is notice that a clerical error exists. The error is not automatically located, only its existence is disclosed.

The Need For Details Properly Summarized. The foregoing equations were adequate to handle all the types of transactions which result in changes in A, L and P. The successive addition of each transaction equation to the preceding cumulative total enables us to maintain a complete record. But we could, only with great difficulty and at the cost of much time and effort, analyze the details of the *changes* in any one class of items in the equation. Suppose we had recorded fifty separate changes in the asset cash. How would we, for example, obtain the total of increases, the total of decreases? The only method available would be a careful analysis of all transactions affecting cash. When the fifty changes become thousands for each of many separate assets and separate liabilities it is obvious that some other method must be found for recording the transactions and for summarizing the results. The nature of that method and how it is carried out are explained in what follows.

The Account. The modified basic equation reads

$$\text{Assets} = \text{Liabilities} + \text{Proprietorship}.$$

Now suppose we devote a separate page to each asset, to each liability and to proprietorship. Each one may increase or it may decrease. It would be convenient, therefore, if all increases were placed on one side of the page and all decreases on the

other. This would permit a ready summing of all changes and quickly yield the equations numbered I through VIII discussed above. The following will illustrate the procedure. Transactions in Chapter 2 numbered 1 through 8 are used for the illustrations.

Transation Number		Cash	Transation Number	
1	100,000		2	400
3	15		4	10,000
5	500		7	700
	100,515			11,100
		Merchandise		
4	10,000		5	400
6	1,000			
	11,000			
	—			
		Accounts Payable—X Company		
7	700		6	1,000
8	300			
	1,000			
	—			
	—			
		Proprietorship		
2	400		1	100,000
			3	15
			5	100,115

Consider the equation numbered 1. The investors had put $100,000 cash into the business. It has already been made clear that the measure of the valuable future services (the asset) *is* the measure of the beneficial interest in them. On this basis we set up the first equation.

Cash $100,000 = Proprietorship $100,000

Turn now to the account Cash. The first entry is the $100,000. It is placed on the left side of the page. Historically the reasons are lost in antiquity. But we can offer two plausible explanations: (1) it happened as the natural consequence of the European practice of writing from left to right, or (2) because Cash is the left member of the equation. Whatever the reason the practice today is to show increases in assets on the left side of the page. Since it is desirable to separate increases and decreases the latter are shown on the right side.

On the page for Proprietorship the first entry, an increase, is entered on the right side. Again we may speculate and state that this practice stems from the fact that the item is the right hand member of the equation or that to avoid confusion, the right side of the page is used for proprietorship increases since the left was used for asset increases. Whatever its history this is current practice. Since the right side is used for increases the left is available for decreases.

When transactions are limited to the basic equation we have the following arrangement:

+	Assets	−
−	Proprietorship	+

Actually there will be one page for *each* asset or for *each class* of asset. But in every case the position of the plus and minus signs will be as shown above.

There remains to set up a page for liabilities. Here the increases are shown on the right and decreases on the left. Again the historical reasons for this arrangement are unknown but may parallel those offered in the case of proprietorship. We will have occasion to observe later on that the conventional arrangement is most advantageous. For the modified basic equation we have:

+	Assets	−
−	Liabilities	+
−	Proprietorship	+

The foregoing arrangement for accumulating the data causing changes in A, L and P is called a set of accounts. One such account is maintained for *each* asset, *each* liability and for proprietorship. Above we have but the skeletal form often referred to as a "T" account. The reader will subsequently find the "T" account a most useful device in effecting the solution to many problems. All such accounts are termed ledger accounts. Those which enter in to the accounting equation are called general ledger accounts.

Statistical Classification. We have already learned that all valuable future services are assets and that the essence of business enterprise activity is the acquiring of appropriate services, consuming them in the process of making available other

services and selling the latter. We have also learned that an important reason for accounting is the provision of useful information for management so that it may effectively utilize the wealth at its disposal in earning net profits or net income.

It follows that all accumulated data about the purchase and use of services and service sources as well as their sale in the form in which acquired or in altered form should be classified and assembled in such fashion as will be of most use to management. That is, all accounting statistics should be so put together that, as far as possible within the limits of allowable cost of doing so, the dollar measures, quantities of services, etc., will represent the result of specific decisions of management. The extent to which the classification of data is carried out depends entirely on management. If such detail and refined bases of classification will yield more useful data the accountant will provide it. But the statistical classification of the data, the frequency of summarization, the completeness of analysis, and the extent of reporting the results depend ultimately on what those, who need and can use the facts, want.

There are many possible bases of classification of accounting data. Earlier in this chapter there was presented a basic classification limited to the three categories in the modified basic equation. It was pointed out that a separate account (statistical class) was maintained for *each* asset, for *each* liability and for net worth or proprietorship. It is possible to set up sub-classes for each of these classes. For example a separate account is usually maintained for cash deposited in each bank. Furthermore several checking accounts each for a separate purpose, i.e., used for a specified class or kind of transaction are commonly established. Thus the asset cash in bank is represented by several separate accounts. A similar pattern of classes and sub-classes is employed for other assets as well as for liabilities. Later on in this book we will discuss more thoroughly the problem of deciding upon the bases of classification and sub-classification. For the present we shall restrict ourselves to a simple arrangement; each asset account will be set up to show the *kind* of service or service source; each liability will show *to whom* the services valuable in money must be rendered; the net worth or proprietorship account will show the excess of A over L.

Record of Original Entry. Because the equation form of record is inadequate for the handling of many transactions the ledger account was invented. But it is obvious that some device is needed for assembling the data to be entered into the accounts.

As will become clear later on the extent to which this is done and the devices for carrying it out depend upon both the volume of transactions of various kinds and how important it is to have up to the minute trustworthy information for decision-making purposes. To a discussion of the basic procedure of the initial recording of transactions we now turn.

CHAPTER 4

The Recording of Transactions – Journal and Ledger

The Journal. All transactions are conventionally recorded from day to day as they occur. But instead of the equation form of recording discussed in Chapter 2 there is used what is known as the journal entry. The simplest form of journal is ruled as follows:

Page 1.

Year 1955		Explanation	Ref.	Debit Amount	Credit Amount
Month	Day				
May	10	Cash	1	100,000	
		Proprietorship	15		100,000
		To record original investment			
May	10	Rent	12	400	
		Cash	1		400
		To record payment of one month's rent of store premises			

All transactions are recorded in chronological order. This does not mean that the order of recording strictly follows a stop watch timing of transactions although some important classes or types of transactions are recorded pretty much in the order of their occurrence as will become clear later on. It does mean that the transactions of each day are recorded under the date on which they took place.

The explanation space is most important. It is used to identify the accounts affected by a transaction and to provide a succinct explanation of it. The conventional pattern for showing increases and decreases in the primary categories of the modified basic equation when set up in ledger account form results in left and right side equality of dollar amounts recorded. Consequently it is customary in writing a formal entry to start at

the left margin of the explanation space and write the titles of the accounts in which the entry will be recorded on the left side, and slightly to the right, the titles of the accounts in which the entry will be recorded on the right side. Directly following the account titles is a brief explanation of the transaction.

The reference (ref) column is used to write in the account number or page in the general ledger on which the account is set up.

The two right hand columns are the money columns. Conventionally they are termed debit and credit, respectively, and for excellent reasons associated with the historical development of accounting. But these reasons have long since ceased to be an adequate explanation of current practice. In the debit column are entered the amounts to be recorded on the left hand side of the account in question and conversely for the right hand column. It follows therefore that "debit" and "left" hand are synonyms as are "credit" and "right" hand. The reader should observe that no significance whatever attaches to the terms debit and credit other than left side of a ledger account and right side of a ledger account as they are conventionally used. Had they been called black and white or blue and gray their significance would be unaltered.

By way of illustration two of the transactions used in Chapter 2 have been entered in the journal. The reader should observe closely every detail of the entry. He should particularly note the alignment of the accounts debited and similarly those credited. Since every item in this form of journal must be entered in a ledger account such an arrangement facilitates prompt identification of the debit and credit elements in an entry.

The Ledger. The use of an oversimplified form of ledger account, the "T" account, has already been illustrated. A conventional form follows:

Account Title

Date	Explanation	Ref.	Amount	Date	Explanation	Ref.	Amount

The reader will observe that the various columns in the ledger account are identically the same as in the journal. The sole difference is the presence of *two* sets of columns, for date, explanation and reference, one for debits, another for credits.

At this point the reader should also note that debit and credit are *not* synonymous with increases and decreases, respectively, nor with the converse. This common source of confusion and misunderstanding will be analyzed in detail later in this chapter.

There follow the three ledger accounts affected by the two journal entries already recorded.

Cash Page 1

1955			+	1955			—
May 10	Orig Investment	J 1	100,000	May 10	Rent for May 1955	J 1	400

Proprietorship 1955 Page 15

1955			—	1955			+
				May 10	Cash invested	J 1	100,000

Rent Page 12

1955			+	1955			—
May 10	May, 1955	J 1	400				

The process of entering items in a ledger account is called posting. Now let us list in equation form the net results of the three transactions entered in the foregoing ledger accounts.

(1) Cash \$99,600 + Rent \$400 = Proprietorship \$100,000

or

(2) Cash \$99,600 = Proprietorship \$99,600

Equation (2) is equation II on page 14 of Chapter 2. The reader will recall that rent is a payment for services of long lived service sources which are leased. The services are consumed roughly as time elapses. But the services are not separately storable by the tenant. Equation (1) treats rent as an asset which it is as the services are made available from day to day. Equation (2) treats it as a reduction of proprietorship which it ultimately becomes when the time interval ends during which the tenant may use the services he paid for. This difference in treatment will be explored fully with respect to all the kinds of services and service sources discussed in Chapter 1.

There remains a third form of presentation of the net result of the three transactions as follows:

Cash	$ 99,600	
Rent	400	
Proprietorship		$100,000
	$100,000	$100,000

The foregoing arrangement is called a trial balance. A detailed explanation of it will be presented in the next chapter.

Extended Illustration. There follows an illustration of the use of journal and ledger based upon the transactions of The X Company for the month of May, 1955. In order to clarify later on some very important concepts and the relevant procedures concerning the measurement of income for a period the quite unrealistic assumptions are made that all transactions are on the cash basis and that at the end of the month there are no unused service sources which were purchased and paid for during the month. The illustration consists of three parts:

1. The list of the transactions properly dated.
2. The journal entries required to record them.
3. The necessary ledger accounts with the entries properly posted.

The Transactions

1955

May 1 Deposited $25,000 in a checking account with the Y National Bank.
Purchased $12,000 of merchandise. Paid Rent $600.00. Paid Property Insurance, $80.00. Paid for Stationery $40.00. Paid for Office Supplies $38.00. Purchased Janitorial Supplies, $10,000. Drew $350 for cash on hand.

May 3 Sales $4195.88.

May 4 Sales $3426.49. Paid Advertising $370.00.
Deposited in Y National Bank $4195.88.

May 5 Sales $2971.56.
Deposit $3426.49.

May 6 Sales $1767.12. Allowances on Sales $5.00.
Deposit $2971.56.

May 7 Sales $1240.90. Allowances on Sales $3.50.
Returned Sales $15.00. Deposit $1767.12.

May 8 Purchased $9,460 of merchandise. Sales $3120.55.
Deposit $1240.90.

May 10 Sales $2118.63. Allowances on Sales $8.75.
Paid Salary and Commission of Salesmen, $1,050.00.
Deposit $3120.55.

The Transactions

1955

May 11 Sales $3947.50. Returned Sales $25.00. Paid Advertising $130.00. Deposit $2118.63.

May 12 Sales $3141.95. Deposit $3947.50.

May 13 Sales $1001.50. Returned sales $50.00.
Deposit $3141.95.

May 14 Sales $1140.37. Returned Purchases $65.00.
Deposit $1001.50.

May 15 Sales $2975.85. Returned Sales $20.00.
Purchased $10,870 of merchandise. Paid Salary of Bookkeeper, $125.00.
Paid Salary of General Manager, $350.00.
Deposit $1205.37.

May 17 Sales $2241.47. Paid Salary and Commission of Salesmen, $980.00.
Paid Janitor, $50.00. Deposit $2975.85.

May 18 Sales $3150.19. Paid Advertising, $264.00.
Deposit $2241.47.

May 19 Sales $2927.48. Returned Sales $37.00.
Deposit $3150.19.

May 20 Sales $929.56. Allowances on Sales $9.00.
Deposit $2927.48.

May 21 Sales $1,358.42. Returned Sales $12.00. Paid Property Taxes, $75.00.
Deposit $929.56.

May 22 Sales $4343.08. Returned Sales $19.00.
Allowances on Sales $4.25.
Purchased $8210.00 of merchandise.
Deposit $1358.42.

May 24 Sales $2141.50. Returned Purchases $40.00.
Allowances on Sales $9.50. Paid Salary and Commission of Salesmen $865.00.
Deposit $4343.08.

May 25 Sales $2975.64. Paid Advertising, $101.00.
Deposit $2181.50.

May 26 Sales $3043.79. Paid Electricity Bill, $110.00.
Deposit $2975.64.

May 27 Sales $1,441.90. Paid Heating Bill, $40.00.
Deposit $3043.79.

May 28 Sales $2141.17. Returned Sales $12.00. Paid Telephone and Telegraph $25.00.
Paid to Investors $5,500.00.
Deposit $1441.90.

May 29 Sales $5147.50. Returned Purchases $15.00. Paid Salary of Bookkeeper $175.00.
Paid Salary and Commission of Salesmen, $1,185.00. Paid Salary of General Manager $350.00.
Paid Janitor, $50.00.
Deposit $2141.17.

The X Company
General Journal

1955		DR.	CR.
May 1	Y National Bank	25,000.00	
	Proprietorship		25,000.00
	To record initial investment		
May 1	Purchases	12,000.00	
	Y National Bank		12,000.00
	To record purchases of merchandise		
May 1	Rent	600.00	
	Y National Bank		600.00
	To record payment of rent for May, 1955		
May 1	Insurance—Property	80.00	
	Y National Bank		80.00
	To record payment of insurance premium		
May 1	Stationery and Printing	40.00	
	Y National Bank		40.00
	To record purchases of stationery		
May 1	Office Supplies	38.00	
	Y National Bank		38.00
	To record purchase of office supplies		
May 1	Supplies—Janitorial	10.00	
	Y National Bank		10.00
	To record purchases of janitorial supplies		
May 1	Cash on Hand	350.00	
	Y National Bank		350.00
	To set up cash on hand for change		
May 3	Cash on Hand	4,195.88	
	Sales		4,195.88
	To record sales of May 3		
May 4	Cash on Hand	3,426.49	
	Sales		3,426.49
	To record sales of May 4		
May 4	Y National Bank	4,195.88	
	Cash on Hand		4,195.88
	To record deposits of receipts of May 3		
May 4	Advertising	370.00	
	Y National Bank		370.00
	To record payment of advertising		
May 5	Cash on Hand	2,971.56	
	Sales		2,971.56
	To record sales of May 5		
May 5	Y National Bank	3,426.49	
	Cash on Hand		3,426.49
	To record deposits of receipts of May 4		
May 6	Cash on Hand	1,767.12	
	Sales		1,767.12
	To record sales of May 6		

1955		DR.	CR.
May 6	Y National Bank	2,971.56	
	Cash on Hand		2,971.56
	To record deposit of receipts of May 5		
May 6	Allowances on Sales	5.00	
	Y National Bank		5.00
	To record allowances to Mr. H. P. Quirk		
May 7	Cash on Hand	1,240.90	
	Sales		1,240.90
	To record sales of May 7		
May 7	Y National Bank	1,767.12	
	Cash on Hand		1,767.12
	To record deposit of receipts of May 6		
May 7	Allowances on Sales	3.50	
	Y National Bank		3.50
	To record allowances to Mr. R. M. Small		
May 7	Returned Sales	15.00	
	Y National Bank		15.00
	To record returned sale of I. L. Green		
May 8	Cash on Hand	3,120.55	
	Sales		3,120.55
	To record sales of May 8		
May 8	Purchases	9,460.00	
	Y National Bank		9,460.00
	To record purchases of merchandise		
May 8	Y National Bank	1,240.90	
	Cash on Hand		1,240.90
	To record deposit of receipts of May 7		
May 10	Cash on Hand	2,118.63	
	Sales		2,118.63
	To record sales of May 10		
May 10	Allowances on Sales	875.00	
	Y National Bank		875.00
	To record allowances to Mr. R. S. Hobbs		
May 10	Salary and Commission—Salesmen	1,050.00	
	Y National Bank		1,050.00
	To record payment of salaries and commissions		
May 10	Y National Bank	3,120.55	
	Cash on Hand		3,120.55
	To record deposit of receipts of May 8		
May 11	Cash on Hand	3,947.50	
	Sales		3,947.50
	To record sales of May 11		
May 11	Returned Sales	25.00	
	Y National Bank		25.00
	To record returned sales of W. P. Ralston		

1955		DR.	CR.
May 11	Advertising	130.00	
	Y National Bank		130.00
	To record payment of advertising expense		
May 11	Y National Bank	2,118.63	
	Cash on Hand		2,118.63
	To record deposit of receipts of May 10		
May 12	Cash on Hand	3,141.95	
	Sales		3,141.95
	To record sales of May 12		
May 12	Y National Bank	3,947.50	
	Cash on Hand		3,947.50
	To record deposits of receipts of May 11		
May 13	Cash on Hand	1,001.50	
	Sales		1,001.50
	To record sales of May 13		
May 13	Returned Sales	50.00	
	Y National Bank		50.00
	To record returned sale of H. A. Bings		
May 13	Y National Bank	3,141.95	
	Cash on Hand		3,141.95
	To record deposit of receipts of May 12		
May 14	Cash on Hand	1,140.37	
	Sales		1,140.37
	To record sales of May 14		
May 14	Cash on Hand	65.00	
	Returned Purchases		65.00
	To record purchases returned to X Y Co.		
May 14	Y National Bank	1,001.50	
	Cash on Hand		1,001.50
	To record deposit of receipts of May 13		
May 15	Cash on Hand	2,975.85	
	Sales		2,975.85
	To record sales of May 15		
May 15	Returned Sales	20.00	
	Y National Bank		20.00
	To record returned sales of S. W. Hodges		
May 15	Purchases	10,870.00	
	Y National Bank		10,870.00
	To record purchases of merchandise		
May 15	Salary—Bookkeeper	175.00	
	Y National Bank		175.00
	To record payment of salary May 1-15		

1955		DR.	CR.
May 15	Salary—General Manager	350.00	
	Y National Bank		350.00
	To record payment of salary May 1-15		
May 15	Y National Bank	1,205.37	
	Cash on Hand		1,205.37
	To record deposit of receipts of May 14		
May 17	Cash on Hand	2,241.47	
	Sales		2,241.47
	To record sales of May 17		
May 17	Salary and Commissions—Salesmen	980.00	
	Y National Bank		980.00
	To record payment of sal. & com.		
May 17	Wages—Janitor	50.00	
	Y National Bank		50.00
	To record payment of wages May 1-15		
May 17	Y National Bank	2,975.85	
	Cash on Hand		2,975.85
	To record deposit of receipts of May 15		
May 18	Cash on Hand	3,150.19	
	Sales		3,150.19
	To record sales of May 18		
May 18	Advertising	264.00	
	Y National Bank		264.00
	To record payment of advertising		
May 18	Y National Bank	2,241.47	
	Cash on Hand		2,241.47
	To record deposit of receipts of May 17		
May 19	Cash on Hand	2,927.48	
	Sales		2,927.48
	To record sales of May 19		
May 19	Returned Sales	37.00	
	Y National Bank		37.00
	To record returned sales of R. J. Breen		
May 19	Y National Bank	3,150.19	
	Cash on Hand		3,150.19
	To record deposit of receipts of May 18		
May 20	Cash on Hand	929.56	
	Sales		929.56
	To record sales of May 20		
May 20	Allowances on Sales	9.00	
	Y National Bank		9.00
	To record allowances to C. B. Warren		
May 20	Y National Bank	2,927.48	
	Cash on Hand		2,927.48
	To record deposit of receipts of May 19		
May 21	Cash on Hand	1,358.42	
	Sales		1,358.42
	To record sales of May 21		

1955		DR.	CR.
May 21	Returned Sales	12.00	
	Y National Bank		12.00
	To record returned sales of M. D. Gosset		
May 21	Taxes—Property	75.00	
	Y National Bank		75.00
	To record payment of county taxes		
May 21	Y National Bank	929.56	
	Cash on Hand		929.56
	To record deposit of receipts of May 20		
May 22	Cash on Hand	4,343.08	
	Sales		4,343.08
	To record sales of May 22		
May 22	Returned Sales	19.00	
	Y National Bank		19.00
	To record returned sales of S. A. Rogers		
May 22	Allowances on Sales	4.25	
	Y National Bank		4.25
	To record allowances to H. O. Harlis		
May 22	Purchases	8,210.00	
	Y National Bank		8,210.00
	To record purchases of merchandise		
May 22	Y National Bank	1,358.42	
	Cash on Hand		1,358.42
	To record deposit of receipts of May 21		
May 24	Cash on Hand	2,141.50	
	Sales		2,141.50
	To record sales of May 24		
May 24	Cash on Hand	40.00	
	Returned purchases		40.00
	To record purchases returned to Jones & Co.		
May 24	Allowances on Sales	9.50	
	Y National Bank		9.50
	To record allowances to W. Y. Harmes		
May 24	Salary and Commissions—Salesmen	865.00	
	Y National Bank		865.00
	To record payment of sal. & com.		
May 24	Y National Bank	4,343.08	
	Cash on Hand		4,343.08
	To record deposit of receipts of May 22		
May 25	Cash on Hand	2,975.64	
	Sales		2,975.64
	To record sales of May 25		
May 25	Advertising	101.00	
	Y National Bank		101.00
	To record payment of advertising		

1955		DR.	CR.
May 25	Y National Bank	2,181.50	
	Cash on Hand		2,181.50
	To record deposit of receipts of May 24		
May 26	Cash on Hand	3,043.79	
	Sales		3,043.79
	To record sales of May 26		
May 26	Electric Light	110.00	
	Y National Bank		110.00
	To record payment of electric bill		
May 26	Y National Bank	2,975.64	
	Cash on Hand		2,975.64
	To record deposit of receipts of May 25		
May 27	Cash on Hand	1,441.90	
	Sales		1,441.90
	To record sales of May 27		
May 27	Heat	40.00	
	Y National Bank		40.00
	To record payment of heating bill		
May 27	Y National Bank	3,043.79	
	Cash on Hand		3,043.79
	To record deposit of receipts of May 26		
May 28	Cash on Hand	2,141.17	
	Sales		2,141.17
	To record sales of May 28		
May 28	Returned Sales	12.00	
	Y National Bank		12.00
	To record returned sales of F. W. Twiggs		
May 28	Telephone & Telegraph	25.00	
	Y National Bank		25.00
	To record payment of telephone bill		
May 28	Distributions to Investors	5,500.00	
	Y National Bank		5,500.00
	To record distribution of profits to investors		
May 28	Y National Bank	1,441.90	
	Cash on Hand		1,441.90
	To record deposit of receipts of May 27		
May 29	Cash on Hand	5,147.50	
	Sales		5,147.50
	To record sales of May 29		
May 29	Cash on Hand	15.00	
	Returned purchases		15.00
	To record purchases returned to M. N. Inc.		
May 29	Salary—Bookkeeper	175.00	
	Y National Bank		175.00
	To record payment of salary May 16-31		

1955		Dr.	Cr.
May 29	Salary and Commissions—Salesmen	1,185.00	
	Y National Bank		1,185.00
	To record payment of Sal & Com		
May 29	Wages—Janitor	50.00	
	Y National Bank		50.00
	To receive payment of wages		
May 29	Salary—General Manager	350.00	
	Y National Bank		350.00
	To record payment of salary May 16-31		
May 29	Y National Bank	2,141.17	
	Cash on Hand		2,141.17
	To record deposit of receipts of May 28		

General Ledger Accounts

CASH ON HAND

1955			1955		
May 1	Y National Bank	350.00	May 4	Y National Bank	4,195.88
3	Sales—May 3	4,195.88	5	"	3,426.49
4	" 4	3,426.49	6	"	2,971.56
5	" 5	2,971.56	7	"	1,767.12
6	" 6	1,767.12	8	"	1,240.90
7	" 7	1,240.90	10	"	3,120.55
8	" 8	3,120.55	11	"	2,118.63
10	" 10	2,118.63	12	"	3,947.50
11	" 11	3,947.50	13	"	3,141.95
12	" 12	3,141.95	14	"	1,001.50
13	" 13	1,001.50	15	"	1,205.37
14	" 14	1,140.37	17	"	2,975.85
14	Returned Purchases	65.00	18	"	2,241.47
15	Sales—May 15	2,975.85	19	"	3,150.19
17	" 17	2,241.47	20	"	2,927.48
18	" 18	3,150.19	21	"	929.56
19	" 19	2,927.48	22	"	1,358.42
20	" 20	929.56	24	"	4,343.08
21	" 21	1,358.42	25	"	2,181.50
22	" 22	4,343.08	26	"	2,975.64
24	" 24	2,141.50	27	"	3,043.79
24	Returned Purchases	40.00	28	"	1,441.90
25	Sales—May 25	2,975.64	29	"	2,141.17
26	" 26	3,043.79			
27	" 27	1,441.90			57,847.50
28	" 28	2,141.17			
29	" 29	5,147.50			
29	Returned Purchases	15.00			
		63,360.00			

Purchases

1955					
May 1		12,000.00			
8		9,460.00			
15		10,870.00			
22		8,210.00			
		40,540.00			

Returned Purchases

			1955		
			May 14		65.00
			24		40.00
			29		15.00
					120.00

Sales

			1955		
			May 3	Cash	4,195.88
			4	"	3,426.49
			5	"	2,971.56
			6	"	1,767.12
			7	"	1,240.90
			8	"	3,120.55
			10	"	2,118.63
			11	"	3,947.50
			12	"	3,141.95
			13	"	1,001.50
			14	"	1,140.37
			15	"	2,975.85
			17	"	2,241.47
			18	"	3,150.19
			19	"	2,927.48
			20	"	929.56
			21	"	1,358.42
			22	"	4,343.08
			24	"	2,141.50
			25	"	2,975.64
			26	"	3,043.79
			27	"	1,441.90
			28	"	2,141.17
			29	"	5,147.50
					62,890.00

Returned Sales

1955			1955		
May 7	I. L. Green	15.00			
11	W. P. Ralston	25.00			
13	H. P. Brings	50.00			
15	S. W. Hodges	20.00			
19	R. J. Breen	37.00			
21	M. D. Gossett	12.00			
22	S. A. Rogers	19.00			
28	F. W. Twiggs	12.00			
		190.00			

Allowances on Sales

1955					
May 6	H. P. Quick	5.00			
7	R. M. Small	3.50			
10	R. S. Hobbs	8.75			
20	C. B. Warren	9.00			
22	H. C. Harlis	4.25			
24	W. Y. Harmes	9.50			
		40.00			

Rent

1955					
May 1	For May 1954	600.00			

Salary—Bookkeeper

1955					
May 15		175.00			
29		175.00			
		350.00			

Salaries and Commissions—Salesmen

1955					
May 10		1,050.00			
17		980.00			
24		865.00			
29		1,185.00			
		4,080.00			

Salary—General Manager

1955					
May 15		350.00			
29		350.00			
		700.00			

Insurance—Property

1955					
May 1		80.00			

Taxes—Property

1955					
May 21		75.00			

Telephone and Telegraph

1955					
May 28		25.00			

Stationery and Printing

1955					
May 1		40.00			

Advertising

1955					
May 4		370.00			
11		130.00			
18		264.00			
25		101.00			
		865.00			

Electric Light

1955					
May 26		110.00			

Heat

1955					
May 27		40.00			

Office Supplies

1955					
May 1		38.00			

Wages—Janitor

1955					
May 17		50.00			
29		50.00			
		100.00			

Supplies—Janitorial

1955					
May 1		10.00			

Proprietorship

1955			1955		
			May 1	Cash invested	25,000.00

Distributions to Investors

1955					
May 28		5,500.00			

Y National Bank

1955			1955		
May 1	Original Investment	25,000.00	May 1	Merchandise Purchases	12,000.00
4	Receipts of May 3	4,195.88	1	Rent for May, 1954	600.00
5	" " " 4	3,426.49	1	Property Insurance	80.00
6	" " " 5	2,971.56	1	Stationery & Printing	40.00
7	" " " 6	1,767.12	1	Office Supplies	38.00
8	" " " 7	1,240.90	1	Janitorial Supplies	10.00
10	" " " 8	3,120.55	1	Cash on Hand	350.00
11	" " " 10	2,118.63	4	Advertising	370.00
12	" " " 11	3,947.50	6	Allowances on Sales	5.00
13	" " " 12	3,141.95	7	" " "	3.50
14	" " " 13	1,001.50	7	Returned Sales	15.00
15	" " " 14	1,205.37	8	Merchandise Purchases	9,460.00
17	" " " 15	2,975.85	10	Allowances on Sales	8.75
18	" " " 17	2,241.47	10	Sal. & Comm. Salesmen	1,150.00
19	" " " 18	3,150.19	11	Returned Sales	25.00
20	" " " 19	2,927.48	11	Advertising	130.00
21	" " " 20	929.56	13	Returned Sales	50.00
22	" " " 21	1,358.42	15	" "	20.00
24	" " " 22	4,343.08	15	Merchandise Purchases	10,870.00
25	" " " 24	2,181.50	15	Bookkeeper's Salary	175.00
26	" " " 25	2,975.64	15	Gen'l Mgrs' Salary	350.00
27	" " " 26	3,043.79	17	Sal & Comm. Salesmen	980.00
28	" " " 27	1,441.90	17	Janitor's Wages	50.00
29	" " " 28	2,141.17	18	Advertising	264.00
			19	Returned Sales	37.00
		82,847.50	20	Allowances on Sales	9.00
			21	Returned Sales	12.00
			21	Property Taxes	75.00
			22	Returned Sales	19.00
			22	Allowances on Sales	4.25
			22	Merchandise Purchases	8,210.00
			24	Allowances on Sales	9.50
			24	Sal. & Comm. Salesmen	865.00
			25	Advertising	101.00
			26	Electric Light	110.00
			27	Heat	40.00
			28	Returned Sales	12.00
			28	Telephone & Telegraph	25.00
			28	Distr. to Investors	5,500.00
			29	Salary—Bookkeeper	175.00
			29	Sal. & Comm Salesmen	1,185.00
			29	Wages—Janitor	50.00
			29	Sal. General Mgr.	350.00
					53,733.00

The Algebra of Ledger Accounts. In Chapter 3 the conventional practice concerning the use of ledger accounts for assets, liabilities, and proprietorship was illustrated and explained. A further word of explanation is now in order. In the illustration just completed we find several accounts in each of which is accumulated the cost of a class of service acquired to carry on enterprise activities. At the end of May, 1955 each one represents the dollar measure of a kind of service consumed. It therefore no longer represents an asset but a decrease in proprietorship. Why then, are +'s and −'s on the left and right hand side of the accounts, respectively? Consider, for example, Office Supplies. Upon acquisition the $38.00 of office supplies was an asset. By the month end the supplies had been consumed; there was no longer an asset. In fact the $38.00 then measured a decrease in proprietorship. But, decreases in proprietorship, we have learned are negative items. How is this seeming contradiction explained?

The position of the plus and minus signs on the proprietorship account as originally explained in Chapter 3 applies to the category account not to all its classes and sub-classes. This may be illustrated as follows:

Proprietorship
(The Category Account)

−	+
Classes of Decreases	*Classes of Increases*
+ Office Supplies −	− Sales +
+ Wages −	− Rental Income +
+ Advertising −	− Interest, Income +

Here the primary proprietorship account has been subdivided into seven separate accounts. The original investment, additional investments and withdrawals of investments will be entered in the primary account. A separate class (account) has been established for each of three types of increases in proprietorship arising from enterprise activities, Sales, Rental Income and Interest Income. The position of the plus and minus signs is the same as on the primary account because *all increases* in proprietorship are entered on the right side of the account. Similarly three classes (accounts) of decreases in proprietorship have been established. All decreases in proprietorship are shown on the left side of the primary account. But in any

account established to accumulate a class of proprietorship decreases what we are doing is to place on the left side of the account *increases* in a class of item whose effect is a decrease in proprietorship. We are increasing a class of decreases.

The foregoing may be demonstrated algebraically.

When the office supplies were purchased:

(1) − Cash \$38. + Office Supplies \$38. = Prop. 0
(An Asset) (An Asset)

At the end of the month when supplies have been consumed:

(2) − Office Supplies = − Prop. \$38.
(An Asset) (An Expense)

Add (1) and (2)

I − Cash \$38. = − Prop. \$38.
(An Asset) (An Expense)

Transposing the decrease in proprietorship to the left side of the equation.

(3) + Office Supplies \$38. = + Prop. \$38.
(An Expense) (An Expense)

Add I and (3)

II − Cash \$38. + Office Supplies \$38. = Prop. 0
(An Expense)

Since the reduction in Proprietorship caused by the use of office supplies has been transferred to the left side of the equation and set up as a separate class of item that new class (account) is treated, as to plus and minus signs, as are any other accounts on the left side of the equation. By precisely the same reasoning it can be shown that classes for increases in proprietorship carry plus and minus signs exactly as does the primary proprietorship account. The preceding analysis applies as well to all degrees of subdivision of classes of increase and decrease in the primary proprietorship account.

A final comment is in order. Debit (left side) entries in *any* and *every* expense account represent *increases* in the class or sub-class of item which is a decrease of proprietorship. When dealing with the account, Office Supplies, our attention is focused on changes in office supplies. The immediate effect of a debit to an expense account is an increase in that class or sub-class of expense. The secondary effect is a reduction in proprietorship. Observe that the two effects take place at one and the same time. It is from the viewpoint of statistical classification that

we speak of a primary and secondary effect. The same is true of income accounts. When credits are entered in the Sales account, for example, we are interested primarily in the statistical class, Sales, although we know that every credit to Sales is an increase in proprietorship. Likewise when debits are entered in Sales our primary interest is in the reduction of the statistical class Sales although we know that all reductions in Sales are reductions in proprietorship.

CHAPTER 5

The Measurement of Periodic Income — Cash Basis Operation.

Nature and Kinds of Income. In this book we are dealing with the accounting for the activities of enterprises operated for profit or net income. The reader has already learned that the essence of business enterprise activity is the acquisition of services and service sources and their consumption which results in other services and service sources which are sold.

Let us observe what happens when they are sold. The selling enterprise gives up services or service sources (merchandise in all its manifold forms) in exchange for money or promises to pay money. This transaction is called a sale as viewed by the selling enterprise and a purchase as viewed by the buying enterprise. For the former there is a going out of goods or services and a coming in of money or promises to pay money. For the latter, the buying enterprise, there is a coming in of goods or services, and a going out of promises to pay. The sale is the last step (if it is for cash) or the next to the last (if for promises to pay) in a long series of events carried on by the enterprise. These events include buying the merchandise, unpacking it, putting price tags on it, placing it on the shelves, advertising it, showing it to customers, etc. All these events or activities are referred to as operations. They are carried on for the express purpose of bringing in income. In broad terms income is the coming into the enterprise of new assets resulting from some activity carried on by it. If the activity be of the kind described above the resulting income is called gross operating income. The reader should note the adjective *gross*. This term implies that deductions will be made to arrive at net operating income. Let us first inquire into the problem of measuring gross operating income.

Measurement of Gross Operating Income. We know from the discussion on page 11 of Chapter 2 that the money measure of total assets is the money measure of gross proprietorship. We also learned that the acquisition of a new asset results in an increase in gross proprietorship, and that transaction equations usually reported only the *net* change in proprietorship. Now we have reached the stage in our analysis where it is necessary to recog-

nize gross changes in proprietorship. One of the most important changes is that resulting from the recognition of gross operating income. So important is it that a separate account is used for it—the Sales Account. This is a subdivision of the Proprietorship account. All sales transactions are journalized in the following way;

Cash or Promise to Pay Cash	$50.00	
Sales		$50.00

Several transactions of this type were journalized and posted in the extended illustrations in Chapter 4.

But business practice allows a dissatisfied customer to return what was purchased or obtain the concession of a price allowance. Each of these events can be recorded either by reducing the amount in the sales account or by setting up a new statistical class, a new account. This was done in the extended illustration in Chapter 4. The results in that illustration are summarized thus:

Account	Debit Balance	Credit Balance
Sales		$62,890.00
Returned Sales	$190.00	
Allowances on Sales	40.00	

What do these amounts mean? The $62,890.00 is not a sum of dollars. It is the dollar measure of the benefits available to the enterprise because $62,890.00 in the form of coin, currency, checks, money orders, etc., were received by the enterprise for the merchandise it sold. But the reader will recall (page 11) that the dollar measure of the new asset (cash in this case) *is* the dollar measure of the increase in Proprietorship and therefore the dollar measure of Sales.

Returned Sales measures a decrease in Proprietorship. There was returned to customers $190.00 of cash for merchandise taken back by the enterprise.

Allowances on Sales also measures a decrease in Proprietorship but in this case no merchandise was returned. Price concessions were granted to customers and cash returned to them.

The three items may be assembled thus:

Sales		$62,890.00
Less: Returned Sales	$190.00	
Allowances on Sales	40.00	230.00
Net Sales		$62,660.00

It should be clear that the initial Sales figure may be termed Gross Sales. But Net Sales is the more significant item. The four items together provide management with useful information for decision-making purposes. Most important of all is the fact that in this case Net Sales is the measure of cash received from customers and retained by the enterprise as the result of selling merchandise. This is clearly shown in the following accounts which appeared in the preceding chapter. Totals only are shown and in the Cash account only those items relating to Sales, Returned Sales and Allowances on Sales.

Cash

+			—
Sales	$62,890.00	Returned Sales	190.00
		Allowances on Sales	40.00

Sales

—			+
		Cash	$62,890.00

Returned Sales

+			—
Cash	$190.00		

Allowances on Sales

+			—
Cash	$40.00		

The statement was made above that Net Sales is the measure of cash received from customers and retained by the enterprise as the result of selling merchandise. Although this is true it should be remembered that Net Sales, $62,660 is just one way of stating that proprietorship increased by the gross amount of $62,660 as the result of *selling* merchandise during a specific time interval, in this case one month. But we know that P =

f (A, L) and, therefore, that changes in P come about through changes in A and L and in no other way. It follows that Net Sales (Increase in Proprietorship) is determined *by measuring the value of the asset(s) acquired,* in this illustration, cash. We cannot reverse the procedure. In *every* case (there are *no* exceptions) gross operating income is measured by determining the value of the new assets acquired as the result of sales made. In this case cash was received for all merchandise sold and cash was paid out for merchandise returned as well as for allowances of all kinds. The problem of valuing cash is the problem of counting it. Once counted and accounted for the determination of Net Sales (gross operating income) turns out to be a simple problem in arithmetic. If sales are made on account (the customer takes the merchandise now and agrees to pay for it later) the problem of measuring gross operating income becomes more complex. The appropriate procedure will be discussed in Chapter 8.

Valuation Accounts. In the preceding analysis an account was established for Returned Sales and for Allowances on Sales. In each there was accumulated a separate class of reduction of Sales. Net Sales was computed by deducting from Sales the sum of Returned Sales and Allowances on Sales. In other words a proper valuation of Sales required obtaining the algebraic sum of Sales (+Proprietorship), Returned Sales (−Proprietorship) and Allowances on Sales (−Proprietorship). The two last named accounts are termed valuation accounts. A valuation account is a statistical class of change (+ or −) in an asset, a liability, proprietorship or in an income or expense account for which a separate account is established. The value (dollar measure) of the account to which this separate class of change applies cannot be measured without taking it into consideration.

The reader should notice that Returned Sales and Allowances on Sales are *not* expenses. Each is a measure of a class of reductions in proprietorship. Here is an excellent demonstration of the truth and importance of an earlier statement that debit means nothing more than left hand side of an account.

In connection with purchases two accounts were established, Purchases and Returned Purchases. The latter is a valuation account applicable to the former. From the Purchases Account alone it is not possible to obtain a valuation (dollar measure) of purchases; we must first deduct Returned Purchases. Or we

may say that net purchases is computed by obtaining the algebraic sum of Purchases (an asset) and Returned Purchases (reductions in an asset). Observe that the last named account always shows a credit balance but that fact does not make it a liability or some subdivision of increase in proprietorship.

Many valuation accounts will be encountered in subsequent chapters. The reader will do well on each such occasion to review the foregoing statements and think through the relationship in question.

Nature of Costs (Expense). The word cost may mean the total money outlay made or to be made for an asset. It also may mean the money measure of a class of service (asset) consumed during a specified time interval in the attempt to obtain gross operating income. This last idea is also conveyed by the word expense although it, too, has other meanings. For the purposes of the current discussion we shall define the word expense as the money measure (value) of services consumed in an attempt to obtain the gross operating income which was obtained during a specified time interval. The reader will note that the essential feature is service consumed. As will appear later many complex problems arise in attempting to measure services consumed. This will become evident if the reader will return to the discussion, in Chapter 2, of the several classes of services and service sources and reflect on the complications that may arise because of the fact that payment may or may not have been made for them and the difficulty of measuring quantities (not values) consumed.

Measurement of Costs or Expenses. In the illustration under discussion there is no problem of measurement of quantities or of values because we assumed (1) that all transactions were on a cash basis and, (2) that all services and service sources purchased during the period were consumed (or sold) during the period. Consequently every account showing services purchased also shows services consumed. Thus Rent of $600 measures *both* the services purchased and paid for as well as the services consumed. The same is true of all the other service purchased accounts. Each measures the dollar value (represented by cash paid out) of services purchased as well as the dollar measure of services consumed.

Using the data of the X Company the expenses for May, 1955 were as follows:

Purchases	$40,540.00	
Less: Returned Purchases	120.00	$40,420.00
Rent		600.00
Salary—Bookkeeper		350.00
Salary and Commission—Salesmen		4,080.00
Salary—General Manager		700.00
Insurance—Property		80.00
Taxes—Property		75.00
Telephone and Telegraph		25.00
Stationery and Printing		40.00
Advertising		865.00
Electric Light		110.00
Heat		40.00
Office Supplies		38.00
Wages—Janitor		100.00
Supplies—Janitorial		10.00
Total Expenses		$47,533.00

Note that Returned Purchases bears the same relation to Purchases as Returned Sales and Allowances on Sales do to the Sales Account. Returned Purchases is a statistical class (account) in which are accumulated those reductions of purchases occasioned by returning merchandise to the seller.

Net Income. We are now in a position to measure net income. Using totals only we have:

Net Sales	$62,660.00
Expenses	47,533.00
Net Income	$15,127.00

What does it mean? How may it be defined? In the present case it means that new assets (cash) came into the enterprise during May, 1955 as the result of net sales of merchandise in the amount of $62,660.00 and that services were consumed during the same interval for which $47,533.00 cash was paid, leaving an excess of asset value acquired over asset value consumed of $15,127.00. If the X Company conducts its activities on a non-cash basis net income would mean something else. As will appear in Chapters 8, 9 and 10 net income can be defined only in terms of the statistical procedures applied in measuring gross income and expenses because net income is always a difference—gross income minus expenses. Gross income and expenses are the items measured. Once that is done the determination of net income is a problem in arithmetic.

The reader should note that in this case net income is net operating income. This is so because the only activity engaged in by the X Company was the purchase and sale of merchandise. All of its gross income was gross operating income. All of its expenses represented costs of services consumed in getting the gross operating income. And all of the activity was completed in the one month, May, 1955 i.e., every bit of the activity which resulted in net sales of $62,660.00 and expenses of $47,533.00 was completed in its entirety in the one month.

The Four Statistical Time Series. All accounting records contain *dated* items. Every transaction is dated. If we consider sums in ledger accounts they too are dated but in a different sense. A transaction, for example, is dated with day, month, and year. Sums, on the other hand, apply to periods of time, hour, day, week, month, etc. Thus we speak of daily cash receipts, weekly payroll, monthly rentals, etc. The dollar amounts are sums of the results of *many* transactions of a given class over some time interval.

A sequence of such sums of a given kind, each sum referring to a specified period of time and no break in the sequence is called a time series. So also is a sequence of items each of which refers to a point in time. In this case the successive points in time (successive dates) are separated by a constant time interval. Practically all the significant data in accounting records and the reports prepared from them constitute time series. From the records of The X Company we may compile the following time series for May, 1955.

Week	Weekly Sales	Weekly Purchases	Monday Sales
1	$16,722.50	$12,000.00	$ 4,195.88
2	14,325.80	9,460.00	2,118.63
3	14,950.20	10,870.00	2,241.47
4	16,891.50	8,210.00	2,141.50
	$62,890.00	$40,540.00	$10,697.48

In a similar fashion we may compile time series of cash receipts, cash disbursements, expenses, gross operating income, etc.

In the measurement of net income time series are most important. Total gross operating income for a period and total expenses for a period each represent a single item in a time series. This is made clear if we suppose that The X Company had been in business for some months and that the gross operating income, expenses and net income were as scheduled below:

Year	Month	Gross Operating Income	Expenses	Net Income
1954	November	$68,480.00	$49,900.00	$17,800.00
	December	74,190.00	52,841.00	21,349.00
1955	January	56,520.00	43,820.00	12,700.00
	February	58,900.00	46,000.00	12,900.00
	March	60,420.00	45,970.00	14,450.00
	April	63,760.00	48,780.00	14,980.00
	May	62,660.00	47,633.00	15,027.00

The sums in each of the foregoing money columns are time series items. Each set of seven monthly sums is a time series. Clearly errors can creep into such data. Since net income is simply the arithmetic difference obtained by subtracting expenses from gross income an error in either primary series results in an error in net income. A basic problem in accounting is, therefore, the accurate measuring of the items in the two primary series. But the measurement of gross operating income for a period *is* the measurement of new asset value acquired as a result of sales. The measurement of expenses *is* the value of services consumed in getting the gross operating income of the period. In our analysis thus far we have been concerned with a cash basis of operations. Therefore the new asset value acquired was cash and the value of services consumed was the cash spent for them. Thus we have one cash time series related to income and another related to expenses. They are diagrammatically set out below:

	← 1954 →		← 1955 →				
	Nov.	Dec.	Jan.	Feb.	Mar.	April	May
Revenue Series							
Gross Operating Income	$68,480	$74,190	$56,520	$58,900	$60,420	$63,760	$62,660
Cash Receipts From Sales	68,480	74,190	56,520	58,900	60,420	63,760	62,660
Expense Series							
Expenses	49,900	52,841	43,820	46,000	45,970	48,780	47,633
Cash Disbursements for expense	49,900	52,841	43,820	46,000	45,970	48,780	47,633

Note the paired series. Gross operating income is tied in with cash receipts. In this illustration the gross operating income for a period (any month) *is measured by* the cash receipts from sales. (Of course it is *net* cash receipts from sales since gross operating income is gross sales less sales returns and sales allowances.) Here all sales were on a cash basis. In

Chapter 8 we will learn that far more commonly gross operating income will be the sum of net cash received from cash sales plus an estimate of cash *to be received* from non-cash sales. Then the gross operating income for a period will not equal the net cash receipts in that period from sales of that period.

An analogous relationship exists between expenses and cash disbursements for expenses. Services were acquired by the payment of cash. All the services in any one period were consumed in that period in getting the gross operating income of that same period. The value of the services acquired was measured by the amount of cash paid for them. The expenses were measured by the number of units of each class of service consumed multiplied by the price per unit. Since all units purchases in any period (month) were consumed in that same period, and since all units purchased were paid for as purchased it follows that expenses for any period equalled cash disbursed for expenses in that period. The more common situation in this: total expenses for a period is the sum of (1) services consumed in the period but paid for in a prior period, (2) services consumed and paid for in the same period, (3) services consumed paid for partly in prior periods, partly in the same period and partly to be paid for in subsequent periods, and (4) services consumed to be paid for in subsequent periods. This more complex situation will be analyzed in Chapter 9.

Some Important Conclusions. From the preceding discussion it should be clear that sooner or later gross operating income is measured by cash receipts and expenses by cash disbursements. Net income in the final analysis is in the form of cash. This is what Canning calls "ultimate total income." [1] If the reader is in doubt let him refer to the extended illustration in Chapter 4 and suppose that The X Company existed only for the month of May, 1955. He will observe that the initial asset possessed by the enterprise at its inception was cash and that upon the termination of business one month later the sole asset was cash. It follows that all enterprise activity is an exceedingly roundabout and very complex process which reduces to a flow from cash to cash.

Two exceedingly important conclusions may now be stated. First, all gross income is conclusively and definitively measured by cash receipts *at some time during the enterprise's life.* Second, all expenses are conclusively and definitively measured by

[1] John B. Canning—THE ECONOMICS OF ACCOUNTANCY, Copyright 1929, The Ronald Press Company, 95.

cash disbursements *at some time during the enterprise's life.* A third important conclusion will be drawn from the analysis to be made in Chapters 8, 9 and 10. But the reader will avoid pitfalls in deciding whether an account balance or total is or is not gross income or is or is not an expense, if he remembers the two conclusions just stated. It is true that the problem may still remain of deciding in what period in a time series the item belongs. But at least the primary source of confusion will have been resolved.

The reader should observe the rigorously oversimplified nature of the facts assumed in the illustration in this chapter, As to gross operating income, for example, absolute completeness of all transactions was assumed. Realistically, even for a cash basis sales policy there will be returns and allowances effected in the period subsequent to that in which the sale was made. A method of allowing for this fact in the measurement of gross operating income will be presented in Chapter 8.

CHAPTER 6

The Expanded Basic Equation I – Trial Balance and Working Papers Closing Books – Cash Basis

The Trial Balance. Having inquired into the nature of income and expense and observed how each is computed for a time interval we are ready to study the procedure conventionally adopted in actual practice.

We start with the accounts in the general ledger. The reader will recall that the general ledger contains all those accounts (statistical classes and sub-classes of transactions) that enter into the basic equation. At the end of any time interval, usually not shorter than one month, we may list the balance in each of the accounts. This is accomplished in the following steps:

1. List the titles of all the accounts in the general ledger.
2. Provide a debit (left side) and a credit (right side) column both to the right of the account titles.
3. Opposite each account title write the *balance* of the account. The balance is the difference between the sum of the debit (left side) entries and the sum of the credit (right side) entries. Accordingly, we speak of debit balances or credit balances.
4. Obtain the sum of the items in each column and enter it at the foot of the column.

The foregoing operation yields what is known as a "trial balance". There follows the trial balance of The X Company on May 31, 1955.

The X Company
Trial Balance May 31, 1955

Cash on Hand	$ 5,512.50	
Y National Bank	29,114.50	
Purchases	40,540.00	
Returned Purchases		$ 120.00
Sales		62,890.00
Returned Sales	190.00	
Allowances on Sales	40.00	
Rent	600.00	
Salary—Bookkeeper	350.00	
Salaries and Commissions—Salesmen	4,080.00	
Salary—General Manager	700.00	

Insurance—Property	80.00	
Taxes—Property	75.00	
Telephone and Telegraph	25.00	
Stationery and Printing	40.00	
Advertising	865.00	
Electric Light	110.00	
Heat	40.00	
Office Supplies	38.00	
Wages—Janitor	100.00	
Supplies—Janitorial	10.00	
Proprietorship		25,000.00
Distribution to Investors	5,500.00	
	$88,010.00	$88,010.00

What is the nature of such a listing of the general ledger account balances? Why the qualification, "trial"? How may the figure facts be used? In what manner?

Let us consider each of the foregoing questions in turn. What is the significance of such a listing? Recall that all journal entries presented thus far in our analysis are transaction equations. The debit and credit elements in each journal entry (equation) become, when posted, the debit and credit elements in ledger accounts. It follows that the summation of all debit entries in each account and the summation of all credit entries in each account will yield the data for the cumulative equations of the types numbered I through VIII in Chapter 2. Therefore the trial balance is another form of the cumulative equation of Chapter 2.

It is called a "Trial" balance because a certain type of error will result in unequal totals for debits and credits. The more common errors of this type follow:

1. Failure to post a debit or credit element from the journal to the ledger.
2. Posting a debit as a credit or vice versa.
3. Posting an incorrect amount e.g., $17.95 as $179.50, as $1,795.00, as $19.75 or as $17.59.

Let us suppose that no error of this type has occurred. Should the list of account balances still be called a "trial" balance? Why not call it General Ledger Balances? There are two kinds of errors which may exist and which cannot possibly be disclosed if the debit balances add to the same total as the credit balances. The first and most common is an error of statistical

classification, a posting to the wrong account. For example one of the checks drawn to pay a salesman might have been posted to Salary—Bookkeeper. The equality of debits and credits would not be altered. The account balances would still yield an equation. The other type of error is the complete omission of a transaction. It follows, therefore, that a list of general ledger account balances is called a "trial" balance because it is a first attempt to determine the balances. Even though the sum of debit balances equals the sum of credit balances on the first trial errors may exist.

So the trial balance turns out to be a list of debit and credit balances of general ledger accounts resulting from the transactions *that have been posted.* This is the nature of it, nothing more.

The Work Sheet or Working Papers. How may the figures be used? We have already learned how they may be grouped, to measure gross operating income and expenses. But the method used is clumsy and is subject to many kinds of error. To reduce error, at least certain types, a device known as the work sheet is used. On page 68 is a work sheet for The X Company for the month ended May 31, 1955.

Before analyzing it let us set up the trial balance in the equation form. Consider first the accounts with debit balances. They may be grouped as follows:

Assets	+	Gross Expenses	+	Reductions in Gross Sales	+	Reductions in Proprietorship
$34,627	+	$47,653	+	$230	+	$5,500

= $88,010

Similarily set out the accounts with credit balances:

Proprietorship	+	Reductions in Gross Expenses	+	Gross Sales	
$25,000	+	$120	+	$62,890	= $88,010

We may therefore write the cumulative equation

Assets ($34,627) + Gross Expenses ($47,633) + Reduction in Gross Sales ($230) + Reductions in Proprietorship ($5,500) = Proprietorship ($25,000) + Reductions in Gross Expenses ($120) + Gross Sales ($62,890)

Now let us recast the equation in another form consisting of two parts as follows:

Part I [Gross Sales ($62,890) + Reduction in Gross Expenses ($120)] − [Gross Expenses ($47,653) + Reductions in Gross Sales ($230)]

Part II [Assets ($34,627) + Reductions in Proprietorship ($5,500)] − Proprietorship ($25,000)

Part I yields ($62,890 + $120) − ($47,653 + $230) = $15,127

Part II yields ($34,627 + $5,500) − $25,000 = $15,127

Now turn to page 68 for the work sheet of The X Company for May, 1955. There are three pairs of columns: trial balance, income and expense, and balance sheet in that order from left to right. How they are related to the two part equation is set out schematically below.

Work Sheet Column		Equation Element
Income and Expense Dr.	*is*	Part I to the left of the minus sign
Income and Expense Cr.	*is*	Part I to the right of the minus sign
Balance Sheet Dr	*is*	Part II to the left of the minus sign
Balance Sheet Cr	*is*	Part II to the right of the minus sign

What we have done is to start with the trial balance and regroup the balances according to two categories viz., (1) balances measuring services received and services consumed as the result of operations carried on during the time interval in question and (2) balances measuring assets at the end of the period and proprietorship (plus or minus changes not resulting from operations) at the beginning of the period.

Returning to the two parts note that they may be written as follows:

Part I Income and Expense Cr. Balances ($63,010) − Income and Expense Dr. Balances ($47,883) =

Part II Balance Sheet Dr. Balances ($40,127) − Balance Sheet Cr. Balances ($25,000)

But in Part I above the credits exceed the debits and the reverse is true in Part II. So we write in on the work sheet the title Net Income and place opposite it $15,127 as a debit in the Income and Expense columns and as a credit in the Balance Sheet Columns. This operation is the equivalent of closing the operating accounts, a procedure soon to be illustrated.

The relationships set out above are *necessarily* true. Part I yields the algebraic sum of changes in proprietorship consequent upon enterprise activities. The result is an excess of increases over decreases of $15,127. Part II yields the excess of the sum

of assets plus payments to investors over original proprietorship. This excess is also $15,127. During the month of May, 1955 no additional investments were made. But the management paid out to investors $5,500 during that month and at the end of the month had $9,627 more assets than at the beginning of the month. Since no additional investments were made the increase in assets (increase in proprietorship since there are no liabilities) could have come only from enterprise activity. The income and expense accounts since they are but subdivisions of proprietorship measure the effect of such activity upon the proprietorship. Therefore the change in proprietorship measured by asset change must equal that measured by income and expense (class and sub-class of proprietorship) change.

Consider the following:

Proprietorship		
May 31, 1955		$34,627
May 1, 1955	$25,000	
Less Distributions	5,500	19,500
Increase in Proprietorship Or Net Income		$15,127

Proprietorship	
Increases arising from enterprise activity	$63,010
Decreases arising from enterprise activity	47,883
Increase in Proprietorship or Net Income	$15,127

The reader should note most carefully that the foregoing analysis is a demonstration of the double-entry principle in operation. All transactions of The X Company were so recorded that wherever a change in an asset occurred the related change in proprietorship was also entered in the accounting records. This was accomplished by establishing appropriate subdivisions of the primary proprietorship account, one group for increases (gross income accounts) another for decreases (expense or cost accounts). The difference between the totals of these two groups measures the net income or net loss for the period covered. But this net income or net loss can also be determined by the comparison of proprietorship figures at the beginning and end of a period, due allowance being made for additional investments and withdrawals. The latter procedure will correctly measure the net income or net loss but it will never disclose details of

the various classes of changes in proprietorship which took place during the period as a result of enterprise activity and which brought about the net income or net loss.

Many small enterprises maintain accounting records only for cash, accounts receivable and liabilities. No equation is maintained in the records. There is no proprietorship account nor any subdivision thereof—expense and income accounts are not maintained. Such a set of records is kept on the single-entry principle. It is so-called because the change in proprietorship accompanying a change in an asset or a liability is never recorded. Usually not all the assets are included in the record; merchandise inventory, supplies, and fixed assets being excluded almost always. Only one aspect, not two, of any transaction is entered in the accounts. Net income or net loss can be measured by a comparison of proprietorship figures as illustrated above. But the details of the changes in proprietorship are never available. It is just such details, however, that are of particular value to the management of an enterprise as an aid in making decisions. The superiority of the double-entry principle is that its proper application will yield all the relevant data about proprietorship changes that management needs.

The last two questions asked on page 59 have been answered in part only. The data have been used to prepare a work sheet which we discovered provides an automatic check on arithmetic error if we start from a set of ledger accounts in balance. But the data may also be used to prepare formal statements for management and investors. This problem will be discussed and illustrated in the next chapter.

The Algebra Of Working Papers. The nature of the relationship set out in the preceding discussion can be demonstrated by elementary algebraic equations. First let us recast the trial balance as follows:

A	Assets	$34,627	
B	Gross Expenses	47,653	
C	Reductions in Gross Sales	230	
D	Reductions in Proprietorship	5,500	
E	Proprietorship		$25,000
F	Reductions in Gross Expenses		120
G	Gross Sales		62,890
		$88,010	$88,010

(1) $A + B + C + D = E + F + G$

(2) $B + C < F + G$

Subtract (2) from (1)

(3) $A + D > E$

We start with an equation. From it we subtract an inequality, (2), leaving as a remainder a second inequality, (3). In (2) F + G is greater than B + C. When (2) is subtracted from (1) more is deducted from the right hand member of (1) than the left hand member by the excess of F + G over B + C. Consequently the remainder of the left hand side of (1) exceeds the remainder of the right hand side by precisely the excess of F + G over B + C. It therefore follows that

(4) $(F + G) - (B + C) = (A + D) - E.$

(F + G) − (B + C) measures net income on the double-entry principle. (A + D) − E measures net income on the single-entry principle. In the case of net loss the inequalities are the reverse of those shown above.

Closing The Accounts. At the end of May, 1955 the trial balance consisted primarily of accounts measuring services received and services consumed. To facilitate the separate accumulation of similar data for the next month all such account balances are transferred to a summary account (the ledger equivalent of the income and expense columns of a work sheet) and the balance of this account to proprietorship. This procedure is termed closing the books. The result is to leave in the ledger with balances only those accounts which will appear in the balances sheet columns of the work sheet. The final step is to combine, by transfer, the various subdivisions of the primary proprietorship account. There will then remain only asset accounts, liability accounts, and the primary proprietorship account. A list of such account balances is termed a post-closing trial balance.

The summary account to which the various operating account balances are transferred is known by several titles, among which are Income and Expense, Profit and Loss, and Profit and Loss Summary. Let us call it Income and Expense.

Starting with the work sheet we set up journal entries to effect the transfer as follows, all entries being dated as of the last day of the period covered:

— 1. —

Sales	$ 230.00	
Allowances on Sales		
Returned Sales		$ 40.00
To close into Sales Account		190.00

— 2. —

Sales	$62,660.00	
Income and Expense		$62,660.00
To close into Income and Expense		

— 3. —

Returned Purchases	$ 120.00	
Purchases		$ 120.00
To close into Purchases		

— 4. —

Income and Expense	$47,533.00	
Advertising		$ 865.00
Electric Light		110.00
Heat		40.00
Insurance—Property		80.00
Office Supplies		38.00
Purchases		40,420.00
Rent		600.00
Salary—Bookkeeper		350.00
Salary—General Manager		700.00
Salary and Commission—Salesmen		4,080.00
Stationery and Printing		40.00
Supplies—Janitorial		10.00
Taxes—Property		75.00
Telephone and Telegraph		25.00
Wages—Janitor		100.00
To close into Income and Expense		

— 5. —

Income and Expense	$ 15,127	
Proprietorship		$ 15,127
To close net income into Proprietorship		

— 6. —

Proprietorship	$ 5,500	
Repayments to Investors		$ 5,500
To close into Proprietorship		

The Summary Account Income and Expense Follows:

Income and Expense

Advertising	$ 865	Net Sales	$62,660
Electric Light	110		
Heat	40		
Insurance—Property	80		
Office Supplies	38		
Purchases—Net	40,420		
Rent	600		
Salary—Bookkeeper	350		
Salary—General Manager	700		
Sal. and Comm.—Salesmen	4,080		
Stationery and Printing	40		
Supplies—Janitorial	10		
Taxes—Property	75		
Telephone and Telegraph	25		
Wages—Janitor	100		
Net Income to Proprietorship	15,127		
	$62,660		$62,660

Proprietorship will appear thus:

Proprietorship

Repayments to Investors	$ 5,500	Original Investment	$25,000
		Net Income, May 1955	15,127

There now remain in the general ledger only three accounts with balances which may be set out as follows:

Cash on Hand	$ 5,512.50	
Cash on Deposit	29,114.50	
Proprietorship		$34,627.00
	$34,627.00	$34,627.00

The foregoing is known as a post-closing trial balance. It is so named because it contains all the elements of the modified basic equation *after* all classes and sub-classes of proprietorship have been summarized and the net change in proprietorship entered in the main or primary proprietorship account.

Income and Expense, the summary account, contains all the information necessary to explain the net income for the period, May, 1955. Should questions arise concerning the individual items comprising a subdivision of income or expense the appropriate ledger account may be referred to for details. Should

questions still be unanswered resort may be had to primary vouchers.

So that both investors and management may be served it is customary to present formal statements, outside of the books of account, setting forth the results for the period in question. To a consideration of the preparation of these statements and their use we now turn.

THE X COMPANY

Work Sheet or Working Papers

Month Ended May 31, 1955

Cash Basis Operations

	Trial Balance		Income and Expense or Profit and Loss		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash on Hand	5,512.50				5,512.50	
Cash on Deposit	29,114.50				29,114.50	
Proprietorship		25,000.00				25,000.00
Repayments to Investors	5,500.00				5,500.00	
Advertising	865.00		865.00			
Allowances on Sales	40.00		40.00			
Electric Light	110.00		110.00			
Heat	40.00		40.00			
Insurance—Property	80.00		80.00			
Office Supplies	38.00		38.00			
Purchases	40,540.00		40,540.00			
Rent	600.00		600.00			
Returned Purchases		120.00		120.00		
Returned Sales	190.00		190.00			
Salary—Bookkeeper	350.00		350.00			
Salary—General Manager	700.00		700.00			
Salary and Commissions—Salesmen	4,180.00		4,080.00			
Sales		62,890.00		62,890.00		
Stationery & Printing	40.00		40.00			
Supplies—Janitorial	10.00		10.00			
Taxes—Property	75.00		75.00			
Telephone & Telegraph	25.00		25.00			
Wages—Janitor	100.00		100.00			
	$88,010.00	$88,010.00				
NET INCOME			15,127.00			15,127.00
			$63,010.00	$63,010.00	$40,127.00	$40,127.00

CHAPTER 7

The Expanded Basic Equation II — Regrouping and Summarizing — The Formal Statements — Cash Basis

Introduction. In the preceding chapter there was set forth a discussion of the procedure followed in "closing the books", that is, in regrouping in summary form all revenue and expense account balances. The end result of the process was the transference to proprietorship, from income and expense, of the net income or net loss. Consequently there remained "open on the books" only the asset and liability accounts and the primary proprietorship account. These account balances are formally presented in a statement called the balance sheet.

Balance Sheet. The balance sheet of The X Company follows:

The X Company
Balance Sheet
May 31, 1955

		Proprietorship	
Cash on Hand	$ 5,512.50	Proprietorship	$34,627.00
Cash in Bank	29,114.50		
	$34,627.00		$34,627.00

A balance sheet is a statement in summary form of the assets, liabilities and proprietorship of a business enterprise *on a specified date.* The dollar valuations are always *at a point in time.* Conventionally such a statement is prepared as of the close of business on the last day of a period of time for which a statement of income and expense is prepared.

The heading should contain on successive lines the enterprise name, the words Balance Sheet, and the date of the statement. Resources or assets usually head up the assets, the latter term being the more commonly used. Liabilities and investment are used on the right side of the statement. In the present case the word liabilities is omitted since there are none.

The illustrated form is called the account form for the reason that the several items are juxtaposed in the balance sheet as they are in the ledger accounts. A variation of this presentation known as the report form follows:

The X Company
Balance Sheet
May 31, 1955

Assets

Cash on Hand	$ 5,512.50
Cash in Bank	29,114.50
	$34,627.00

Capital

Capital	$34,627.00
	$34,627.00

Income Statement. The companion statement to the balance sheet is the income statement. Such a statement is always prepared for a period, *for some time interval.* Conventionally the balance sheet is dated as of the last day of the period covered by the income statement.

The reader will observe that all the data necessary for the preparation of an income statement for the X Company are found in the third and fourth columns of the work sheet on page 68. One form of arrangement of the data follows:

The X Company
Income Statement
May, 1955

		Form 1
Sales—Net		$62,660.00
Expenses:		
Advertising	$ 865.00	
Electric Light	110.00	
Heat	40.00	
Insurance—Property	80.00	
Office Supplies	38.00	
Purchases—Net	40,420.00	
Rent	600.00	
Salary—Bookkeeper	350.00	
Salary—General Manager	700.00	
Sal. and Comm.—Salesmen	4,080.00	
Stationery and Printing	40.00	
Supplies—Janitorial	10.00	
Taxes—Property	75.00	
Telephone and Telegraph	25.00	
Wages—Janitor	100.00	47,533.00
Net Income		$15,127.00

The reader will observe several interesting features in this statement. Certain details have been submerged, namely returned sales, allowances on sales and returned purchases. The several expense classes have been listed without regard to any criteria of importance. This has been done purposely to emphasize a very important idea once more, viz., that all items of expense are *qualitatively* identical; each is the dollar measure of services consumed in getting the gross income of the period being reported upon. Or we may say they are identical in nature.

The expense classes may be arranged in many ways such as, for example, alphabetically, in order of magnitude, in relationship to functions performed, fixed and variable, controllable and uncontrollable, etc. A commonly used procedure is to group them in relation to the function (subdivision of enterprise activity) in whose performance the related services were consumed. Thus we might in the case of The X Company identify two functions: merchandising and general management, or simply general. On this basis the expenses would be grouped as follows:

Merchandising Expenses	
Advertising	$ 865
Insurance—Property	80
Purchases—Net	40,420
Salary—General Manager	700
Sal. and Comm.—Salesmen	4,080
Taxes—Property	75
Total	$46,220

General Expenses	
Electric Light	$ 110
Heat	40
Office Supplies	38
Rent	600
Salary—Bookkeeper	350
Stationery and Printing	40
Supplies—Janitorial	10
Telephone and Telegraph	25
Wages—Janitor	100
Total	$ 1,313

Using this grouping let us recast the income statement for the X Company.

The X Company
Income Statement
May, 1955

			Form 2
Sales—Net			$62,660
Merchandising:			
Advertising	$ 865		
Insurance—Property	80		
Purchases—Net	40,420		
Salary—General Manager	700		
Salary and Commissions—Salesmen	4,080		
Taxes—Property	75	$46,220	
General			
Electric Light	110		
Heat	40		
Office Supplies	38		
Rent	600		
Salary—Bookkeeper	350		
Stationery and Printing	40		
Supplies—Janitorial	10		
Telephone and Telegraph	25		
Wages—Janitor	100	1,313	47,533
Net Income			$15,127

The reader will note varying degrees of arbitrariness in the grouping of the expenses. Clearly the salary of the general manager covers his services both as merchandiser and as manager of the non-merchandising activities. But it is reasonable to assume that the bulk of his time and effort are devoted to the former. Expense items included in General are conventionally so classified for lack of any better classification. Unless an item is wholly or predominantly related to merchandising activities it is classified as a general expense. Yet convention goes beyond this and too frequently includes items which are almost wholly related to merchandising activities. In the present illustration rent is a case in point. (Methods of resolving this difficulty will be presented in Chapter 23.)

The foregoing statement may be presented in the following condensed form:

The X Company
Income Statement
May, 1955

Form 3

Sales—Net		$62,660
Expenses:		
Merchandising	$46,220	
General	1,313	47,553
Net Income		$15,127

A widely used form of statement now follows:

The X Company
Income Statement
May, 1955

Form 4

Sales—Gross		$62,890
Less:		
Allowance on Sales	$ 40	
Returned Sales	190	230
Sales—Net		$62,660
Less:		
Cost of Goods Sold		
Purchases	$40,540	
Less: Returned Purchases	120	$40,420
Gross Profit on Sales		$22,240
Less:		
Selling Expenses		
Advertising	865	
Insurance—Property	80	
Salary—General Manager	700	
Sal. and Comm.—Salesmen	4,080	
Taxes—Property	75	5,800
Net Profit on Sales		$16,440
Less:		
General Expenses		
Electric Light	110	
Heat	40	
Office Supplies	38	
Rent	600	
Salary—Bookkeeper	350	
Stationery and Printing	40	
Supplies—Janitorial	10	
Telephone and Telegraph	25	
Wages—Janitor	100	$ 1,313
Net Profit		$15,127

Many features of this statement call for comment. First, notice the mass of detail; enough of it to confuse the reader rather than to help him. Second, observe the successive partial remainders labeled Gross Profit on Sales and Net Profit on Sales. These two items warrant particular comment for each is wholly misleading. It has already been shown that *all* expenses for a period are *qualitatively* alike, that each represents the dollar measure of services consumed in getting the gross income for the period in question. It follows that to arrive at any figure labeled otherwise than Net Income or Net Profit is to play a numbers game, and, knowingly or not, to mislead the readers of the statement. For such items as Gross Profit on Sales and Net Profit on Sales do not represent economic realities. Each implies that business enterprises operations are other than, what, actually, we know them to be. Successive classes of expense are not peeled off net sales as successive layers are peeled off an onion. If the various items shown on such a statement are useful to management then such statements should be prepared but some other titles should be used for the successive remainders. The only appropriate title is the one word, remainder. As will be shown later, information relevant to the purpose and useful to management can be presented in much more effective style. Third, note the details concerning sales and purchases, which in earlier illustrations were submerged so that the net amounts only were shown.

In determining the amount of detail to be included in the income statement and the balance sheet, it is helpful to keep in mind the persons who will read these statements, and the purposes for which they will be read. If the reader is known to be wholly unfamiliar with accounting terminology and accounting techniques the statement should be prepared accordingly. In general simple condensed statements are to be preferred. Should additional details be required they can readily be made available.

At this point the reader should review the comments in the preceding chapter about single and double-entry and compare the single entry statement of net income on page 62 with the detailed statement in this chapter.

As a final illustration suppose the following presentation were made.

The X Company
Income Statement
May, 1955

	Form 4	
Income		
Sales	$62,890	
Returned Purchases	120	
Increases in Proprietorship (Gross Income)		$63,010
Expenses		
Advertising	865	
Allowances on Sales	40	
Electric Light	110	
Heat	40	
Insurance—Property	80	
Office Supplies	38	
Purchases	40,540	
Rent	600	
Returned Sales	190	
Salary—Bookkeeper	350	
Salary—General Manager	700	
Salary and Commission—Salesmen	4,080	
Stationery and Printing	40	
Supplies—Janitorial	10	
Taxes—Property	75	
Telephone and Telegraph	25	
Wages—Janitor	100	
Decreases in Proprietorship (Expenses)		47,883
Net Income		$15,127

The foregoing arrangement of data yields the same net income as does each of the preceding four statements. But it contains several serious errors. Both the increases (gross income) and decreases (expenses) in proprietorship are overstated. Although Returned Purchases taken by itself is a measure of proprietorship increase it is not an increase resulting from a sale and is not, therefore, gross operating income. Allowances on Sales and Returned Sales do represent decreases in proprietorship but neither is the dollar measure of a class of services consumed in getting the gross income for May, 1955. Therefore neither one is an expense. In addition to the overstatement of both gross income and expense there are the obvious errors in statistical grouping which resulted in the overstatements. Returned Purchases is not gross income and Allowances on Sales and Returned Sales are not expenses.

This demonstration was presented to emphasize again that the nature and the content of an account cannot be determined by the position its balance occupies in the trial balance. The errors involved are quite obvious. They are almost never found in practice. But other errors, equally serious, are frequently found and some forms of income statement regularly include them. They will be identified and commented upon later in this book.

CHAPTER 8

The Measurement of Periodic Gross Operating Income – Cash and Non – Cash Basis Operations

Introduction. We are now ready to consider again the problem of measuring gross operating income but this time allowing for additional business practices and their consequences. One of these practices is selling on account i.e., the seller renders the service or turns over the merchandise to the buyer in exchange for the latter's promise, oral or written, to make payment later. The new asset acquired when the promise is oral is termed an account receivable. Specific identification is trade account receivable to distinguish it from others which did not arise out of sales transactions. The broad class of non-oral promises will be discussed in Chapter 10. A very common one of the latter is note receivable, a written promise to pay a named or identifiable person or enterprise a specific or determinable sum on a named date. Account(s) receivable and note(s) receivable are two of an important class of assets which we will identify by the term "money-claim assets" since each renders the sole and only service of bringing in money.

Appropriate entries for recording a sale on account and for a note follow:

Henry Jones	$150	
Sales		$150
Notes Receivable J. Smith	$100	
Sales		$100

Observe that an account titled "Henry Jones" is debited. A separate account receivable is maintained in the general ledger *for each customer* to whom sales on account are made, but *only one* account is maintained for *all* notes receivable. There are two reasons for this: (1) the small number of notes, and (2) the existence of the note as evidence of the amount due. In many cases only the second reason applies. In the balance sheet the sum of all accounts receivable is shown opposite the title Accounts Receivable. Notes receivable are treated analogously.

Trade and Cash Discounts. The second business practice to be considered at this point is the granting of discounts. Of these there are two types to be discussed at this time, trade and cash. A trade discount is a deduction from the list price of an item of merchandise to arrive at the invoice price, i.e., the selling price. For example, suppose an item is listed at $100.00 with trade discounts of 10%, 10% and 5%. The invoice price is arrived at by deducting *successively* the named percentages or which is the same thing by multiplying $100 by the complement of the discounts. The practice developed as a means of saving time and reducing the cost of revising price lists in the hands of hundreds of salesmen and distributors. Trade discounts are *never* entered in accounting records.

Cash discounts are allowances for prompt payment of sales on account. Conventionally they are expressed as a percentage of the invoice price, e.g., 2%, 10 days, net, 30 days. This means that the customer may settle the debt at 98 cents on the dollar if payment is made by the 10th day from the invoice date. Thereafter up to the 30th day from the invoice date the full invoice price must be paid. This practice results in a two price system, one for the period during which the discount may be taken, another for the remainder of the credit period.

Two simple methods are available for recording sales involving cash discounts. They may be designated the gross and the net methods, respectively. Assume that a sale of $100 of merchandise is made with terms of 2%, 10 days, net, 30 days. Under the gross method the journal entries are as follows:

To record the sale.

(1)	Accounts Receivable	$100.00	
	Sales		$100.00

To record payment within the discount period.

(2)	Cash	$ 98.00	
	Discount on Sales	2.00	
	Accounts Receivable		$100.00

To record payment after the discount period.

(3)	Cash	$100.00	
	Accounts Recievable		$100.00

If the net method be adopted the following entries are required.

To record the sale.

(4)	Accounts Receivable	$ 98.00	
	Sales		$ 98.00

To record payment within the discount period.

(5)	Cash	$ 98.00	
	Accounts Receivable		$ 98.00

To record payment after the discount period.

(6)	Cash	$100.00	
	Accounts Receivable		$ 98.00
	Discounts on Sale Not Taken		2.00

Only discounts actually taken by customers are recorded under the gross method while only those not taken are recorded under the net method. Under neither method is there a record of discount offered. This information can be provided by the following procedure (using the same transactions data):

To record the sale.

(7)	Accounts Receivable	$100.00	
	Sales		$ 98.00
	Discount on Sales Offered		2.00

To record payment within the discount period.

(8)	Cash	$ 98.00	
	Discount on Sales Taken	2.00	
	Accounts Receivable		$100.00

To record payment after the discount period.

(9)	Cash	$100.00	
	Accounts Receivable		$100.00

What is the nature of Discount on Sales under the gross method? Since the new asset received as a result of the sale is cash in the sum of $98.00 it follows that the increase in gross proprietorship is $98.00. But this increase we enter in the sales account, a subdivision of proprietorship. The original credit to Sales of $100.00 is, therefore, the maximum increase that can result from the sale. But it will be only $98.00 if the customer elects to pay within the discount period. It follows that the $100.00 credit to Sales is tentative only and will become definitive upon payment by the customer. Consequently gross operating income arising from this transaction is $98.00 if the discount is taken, $100.00 if it is not taken. Discount on Sales is therefore a valuation account. In it are accumulated decreases in Sales (the dollar measure thereof, not quantities of goods or services) arising from the lower of the two offered prices having been taken by the customer. In the income statement the data would appear as follows:

Sales—Gross	$15,000
Discount on Sales	175
Sales—Net	$14,825

What is the nature of Discount on Sales Not Taken under the net method? Observe that Accounts Receivable and Sales were both increased by the minimum amount of cash that might be paid by the customer in settlement of his purchase. Only if he failed to elect the lower price and made payment after the termination of the discount period would the larger sum be paid. When this happens the dollar measure of the new asset (cash) acquired is $100.00. This is the higher of the two prices and is the sum of the minimum price and the discount. The resulting increase in gross proprietorship is $100.00 the sum of the amount ($98.00) credited to Sales and the amount ($2.00) credited to Discounts on Sales Not Taken. The last named account is therefore a valuation account since in it are accumulated those increases in gross proprietorship arising from sales transactions but resulting from the separate recording of two elements in the higher price asked in a two price arrangement. In the income statement the data would appear as follows:

Sales—Net of Discount Not Taken	$12,800
Discounts on Sales Not Taken	210
Sales—Net of Discounts Taken	$13,010

Under the third method two discount accounts are used. Consider first Discount on Sales Offered. When the journal entry recording the sale is set up two results are possible: the account receivable may be settled for $98.00 or for $100.00. In the former case Discount on Sales Offered turns out to be a valuation account applicable to receivables; i.e., the net difference between the two accounts, Accounts Receivable and Discounts on Sales Offered would have been the best estimate of the amount of cash to be received from the customer. In the latter case Discount on Sales Offered turns out to be a valuation account applicable to Sales since the sum of these two accounts would have been the best estimate of cash to be received from the customer. Discount on Sales Taken is a valuation account applicable to Discount on Sales Offered since in it are accumulated items each of which is a reduction of Discount on Sales Offered. Income statement presentation is as follows:

	Sales—Net of Discount Offered	$ 9,800
Add:	Discount on Sales Offered	200
	Sales—Gross	$10,000
Deduct:	Discount on Sales Taken	95
	Sales—Net	$ 9,905

Or, as an Alternative:

	Sales—Net of Discounts Offered	$ 9,800
Add:	Discount on Sales Offered but Not Taken	105
	Sales—Net	$ 9,905

Is one of these methods the "best"? This question of choosing one procedure among several occurs again and again in accounting. It may be answered as follows: So long as the data are collected and assembled on a sound statistical basis consistent with the nature of the reporting enterprise's operations that method or procedure should be selected which yields the most useful information to the users of the data. Since the collecting and assembling of data involves some cost it is usual to compare the value of the results with the cost of obtaining them. These last two statements should be in the foreground of the accountant's thinking at all times.

Freight-Out. As a convenience to customers a seller will frequently accommodate by advancing payment of freight. The amount may be added to the invoice total and credited to Sales or set up in an account Freight-Out. Illustrations follow:

Accounts Receivable	$1,550	
Sales		$1,550
Accounts Receivable	$1,550	
Sales		$1,400
Freight—Out		150

In the first case Sales is overstated by $150. Therefore $150 of the debit total in the Freight-Out is a valuation account applicable to sales. Under these conditions two accounts should be maintained for freight-out; one for accommodation payments subsequently to be collected, the other for payments to be born by the seller. The former would appear in the income statement thus:

Sales—Including Freight—Out	$18,900
Freight—Out	1,200
Sales—Net	$17,700

In the alternative (the preferred) method the credits to

Freight-Out should be exactly offset by payments to carriers.

Time Series and Income Measurement.—Credit Sales. In Chapter 5 time series were illustrated and used in demonstrating the relationship between cash movements and income and cost or expense. Once again this concept will be helpful in understanding the problem, and the solution of the problem, of measuring gross operating income. Let us assume that an enterprise does all of its selling on a credit basis. There are no sales for cash. Assume also that sales are recorded gross of cash discounts but net of freight-out. To the extent that transactions have been recorded, net sales for any period will be the algebraic sum of the following amounts: gross sales, discount on sales, returned sales, allowances on sales, accounts receivable known to be uncollectible. Furthermore the same algebraic sum less the balance of accounts receivable at the end of the period will equal cash received during the period from the sales made during the period. But the most meaningful measure of net sales, i.e., gross operating income is the total cash which *ultimately will have been received as collections from sales of a period regardless of when the receipt actually occurs.* It follows that in measuring gross operating income for a period it is necessary to estimate cash yet to be received from sales of the period in question. This is done indirectly by estimating the additional discount on sales, returned sales, allowances on sales and uncollectible accounts which will ultimately result from that period's sales. These relationships may be set out schematically as follows:

(A)		(B)
Net Sales For a Period	= Cash	Ultimately to be Received as Collections From Gross Sales of That Same Period.

(A)		(C)
Net Sales For a Period	=	Gross Sales For The Same Periods less Returned Sales (Actual + Estimated), Allowances on Sales (Actual + Estimated), Discounts on Sales (Actual + Estimated), and Uncollectible Accounts (Actual + Estimated)

Since (A) = (B) and (A) = (C), (B) = (C). Consequently the best estimate of Net Sales For a Period *is* the best estimate of cash ultimately to be received from those sales and therefore of gross operating income of the period. The latter clearly consists of cash received during the period from sales made during the same period plus cash received after the end of the period from such sales. This may be illustrated as follows:

Let S_1, S_2, S_3, etc. represent the net sales of periods numbered 1, 2, 3, etc. Let $S_1 = C_1 + C_{a_i}$, $S_2 = C_2 + C_{a_i}$, $S_3 = C_3 + C_{a_i}$ etc. where C_1 equals cash collected in period 1, C_2 cash collected in period 2, and C_{a_i} cash collected in the ith period from sales made in the ath period. Thus C_{1_3} is the cash collected in the third period from sales made in the first period. Setting up time series we have:

Period	1	2	3	4	5
Net Sales	S_1	S_2	S_3	S_4	S_5
Cash Receipts	C_1	$C_2 + C_{1_2}$	$C_3 + C_{1_3} + C_{2_3}$	$C_4 + C_{3_4}$	$C_5 + C_{3_5} + C_{4_5}$

Observe that the cash collected from sales made in the first period was received in part in the same period, in part in the next following period and in part in the second following period. To repeat: our problem is to estimate net sales for a period by making the most probable estimate of the total cash which ultimately will have been collected from such sales *without regard to the time distribution of such receipts.* An illustration follows.

Illustrative data.

Ledger Account Balances	Debit	Credit
Gross Sales for the period		$100,000
Allowances on Sales	$ 200	
Returned Sales	500	
Discount on Sales	800	
Uncollectible Accounts Written Off	400	
Accounts Receivable	19,800	

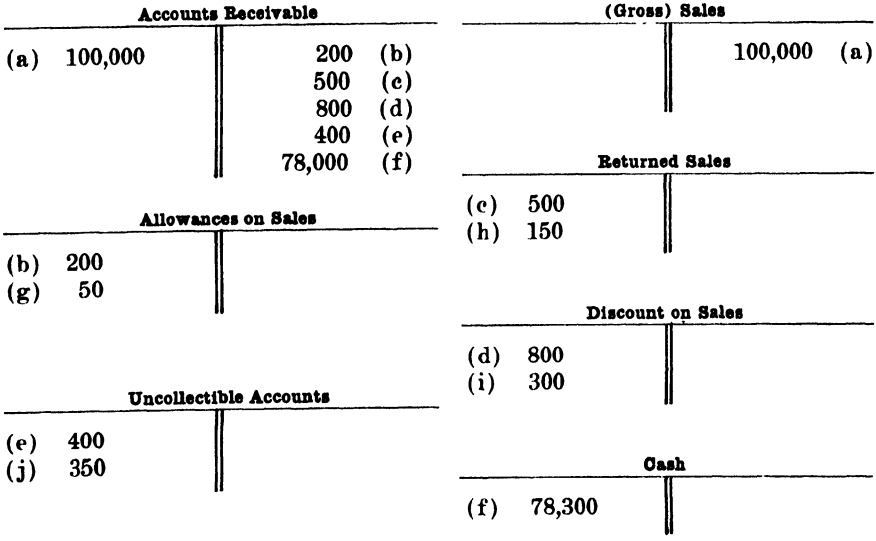
Additional information obtainable from the record of other enterprises engaged in the same activity.

	Per Cent of Gross Sales
Allowances on Sales	0.25%
Returned Sales	0.65%
Discount on Sales	1.10%
Uncollectible Accounts	0.75%

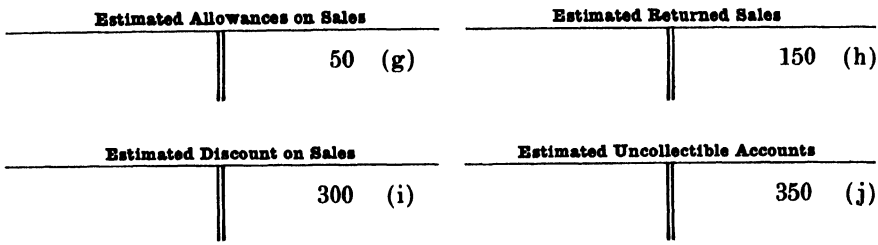
A comparison of actual with what may be expected based on historical experience follows:

	Expected or Estimated	Per Books	Excess of Estimated Over Per Books
Allowances on Sales	$ 250	$ 200	$ 50
Returned Sales	650	500	150
Discount on Sales	1,100	800	300
Uncollectible Accounts	750	400	350
	$2,750	$1,900	$ 850

The items in the right hand column above are estimates of the dollar measure of transactions which are expected to occur and arising out of sales already made. Thus far in our analysis no provision has been made for dealing with such items. To this problem we now turn. As a first step let us set up, in summary form, all entries in the ledger accounts whose balances are listed above. The related elements in each entry (equation) are identified by lower case letters in parentheses.



If our estimates are accurate Accounts Receivable will be further reduced by $850 and Allowances on Sales, Returned Sales, Discount on Sales, and Uncollectible Accounts increased by $50, $150, $300 and $350, respectively. Since we are dealing with estimates and not with actual events the valuation account is resorted to and we set up such accounts as follows:



To these accounts which are valuation accounts applicable to Accounts Receivable, and their companion accounts which

are valuation accounts applicable to Gross Sales are posted the following entries:

(g)	Allowances on Sales	$ 50	
	Estimated Allowances on Sales		$ 50
(h)	Returned Sales	$150	
	Estimated Returned Sales		$150
(i)	Discount on Sales	$300	
	Estimated Discount on Sales		$300
(j)	Uncollectible Accounts	$350	
	Estimated Uncollectible Accounts		$350

The foregoing entries are the first we have met of a type known as adjusting entries. They are of a class or type set up to adjust the accounts by amounts which provide for the results of events yet to occur but which the history of business enterprise operations shows will certainly occur. Furthermore all of them arise out of transactions which have taken place and have been recorded. They always involve estimates. Closely associated with them is another class called correcting entries. These will be illustrated and discussed in Chapter 12.

From the foregoing data are prepared the following portions of the income statement and balance sheet, respectively.

Gross Sales		$100,000
Less:		
Allowances on Sales	$ 250	
Returned Sales	650	
Discount on Sales	1,100	
Uncollectible Accounts	750	2,750
Net Sales		$ 97,250
Accounts Receivable		19,800
Less:		
Estimated Allowances on Sales	$ 50	
Estimated Returned Sales	150	
Estimated Discount on Sales	300	
Estimated Uncollectible Accounts	350	850
		$ 18,950

The reported net sales are $97,250. An examination of the cash account shows that of this amount $78,300 has already been collected from customers. The balance sheet shows $18,950 yet to be collected. The sum of the last two amounts is $97,250, the reported net sales. Reported net sales and ultimate cash collections will differ for two reasons: (1) errors (not mistakes) in estimates, (2) failure to make any estimates. The latter

reason is quite common on the ground that the improved accuracy of results is not worth the cost of getting it. Actually, once the historical time series of percentages has been started it is easily maintained and the improved accuracy of estimates would seem to be of especial value to the owner-manager of the small enterprise where cash forecasts are rarely prepared.

Adjustment of Estimated Income From Credit Sales. The illustration in the preceding section covered the first period in the life of an enterprise. During the next period all the sales transaction events started in the first period will have been completed. All collectible accounts receivable will have been converted into cash, the uncollectible written off, additional discounts taken, allowances granted and returns permitted. But it is highly improbable that the dollar measure of each of these items will just equal the estimates. How shall the difference between actual and estimated be handled in the accounts? The answer to this question is presented in what follows. Let us first set out all the relevant data.

	Estimates Recorded in Valuation Accounts	Actual During Second Period	Over Estimates	Under Estimates
Allowance on Sales	$ 50	$ 35	$ 15	
Returned Sales	150	170		$ 20
Discount on Sales	300	140	160	
Uncollectible Accounts	350	410		60
	$850	$755	$175	$ 80

Allowances on Sales and Discount on Sales were overestimated. This means that for the first period, the period in which the sales were made and with reference to which gross operating income was being measured, there was an underestimate of gross income. Gross sales had been reduced by $50 and accounts receivable by a like amount to provide for allowances which it was estimated would have to be made in the second period with reference to sales made in the first period. If allowances of $50 had been made $50 less cash would have been collected from customer debtors. But only $35 of Allowances were made. Therefore cash collected from customer debtors was $15 greater than had been estimated. Consequently net sales was larger by $15 than had been estimated and a like amount of increase in proprietorship resulting from enterprise activity had taken place. Although this increase occurred during the second period it arose out of sales transactions of the first

period. The result of first period operations are summarized in the Income and Expense Account and the net income or loss transferred to Proprietorship or to the Account, Retained Income. Consequently the adjustment of the valuation account Estimated Allowances on Sales must be to Retained Income or to Proprietorship. The foregoing analysis applies also to Discount on Sales. Except for the algebraic sign of the difference it applies as well to Returned Sales and Uncollectible Accounts.

The relevant accounts appear as follows:

Cash

Balance	14,210		
(2)	19,045		

Accounts Receivable

Balance	19,800	410	(1)
		140	(1)
		35	(1)
		170	(1)
		19,045	(2)
	19,800		

Retained Income

(3)	60	Balance	4,750
(4)	20		15 (4)
			160 (4)

Estimated Uncollectible Accounts

(1)	410	Balance	350
			60 (3)
	410		40

Estimated Discount on Sales

(1)	140	Balance	300
(4)	160		
	300		300

Estimated Allowances on Sales

(1)	35	Balance	50
(4)	15		
	50		50

Estimated Returned Sales

(1)	170	Balance	150
			20 (3)
	170		170

A net income of $4,750 for the first period is assumed. Similarly a cash balance of $14,210 is assumed. The remaining accounts show the balances at the beginning of the second period resulting from the estimates made in measuring gross operating income for the first period. The journal entries follow:

(1)	Estimated Uncollectible Accounts	$ 410	
	Estimated Discount on Sales.....	140	
	Estimated Allowances on Sales.....	35	
	Estimated Returned Sales	170	
	Accounts Receivable		$ 755
(2)	Cash	$19,045	
	Accounts Receivable		$19,045
(3)	Retained Income	$ 80	
	Estimated Uncollectible Accounts...		$ 60
	Estimated Returned Sales		20
(4)	Estimated Allowances on Sales.....	$ 15	
	Estimated Discount on Sales.....	160	
	Retained Income		$ 175

For the purposes of exposition each adjustment is entered in Retained Income. In practice a new account would be established titled Net Income Adjustments—Year and the net adjustment only entered in Retained Earnings. All four of the estimate accounts now show zero balances. The gross operating income for the first period can now be definitely measured. Every sale transaction made in the first period has been completed in all respects. Final figures are now available which will show gross sales, each class of deduction from gross sales, and the corresponding reduction from customer accounts receivable. The results are summarized below:

Gross Operating Income—First Period

Gross Sales				$100,000
Reductions of Gross Sales:				
	Which Took Place During			
	First Period	**Second Period**	**Total**	
Allowances on Sales....	$ 200	$ 35	$ 235	
Returned Sales	500	170	670	
Discount on Sales	800	140	940	
Uncollectible Accounts...	400	410	810	
	$1,900	$755	$2,655	2,655
Net Sales				$ 97,345

Represented by new assets in the form of

Cash collected in first period.....	$78,300	
Cash collected in second period.....	19,045	$97,345

Once again it is evident that the gross operating income of a period is definitively and conclusively measured when all the

cash which is collectible from the sales made in that period has been collected. At this point the reader might, with advantage, read again the last three sections of Chapter 5.

Time Series and Income Measurement—Cash Sales. As was mentioned on page 57 of Chapter 5 the problem of measuring gross operating income from cash sales involves the question of estimates. In this case, however, only allowances on sales and returned sales are involved. In the preceding illustration the two valuation accounts Estimated Allowances on Sales and Estimated Sales were applicable to Accounts Receivable. In the present case the estimates will be valuation accounts applicable to cash since for a cash sale a return of merchandise or allowance on price will require a disbursement of cash. Hence if an enterprise sells both for cash and on credit we will need the following valuation accounts: Estimated Allowances on Credit Sales, Estimated Returned Credit Sales, Estimated Allowances on Cash Sales and Estimated Returned Cash Sales. The latter two accounts are in the nature of contingent liabilities. They will become realities dependent on customer action in requesting a price concession for whatever reason or returning the merchandise. Their dollar measure is an overstatement of cash receipts resulting from cash sales *which the enterprise will retain.* They should therefore properly be shown on the balance sheet as a valuation accounts reducing cash. Unless a separate reporting of cash sales and credit sales is required there is no need for two accounts for Allowances on Sales and Returned Sales.

In those cases in which sales are made on credit and evidenced by a series of notes or in which the seller guarantees performance of his product for a specified period from date of sale additional problems arise in the estimating of gross income. Their discussion will be deferred to Chapter 11 where the general problem of instruments of finance and their use will be taken up.

Time Series and Income Measurement—Rental Income. Thus far we have considered the cases in which cash was received when the sale was made and that in which the cash was received in a period subsequent to that in which the sale was made. There remain two additional cases: (1) that in which the enterprise lets someone use property (other than money or monied funds) and collects a rental at stated intervals and, (2) that in which a deposit against rental is received in advance of rendering the service.

Consider the first situation and assume that the lessor receives $500 rental per month, payable quarterly. Assume further that the quarterly payments are due on March 1, June 1, September 1, and December 1, and that the lessor's fiscal year ends on December 31st. The last quarterly payment for the months of September, October, and November was received December 1st. At December 31st the lessor has a claim against the tenant for $500 for the use of the premises. The service has been rendered to the tenant and there has come into being an account receivable of $500. Note that no voucher of any kind has passed between landlord and tenant. Nevertheless a new asset exists and its measure ($500) is the measure of additional gross income. The following entry will suffice:

Accrued Account Receivable	$500	
Rental Income		$500

The adjective "accrued" is here used to identify the account receivable as having emerged from a continuing relationship, usually evidenced by a written agreement calling for periodic payments on dates, none of which coincides with the closing date of the selling or lessor enterprise's fiscal year, or some subdivision thereof. Here we have the case of the service rendered in one period and all of the cash received in a subsequent period. In terms of time series relationships the recognition of income leads cash receipts or the latter lags the former. In the instant case gross income from rentals will exceed cash received from rentals services, rendered in the same period, by $500. Observe that this situation is identical in all particulars to a sale on account, except for the fact that the latter is evidenced by some kind of voucher prepared at the time and representing the sale in question.

The second situation mentioned above may be illustrated by the case of a lessor who receives rental payments, quarterly, in advance. Assume such a payment to have been received December 1st and the lessor's fiscal year to end on Decembre 31st. Let $500 per month be the monthly rental. A receipt of rentals three months in advance on December 1st would be recorded as follows:

Cash	$1,500	
Rentals Received in Advance		$1,500

The account Rentals Received in Advance is a liability account. The lessor enterprise has received $1,500 for which it must in turn render $1,500 of services to the tenant. As these services

are made available day by day, gross income is both earned and realized. Thus the $1,500 Rentals Received in Advance gradually becomes an increase in gross proprietorship. So at December 31st the following entry would be made:

Rentals Received in Advance	$500	
Rental Income		$500

Most liabilities call for the payment of money. Rentals Received in Advance is however one of the type of liability requiring the rendering of a service other than the payment of money. Because of this fact such items as Rentals Received in Advance are frequently called deferred income. This is unfortunate both because they are liabilities, not income, and because the words "deferred income" represent a contradiction. Of its nature income cannot be deferred. Since income is an increase in gross proprietorship whose magnitude is the dollar measure of new assets resulting from a service rendered or merchandise sold, the notion of deferment is a contradiction in terms. What is *deferred* is the recognition of an increase in gross proprietorship as gross income, until the services have been rendered.

Working papers have been prepared to further illustrate the principles set forth in this chapter.

Work Sheet or Working Papers

Illustrating the Measurement of Gross Operating Income for a Period

	Partial Trial Balance			Adjustments		Partial Income & Expense		Partial Balance Sheet	
	Dr.	Cr.		Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Gross Sales		100,000					100,000		
Allowances on Sales	200		(a)	50		250			
Returned Sales	500		(b)	150		650			
Discount on Sales	800		(c)	300		1,100			
Uncollectible Accounts	400		(d)	350		750			
Accounts Receivable	19,800							19,800	
Estimated Allowances on Sales					(a) 50				50
Estimated Returned Sales					(b) 150				150
Estimated Discount on Sales					(c) 300				300
Estimated Uncollectible Accounts					(d) 350				350
	21,700	100,000		850	850	2,750	100,000	19,800	850

Proof of Arithmetic:

$$21{,}700 + 850 = 2{,}750 + 19{,}800$$
$$22{,}550 = 22{,}550$$
$$100{,}000 + 850 = 100{,}000 + 850$$
$$100{,}850 = 100{,}850$$

CHAPTER 9

The Measurement of Periods Costs or Expenses – Cash and Non – Cash Basis Operations

Introduction. In our analysis of the problem of measuring gross operating income where operations are conducted on both a cash and credit basis we discovered that three, and only three time relationships could possibly exist between the recognition of gross income and the receipt of cash, namely:

(1) Gross income recognized in a period prior to the one in which cash is received.

(2) Gross income recognized in the same period as that in which the cash is received.

(3) Gross income recognized in a period subsequent to the one in which cash is received.

In a similar fashion costs or expenses for a period may lead, be coincident with, or lag the related cash disbursement. This relationship is further complicated by the fact that many service sources may be acquired in advance of use, stored, and payment therefore spread over several periods. In view of this fact the problem of measuring costs or expenses for a period will be approached in terms of the storability of the service or service source.

Before attacking this problem, however, some preliminary comments are in order. The *earning* of gross income, the reader will recall, takes place over time. A long series of events is involved, through which, stage by stage, is reached the rendering of a service and, finally, the receipt of cash for it. The particular event, whose occurrence, or the particular stage, whose attainment, is the conventional signal for recognizing and recording gross income, is the sale. The long series of events involved in this process is made possible only by the consumption of services. The dollar measures of these consumed services are costs or expenses. When we speak of costs or expenses *for a period* we mean the dollar measure of the services consumed in order to *obtain* the gross income *of that same period* regardless of when the services were consumed. This dollar measure of services consumed is computed by measuring the number of units of service consumed and multiplying by the unit purchase price.

With respect to many services the number of units consumed is assumed to be equivalent to the number of units of the service source consumed. This is true, for example, in the case of supplies of all kinds and of merchandise inventory or stock in trade. The measurement of the cost of services consumed, where the services are yielded by long lived sources, presents a really formidable problem. Its practical solution will be presented in Chapter 17.

Non-Inventoriable Services. Our problem, then, is to obtain the dollar measure of services consumed in getting the gross income of a period. We will consider first the type of service which cannot be stockpiled in practicable quantities or which cannot be stockpiled at all. Consider first the consumption of electric current for heating and lighting. Assume that, for a period, $95 has been paid for electric current consumed and meter reading and applicable tariff show that an additional $28 worth of current has been consumed but not yet paid for. Observe that payment of the $28 may not have been made because an invoice has not yet been received from the utility company. Or the invoice may have been received and not yet paid because the cash disbursements procedure of the enterprise calls for payment subsequent to the period in which the electricity was consumed. One or the other of these reasons is applicable in all such situations.

The payment of the $95 would be recorded as follows:

(a)	Heat and Light	$95.00	
	Cash		$95.00

The additional $28 worth of services consumed but not paid for is recorded thus:

(b)	Heat and Light	$28.00	
	Accrued Accounts Payable		$28.00

Ledger Accounts follow:

Heat and Light

(a)	95		
(b)	28		

Cash

			5 (a)

Accrued Accounts Payable

			28 (b)

Accrued Accounts Payable is a liability account. In such an account are recorded amounts owing for services consumed

and not yet paid for. As will be made clear shortly in it are also recorded sums owing for service sources acquired and not yet paid for. The adjective accrued indicates that the enterprise has received the services or service sources and either has not received the invoice covering them or if it has received the invoice has not yet recorded it. If the invoice has been recorded the word accrued would have been omitted from the account title.

As regards the related leads and lags of cash disbursements only two situations commonly exist for this type of service, payment for and consumption of the services occur in the same period or payment is made in a subsequent period. Although cash could be disbursed in advance of receipt and consumption of services this is rarely done. In the rare case, the amount of such advance is properly recorded as a non-trade account receivable.

Supplies. The second type of service is that yielded by service sources which must be consumed to get the service. Oil for heating purposes illustrates this situation. A third type is that whose consumption, while it does not require the destruction of the service source, makes it unavailable for further use. Ledger sheets and stationery are examples. Both these types may be acquired in advance of use and stored. A problem at once presents itself for resolution. Upon acquisition and until consumed such service sources obviously are assets. When consumed they are costs or expenses. Shall the initial recording be classified as an asset or as an expense? In economic reality the sequence of stages is asset, expense. Conventionally the solution depends in part upon the dollar measure of the quantities consumed in a period and in part upon the dollar measure of the quantities on hand, on the average, throughout the period. Where the quantities are large or the management desires tight control over expenses initial classification is an asset, otherwise is an expense.

Assume that during a period $1,250 has been paid for stationery, that stationery on hand at the beginning of the period amounted to $175, that stationery purchased and received but not paid for, amounted to $140 and that $210 of stationery is on hand at the end of the period. Initially classifying such purchases as an asset would require the following entries and ledger accounts:

(1)	Stationery	$1,250	
	Cash		$1,250
(2)	Stationery	$ 140	
	Accrued Accounts Payable		$ 140
(3)	Stationery Expense	$1,355	
	Stationery		$1,355
(4)	Profit and Loss	$1,355	
	Stationery Expense		$1,355

Stationery

Balance	175		1,355 (3)
(1)	1,250	Balance	210
(2)	140		
	$1,565		$1,565
Balance	210		

Cash

	1,250 (1)

Accrued Accounts Payable

	140 (2)

Stationery Expense

(3)	1,355		1,355 (4)

Profit and Loss

(4)	1,355		

The total of the debit (plus) side of the Stationery account discloses that $1,565 of stationery must be accounted for. The sum of $210 worth is on hand at the end of the period. The difference $1,355 worth, has been used up during the period. This latter amount is therefore transferred from Stationery, an asset account, to Stationery Expense, an expense or cost account. For purposes of classification in this illustration the Stationery account is balanced, ruled, and the balance on hand separately listed as the starting datum for the next period. This formality need not be followed and, for periods shorter than one year, is conventionally not followed.

The nature of Accrued Accounts Payable has already been explained. Stationery Expense will be closed into Profit and Loss or Income Account and will, of course, appear in the detailed income statement. The other three accounts will appear in the balance sheet.

Using the same data let us assume that all acquisitions of stationery are directly classified as expense. The following entries and accounts will be necessary.

During the period

(1)	Stationery Expense	$1,250	
	Cash		$1,250

At the end of the period

(2)	Stationery Expense	$ 140	
	Accrued Accounts Payable		$ 140
(3)	Stationery	$ 210	
	Stationery Expense		$ 210
(4)	Profit and Loss	$1,355	
	Stationery Expense		$1,355

At the beginning of the next period

(5)	Stationery Expense	$ 210	
	Stationery		$ 210

Stationery Expense

Balance	$ 175		$ 210 (3)
(1)	1,250	Profit &	
(2)	140	Loss	$1,355 (4)
	$1,565		$1,565
(5)	210		

Cash

	$1,250 (1)

Accrued Accounts Payable

	$ 140 (2)

Stationery

(3)	$ 210		$ 210 (5)

Profit and Loss

(4) Stationery $1,355	

In this case it is the total of the debits in Stationery Expense which represents the total to be accounted for. Just as in the first illustration there is a reclassification. In the former the transfer was from a primary classification as an asset to an expense, in the latter case just the reverse. In both cases the primary classification resulted in what is called a "mixed" account, i.e., one which contains asset and expense at the end of a period and, in fact, throughout most of the period. In the first case the initial classification was as an asset. As soon as some stationery is used the account contains the remaining asset value and the expense. In the second case, although all acquisitions were classified as expense, the account represented some asset value.

As between these methods there is no basis for choice save the number of entries required. One fairly well skilled in accounting can eliminate much of the detail by means of working papers. For the beginner, however, one of these two procedures should be followed. A careful study of them will enable the reader to understand short cuts when they are proposed.

Circumstances may exist which require no adjustments at all. If the dollar amount of inventory of unused supplies of any kind is relatively inconsequential in relation to the dollar amount used up during a period, the entire amount of the purchases is treated as an expense. In this situation all debits are initially to Stationery Expense. Their total is transferred to Profit and Loss. The only limitation to such practice is this: the *total* of the inventories of all supply items should not be significant in relation to the dollar amount consumed. The meaning of significant is just this: the failure to allow for the inventory would not mislead a reader of the statements. A reader of financial statements is misled if he draws one set of conclusions when an item is excluded and a different set when it is included. The risk of so misleading a reader of statements can always be avoided, so far as supplies inventories are concerned, by including them.

Here again services are consumed for which cash is disbursed in the same period and for which cash is disbursed in a subsequent period. In addition a stockpile of unconsumed service sources (supplies) is on hand at the end of a period. This may actually consist, in part, of supplies paid for and, in part, of supplies not paid for. The distinction is meaningless as far as supplies is concerned because, in the attempt to measure costs or expenses for a period, we are concerned only with accounting for the cost of supplies consumed in the period. But to make this determination it is necessary to account for all the supplies acquired and to be accounted for, *whether paid for in the same period or not.* The solution to the problem of supplies consumed automatically yields all the information concerning inventory of supplies on hand at the end of a period and the amounts yet to be paid for any of them.

Merchandise. The nature of the problem of determining the cost of merchandise consumed, i.e., sold to customers is not fundamentally different from that relating to supplies. Certain differences in treatment are practiced for two reasons: (1) for manufacturing, wholesale, and retail enterprises merchandise is one of the most important assets in terms of dollars invested, and (2) price fluctuations are usually taken into account in determining the dollar measure of merchandise sold. The impact of price changes on cost measurement will be discussed at length in Chapter 15. In the present discussion it will be assumed that all entries in the accounts represent historical costs.

Suppose, then, that at the beginning of a period an enterprise has on hand merchandise of $15,000, that it buys $80,000 of it during the period for which it has paid in full, that an additional $7,500 worth has been received but not paid for, and that the amount on hand at the end of the period cost $18,000. These facts would appear in the records as follows;

(1)	Merchandise Purchases	$80,000	
	Cash		$80,000
(2)	Merchandise Purchases	7,500	
	Accounts Payable		7,500
(3)	Merchandise Purchases	15,000	
	Merchandise Inventory		15,000
(4)	Merchandise Inventory	18,000	
	Merchandise Purchases		18,000
(5)	Cost of Merchandise Sold	84,500	
	Merchandise Purchases		84,500
(6)	Profit and Loss	84,500	
	Cost of Merchandise Sold		84,500

Merchandise Inventory

Balance	15,000	15,000	(3)
(4)	18,000		

Cash

		80,000	(1)

Merchandise Purchases

(1)	$80,000	18,000	(4)
(2)	7,500	84,500	(5)
(3)	15,000		
	$102,500	$102,500	

Accounts Payable

		7,500	(2)

Cost of Merchandise Sold

(5)	$84,500	$84,500	(6)

Profit and Loss

(6)	$84,500		

In this situation the Merchandise Inventory Account is a mixed Account except momentarily at the end of one period and the beginning of the next. Merchandise Purchases is also a mixed account after the first sale of any merchandise whose cost has entered the account. It should be evident that all acquisitions of merchandise are initially classified as assets. The account Cost of Merchandise Sold may be eliminated and the amount involved transferred directly to Profit and Loss. Choice of method will hinge on the extent of formalized detail desired.

Once again we are dealing with time series data and the

related leads and lags. Payments made for merchandise in advance of shipment constitute an asset properly named Advances and should so be set up in the records. The remarks in the last paragraph of the preceding section about leads and lags apply in full to merchandise.

Long-lived Assets and Depreciation. There remains to be discussed the treatment of service sources which are not physically consumed in the process of utilizing the services which they yield and which yield services through many periods. At this stage of our analysis a minimum treatment will be presented, a more detailed investigation being reserved for Chapter 15.

Assume that the furniture and fixtures in a retail store cost $10,000 and that it is estimated that they will last for ten years. Then, if the extent of use be approximately constant from year to year, we may say that about $1,000 worth of the services yielded by them are consumed each year. Such expense is called depreciation. Journal entries and ledger accounts are set up for the first two years using the foregoing facts.

First Year			
(A)	Furniture and Fixtures.....	$10,000	
	Cash		$10,000
(B)	Depreciation Fur. & Fixtures.....	1,000	
	Allowance For Depreciation.....		1,000
	Furniture and Fixtures		
(C)	Profit and Loss	1,000	
	Depreciation—Fur. & Fixtures....		1,000
Second Year			
(D)	Depreciation—Fur. and Fixtures...	1,000	
	Allowance for Depreciation.....		1,000
	Furniture and Fixtures		
(E)	Profit and Loss	1,000	
	Depreciation—Fur. & Fixtures...		1,000

Furniture and Fixtures

(A)	10,000		

Cash

			10,000 (A)

Depreciation—Furniture and Fixtures

(B)	1,000		1,000 (C)
(D)	1,000		1,000 (F)

Allowance for Depreciation—Fur. & Fix.

			1,000 (B)
			1,000 (D)

Profit and Loss—First Year

(C)	1,000		

Profit and Loss—Second Year

(E)	1,000		

In the case of supplies of all kinds and of merchandise inventory the dollar measure of services consumed, the cost or expense, is a dollar measure of service sources consumed. They were consumed or used up literally in the case of fuel oil, consumed in the sense of not being usable again in the case of stationery, and consumed in the sense of leaving the possession of the enterprise in the case of merchandise. In each of these cases the amounts were so handled in the accounts that, at the end of the period, the balance in the supply or merchandise account did represent a dollar measure of services represented by service sources on hand. A different situation exists for long-lived or fixed assets as they are called. After being in use for many years the service source is still intact. One often hears it said that something is "as good as new." The consumption of services leaves no perceptible change in the physical appearance of the service source. Now if the dollar measure of services consumed were credited directly to the asset account no problem would arise until one or more items were sold. Then the credits in the asset account would consist of two quite different types of items. First would be the credits representing the actual physical disposal of the assets. Secondly would be credits representing, not actual physical disposal, but estimates of the dollars worth of services consumed which were yielded by the service sources still shown as debits in the account, i.e., sources still used and yielding services.

The separation of these two classes of decreases is effected by utilizing a separate account for the second class of credits which are the estimates. The title Allowance for Depreciation means that the sum of the credits must be allowed for in arriving at the dollars worth of services yet to be derived from the related asset. Allowance for Depreciation is a *valuation account.* It is also often called a "contra" account. It is unfortunate that the term was ever used because contra means opposite and has come to mean therefore opposite in algebraic sign. The real significance of the relationship between the two accounts is not at all disclosed by the term as will be made clear in Chapter 17.

Note that the expense account is closed to Profit and Loss at the end of each period while the valuation account remains open so long as any balance remains in the related asset account. In the balance sheet the data would appear as follows at the end of the second year:

Furniture and Fixtures.....	$10,000	
Less: Allowance For Depreciation...	2,000	$8,000

The difference, $8,000, would be included in the asset total. Working papers incorporating these illustrations appear at the end of this chapter.

Discounts, Returns, and Allowances. As a buyer of services and service sources an enterprise may return goods to a supplier, obtain price allowances for defective merchandise and be granted cash discounts for prompt payment of invoices. Conventionally, purchases returns and allowances are entered directly as credits to the appropriate asset or expense account for the reason that a separate classification would serve no useful purpose. The responsibility for delivering good merchandise is the seller's. This is the reason why returns and allowances are separately classified as to sales but not as to purchases.

Discounts on purchases are separately recorded. The reasons why were discussed in Chapter 8 with reference to their counterpart, discount on sales. As in that case three methods are available and the choice rests on the decision as to how much detailed information is desired by management concerning discounts available, taken, and lost.

Assume that a purchase is made of $100 of merchandise on terms of 2%, 10 days, net 30 days. The three methods of recording the facts are illustrated below:

Gross Method

To record the purchase		
Purchases	$100.00	
Accounts Payable		$100.00
To record payment within the discount period.		
Accounts Payable	$100.00	
Cash		$ 98.00
Discount on Purchases		2.00
To record payment after the discount period.		
Accounts Payable	$100.00	
Cash		$100.00

Net Method

To record the purchase		
Purchases	$ 98.00	
Accounts Payable		$ 98.00
To record payment within the discount period.		
Accounts Payable	$ 98.00	
Cash		$ 98.00
To record payment after the discount period.		
Accounts Payable	$ 98.00	
Purchase Discounts Not Taken	2.00	
Cash		$100.00

Combined Method

To record the purchase		
Purchases	$100.00	
Accounts Payable		$ 98.00
Purchase Discounts Offered		2.00
To record payment within the discount period		
Accounts Payable	$ 98.00	
Cash		$ 98.00
To record payment after the discount period.		
Accounts Payable	$ 98.00	
Purchase Discounts Not Taken	2.00	
Cash		$100.00

The reader should note the parallelism between each of these illustrations and its "opposite number" on the sales side as presented in Chapter 8. The entire discussion at that point about a two price system and the nature of the several accounts for discounts is applicable to the foregoing illustrations.

Work Sheet or Working Papers

Illustrating the Measurement of Costs and Expenses for a Period

	Partial Trial Balance		Adjustments			Partial Income & Expense		Partial Balance Sheet	
	Dr.	Cr.	Dr.	Cr.		Dr.	Cr.	Dr.	Cr.
Heat and Light	95		(a) 28			123			
Stationery	1,425		(2) 140	1,355	(3)			210	
Merchandise Inventory	15,000		(IV) 18,000	15,000	(III)			18,000	
Merchandise Purchases	80,000		(II) 7,500	18,000	(IV)				
			(III) 15,000	84,500	(V)				
Furniture & Fixtures	10,000							10,000	
Accrued Accounts Payable				28	(a)				
				140	(2)				168
Stationery Expense			(3) 1,355			1,355			
Cost of Merchandise Sold			(IV) 84,500			84,500			
Depreciation:									
Furniture & Fixtures			(B) 1,000			1,000			
Allowance for Depreciation:									
Furniture & Fixtures				1,000	(B)				1,000
	106,520		127,523	120,023		86,978		28,210	1,168

Proof of Arithmetic:

$$106{,}520 + 127{,}523 - 120{,}023 = 86{,}978 + 28{,}210 - 1{,}168$$
$$114{,}020 = 114{,}020$$

CHAPTER 10

Instruments of Finance — Gross Financial Income — Distribution of Income

Instruments of Finance. One consequence of credit granting has already been observed in the measurement of gross operating income where sales are made on account. In such cases no formal written promise to pay is signed by the buyer. Another vastly important area of credit granting is that involving loans by financial institutions. Some of these loans are made directly by the lending institution to the borrower; others through a third party. To facilitate such transactions three broad classes of financial instruments have been developed —promissory notes, drafts, and bonds.

Promissory notes may arise out of direct borrowing operations by a person or enterprise. Two parties are involved, the maker of the note (the borrower) and the payee. Promissory notes may also be required of a buyer by a seller either because the seller is not satisfied with the buyer's open account credit rating or because an open account balance has become past due.

Drafts, trade acceptances and bills of exchange although serving different purposes all require three names, a drawer, a drawee, and a payee. Drafts may be drawn by one business enterprise (other than a bank) upon another such enterprise or upon a bank. In the latter case the draft is a check. In the former case it is a trade acceptance if it involves certain commodities and if it satisfies other requirements. A trade acceptance is readily discounted by the Federal Reserve Banks. A banker's draft is drawn by one bank upon another bank. Bills of exchange involve persons or enterprises in different countries.

Bonds are issued by businesses organized under the corporate form and by governmental units of all kinds, federal, state, county, city, school district, irrigation district, reclamation district, etc. In most cases the buyer of the bond, who is the lender, is protected by a mortgage on some or all of the business corporation's assets. The buyer of a government bond is protected by the political subdivision's power to tax. The total borrowed at any one time under a specific mortgage is referred to as the amount of an issue. Individual lenders buy the bonds in multiples of units of $100, or $1,000. The lender's

rights, etc., are set out in the instrument called the bond indenture. Interest on such loans is paid some times by check in which case the bond is registered in the name of a specified owner, sometimes by coupon. In the latter case all the coupons covering all interest to be paid until the bond is redeemed by the borrower are attached to the bond. Each interest coupon is a promissory note.

Promissory Notes Payable. The X Company borrows $10,000 on a six months note with interest at the rate of 8% per annum to be paid at maturity. The entries follow:

When the loan is made.		
Cash in Bank	$10,000	
Notes Payable—Bank		$10,000
At the end of six months.		
Interest on Borrowed Funds.....	150	
Cash		150
Notes Payable—Bank	$10,000	
Cash		$10,000

Assume the same data except that the total interest to be paid was added to the $10,000 and made a part of the amount named in the note. The following entries are in order:

When the loan is made		
Cash in Bank	$10,000	
Interest on Notes Payable—Bank	300	
Notes Payable—Bank		$10,300
At the end of six months		
Notes Payable—Bank	$10,150	
Cash in Bank		$10,150

If an income statement is prepared for a period ending prior to the maturity date of the note the relevant fraction of the interest is transferred to an expense account.

Now assume that the note was for $10,000 and that interest was not called for by the terms of the instruments. The lending bank will "discount" the note, i.e., it will credit the borrower's account with the sum which, at 6% per annum, will grow to $10,000 in six months. The smaller amount is the present value of the $10,000 due in six months and is $9,706.62. The entries follow:

When the loan is made:		
Cash in Bank.....	$ 9,706.62	
Discount on Notes Payable—Bank....	293.38	
Notes Payable—Bank		$10,000.00

At the end of six months:

Interest on Borrowed Funds.....	$ 146.69	
Discount on Notes Payable—Bank..		$ 146.69
Notes Payable—Bank	$10,000.00	
Cash in Bank		$10,000.00

If a note is exchanged for any non-cash asset the latter is the debit in the first entry in each of the three preceding cases. When a note is exchanged for an account payable the latter is the debit in each of these cases. For both situations all the remaining entries are unchanged.

Promissory Notes Receivable. Using the date of the preceding illustrations the entries on the books of the holder of the note would be as follows:

Case I

When loan is made

Notes Receivable	$10,000.00	
Cash or Demand Deposits.....		$10,000.00

At the end of six mnoths

Cash	$ 150.00	
Interest on Notes Receivable.....		$ 150.00
Cash	$10,000.00	
Notes Receivable		$10,000.00

Case II

When the loan is made

Notes Receivable	$10,300.00	
Cash		$10,000.00
Discount on Notes Receivable.....		300.00

At the end of six months

Cash	$10,150.00	
Notes Receivable		$10,150.00

Case III

When the loan is made

Notes Receivable	$10,000.00	
Cash		$ 9,706.62
Discount on Notes Receivable.....		293.38

At the end of six months

Discount on Notes Receivable.....	$ 146.69	
Interest on Notes Receivable.....		$ 146.69
Cash	$10,000.00	
Notes Receivable		$10,000.00

Drafts and Trade Acceptances. For purposes of illustration we will assume that Z Company has an account receivable due from R S Mfg. Co. in the amount of $1,842.98 and that it owes M N Production Company $1,443.87. Z Company draws on the former in favor of the latter a draft for $1,200.00. Entries on the three sets of accounts follow:

Z Company		R S Mfg. Co.		M N Production Co.	
M N Prod. Co. $1,200		Z Company $1,200		Drafts Receivable $1,200	
R S Mfg. Co.	$1,200	Drafts Payable	$1,200	Z Company	$1,200

Z Company has reduced its indebtedness to M N Production Company by way of a payment of $1,200 made by R S Mfg. Co. to M N Production Company. This has reduced R S Mfg. Co.'s indebtedness on open account to Z Company by $1,200 and substituted in its place a debt of $1,200 represented by a draft payable to M N Production Company. The latter now owns a written promise to pay $1,200 signed by R S in place of an open account claim of like amount against Z Company. If for any reason R S refuses to acknowledge the draft by writing on the face thereof accepted, the date, and signing it, no entries will appear on the books of R S and M N and Z will have to reverse the entry made. Customarily Z would not draw up the instrument without prior agreement with R S. Again if M N refused the draft both Z and R S would have to reverse the entries made.

Discounting of Notes and Drafts. A holder of a promissory note or a draft, especially a trade acceptance, will often discount it at his bank. He will exchange the promise to pay him for cash in advance of the due date of the instrument. The bank then becomes the holder of the note or draft which has been endorsed by the party to whom the bank exchanges money for it. The endorser obligates himself to pay if the party primarily liable fails to do so. Thus if A draws on B payable to C and the latter discounts the instrument at his bank he is contingently liable on it. This means that C's liability depends upon the happening of a contingent event, B's failure to pay the instrument when due. In other words C's liability depends upon the happening of an event which may or may not occur. Until B pays the bank, C does not know whether he will have to pay. But the probability, i.e., the chances that he will have to pay are pretty well known from C's and other enterprises' dealings with B.

It is customary to recognize this contingent liability in the accounts. Suppose, for example, that A draws on B in favor of

C in the amount of $1,500. C discounts the drafts at his bank and is credited with $1,480.00. Entries on C's and the bank's books would appear as follows:

C's Books

When draft is discounted		
Cash	$1,480.00	
Discount on Drafts Receivable Discounted	20.00	
Drafts Receivable Discounted		$1,500.00
When draft is paid by B		
Drafts Receivable Discounted	$1,500.00	
Drafts Receivable		$1,500.00
If B fails to pay		
Drafts Receivable Discounted	$1,500.00	
Cash		$1,500.00
A (Accounts Receivable)	$1,500.00	
Drafts Receivable		$1,500.00

Bank's Books

When draft is discounted		
Notes and Discounts	$1,500.00	
C (Cash or Time Deposits)		$1,480.00
Discount on Notes and Discounts		20.00
When draft is paid		
Cash	$1,500.00	
Notes and Discounts		$1,500.00
If B fails to pay		
C (Cash or Time Deposits)	$1,500.00	
Notes and Discounts		$1,500.00

The treatment of the $20 will be discussed in a later section of this chapter. If the draft is paid when due C's claim against B has been fully satisfied and C is thus no longer contingently liable to the bank. The bank has received full repayment of its loan and therefore holds no contingent claim against C. But if B fails to pay, the contingent event has happened and C becomes liable to the bank for the loan. In his turn C's claim against A on open account is restored since B failed to pay the draft drawn on him by A in favor of C. All parties are returned to the status quo ante the drawing of the draft.

Bonds. The record keeping for bonds will be illustrated for bonds payable and for bonds owned. Since a bond is a promissory note it specifies a rate of interest on the principle sum named in the bond and the dates upon which the interest will be paid. The rate thus specified is called the nominal rate because it truly is a rate of interest in name only. When this annual rate is multiplied by the face of the bond the product is the annual amount of money which the issuer will pay the bond holder. If the bonds will be redeemed at face (par) value and are sold at face value the rate named in the bond is the real or effective rate of interest. Then nominal and effective rates are identical. If the bonds are issued at less than face value the effective rate exceeds the nominal rate; if issue price exceeds face value, then the effective rate is less than the nominal rate. Obviously these relationships hold for both the issuer and the owner of the bonds.

Bonds Issued at Par. The X Company issues at par $1,000,000 of 4% bonds on January 15, 1952 interest payable on January 15 and July 15. The bonds are redeemable at par at the end of ten years. The R S Corp. buys $50,000 of these bonds. Appropriate entries follow on the books of issuer and holder.

The X Company's Books

When bonds are issued		
Cash	$1,000,000	
Bonds Payable		$1,000,000
On January 15 and July 15		
Interest on Bonds Payable	20,000	
Cash		20,000
When bonds are redeemed		
Bonds Payable	$1,000,000	
Cash		$1,000,000

R S Corp's Books

When bonds are issued		
Bonds Owned	$50,000	
Cash		$50,000
On January 15 and July 15		
Cash	1,000	
Interest on Bonds Owned		1,000
When bonds are redeemed		
Cash	$50,000	
Bonds Owned		$50,000

Bonds Issued At a Premium. In this case assume that the bonds were issued for $1,005,000. The entries follow:

The X Company's Books

When bonds are issued

(1)	Cash	$1,005,000	
	Bonds Payable		$1,000,000
	Premium on Bonds Payable		5,000

On January 15 and July 15

(2)	Interest on Bonds Payable	$ 20,000	
	Cash		$ 20,000
(3)	Premium on Bonds Payable	$ 250	
	Interest on Bonds Payable		$ 250

When bonds are redeemed

(4)	Bonds Payable	$1,000,000	
	Cash		$1,000,000

R S Corp's Books

When bonds are issued

(I)	Bonds Owned	$ 50,250	
	Cash		$ 50,250

On January 15 and July 15

(II)	Cash	$ 1,000	
	Interest on Bonds Owned		$ 1,000
(III)	Interest on Bonds Owned	$ 12.50	
	Bonds Owned		$ 12.50

When bonds are redeemed

(IV)	Cash	$ 50,000	
	Bonds Owned		$ 50,000

For purposes of reference in the following discussion the revelant ledger accounts are set up on the two sets of books covering the first three entries.

The X Company's Books

Cash

(1)	$1,005,000		20,000 (2)

Bonds Payable

			1,000,000 (1)

Interest on Bonds Payable

(2)	20,000		250 (3)

Premium on Bonds Payable

(3)	250		5,000 (1)

R S Corp's Books

Cash			Bonds Owned		
(II) 1,000		50,250 (I)	(I) 50,250		12.50 (III)

Interest on Bonds Owned		
(III) 12.50		1,000 (II)

Entry (I) on R S's books is related to entry (1) on X's books. This numerical pattern follows in this and in the illustration in the next section.

On X's books when the bonds were issued two separate accounts were set up offsetting the cash received. One of them, Bonds Payable, represents the par or face value of the debt. It is the measure of the legal indebtedness at the time the bonds were issued. Also it is the measure of the *legal* indebtedness at the time, ten years later, when the bonds will be redeemed or paid. The coupon or nominal rate of interest named in the bonds is 4%. But for bonds of this type 4% is somewhat above the rate investors would willingly accept on their investments and pay the par value for them, as evidenced by market rates of interest for investments of this kind. The $5,000 premium is the measure of the effect of this difference between the nominal and the going market rate when applied to all the interest payments that will be made during the life of the bonds. It is therefore the measure of the payment to the issuer by the investors which will equalize the nominal rate and the market rate of interest *at the time the bonds* are issued. Subsequent changes in the market interest rate will have no effect on what happened when the bonds were issued. Such interest rate changes will, however, influence the price at which the bonds are exchanged on a securities market.

The sum of Bonds Payable and Premium on Bonds Payable is the *economic* indebtedness at date of issue. Nominal and market interest rates are so related that a total indebtedness of $1,005,000 is justified by the series of interest payments that will be made during the life of the bonds. Investors recognize that fact and for that reason pay to the bond issuer a sum representing the effect of the difference in interest rates.

At maturity the bonds will be paid at par or face value. Any difference between market and nominal rates of interest will be

of no consequence. Legal and economic indebtedness will be identical. It follows that the amount of the economic indebtedness and the amount of the legal indebtedness constantly converge as the life of the bonds draws to its close. This means that as the periodic interest payments are made the balance in Premium on Bonds Payable is gradually reduced until, at maturity date, it is zero. These periodic reductions are offsets to Interest on Bonds Payable. Each interest payment is made up of two parts: (1) interest on the face of the bonds at the market rate when bonds were issued, and (2) interest on the face of the bonds at a rate which is the excess of the nominal rate over the market rate. But this latter amount for the entire life of the bonds is represented by the $5,000 premium. Since there will be twenty interest payments over the term of the loan one-twentieth or $250 is returned to the investors at each interest payment date. The $20,000 interest paid semi-annually is thus composed of $17,500 at the market rate and $250 at the excess of nominal over market rate. The issuer is therefore paying $17,500 each six months for the loan. Journal entry (3) transfers $250 from Premium on Bonds Payable to Interest on Bonds Payable. Entries (2) and (3) will be made each January 15 and July 15 during the life of the bonds.

Only the case of bonds redeemable at par at maturity is covered by the foregoing illustration and discussion. If bonds are to be redeemed at more than par at maturity or at any earlier date additional complexities are involved. Discussion of such situations is appropriate for a more advanced study and is therefore omitted from this book.

Now let us turn to the records of R S Corp. A total of $50,250 has been invested in bonds of the X Company. It consists of two parts: (1) the face value of bonds purchased, $50,000 and (2) the value at date of purchase (which in this case is date of issue) of the excess of interest payments at the nominal rate over what they would be at the market rate, $250. At maturity R S Corp will receive $50,000. As a part of each interest payment it will receive one-twentieth of the $250. Entry (III) is therefore made on each interest payment date. Although $1,000 is received each six months only $987.50 is a return on the investment. The remaining $12.50 is a return of the premium paid to equalize the interest rates. From another point of view $50,250 was a fair price for the investment in 4% bonds in view of the slightly lower market interest rate for investments of

this kind. At maturity Bonds Owned will show a balance of $50,000 which is the amount to be received from the X Company.

It will be observed that on R S's books the face or par value and the premium were not set up in separate accounts although this was done on the books of the issuer, the X Company. Conventionally all liabilities are set up in a primary account at the legal amount or value. Asset accounts are set up at their *economic* value at the date of acquisition. Although this economic value may differ from the legal value as shown on the records of the debtor, a separate recording of the difference is not made because it serves no useful purpose. On the records of the issuer of the bonds more useful information is available if the separation is made. It is of some value also to readers of balance sheets to have face value and premium shown separately.

Bonds Issued at a Discount. Let us assume that the bonds were issued for $993,000. The following entries would then be in order:

The X Company's Books

When bonds are issued.			
(1)	Cash	$ 993,000	
	Discount on Bonds Payable	7,000	
	Bonds Payable		$1,000,000
On January 15 and July 15			
(2)	Interest on Bonds Payable	$ 20,000	
	Cash		$ 20,000
(3)	Interest on Bonds Payable	$ 350	
	Discount on Bonds Payable		$ 350
When bonds are redeemed			
(4)	Bonds Payable	$1,000,000	
	Cash		$1,000,000

R S Corp's Books

When bonds are issued			
(1)	Bonds Owned	$ 49,650	
	Cash		$ 49,650
On January 15 and July 15			
(II)	Cash	$ 1,000	
	Interest on Bonds Owned		$ 1,000
(III)	Bonds Owned	$ 18.75	
	Interest on Bonds Owned		$ 18.75
When bonds are redeemed			
(IV)	Cash	$ 50,000	
	Bonds Owned		$ 50,000

As in the preceding illustration entries (1) and (I), and (2) and (II), etc., are related. The first entries would be set up in the ledger accounts as follows:

The X Company's Books

Cash			Bonds Payable	
(1)	993,000	20,000 (2)		1,000,000 (1)

Interest on Bonds Payable			Discount on Bonds Payable		
(2)	20,000		(1)	7,000	350 (3)
(3)	350				

R S Corp's Books

Cash			Bonds Owned	
(II)	1,000	49,650 (I)	(I)	49,650.00
			(III)	18.75

Interest on Bonds Owned	
	1,000.00 (II)
	18.75 (III)

When the bonds were sold The X Company received cash of $993,000 in return for twenty interest payments of $20,000 each and $1,000,000 to be paid ten years after the bonds were issued. The *legal* liability is $1,000,000. The *economic* liability is $993,000. How is the $7,000 difference explained? The bonds pay 4% interest semi-annually on $1,000,000. For this type of investment, however, the market rate of interest is somewhat greater than 4%. The $993,000 is, therefore, the principal sum upon which a semi-annual payment of $20,000 for ten years and a redemption value of $1,000,000 yields a return at the market rate of interest when the bonds are issued.

At the end of each half-year the economic liability is increased by $350, one twentieth of the $7,000 discount. Interest on Bonds Payable is increased by a like amount. Total interest for each six months period is, therefore, $20,350. At maturity the economic liability will equal the legal liability.

Turning to the books of R S Corp. we observe that Bonds Owned is debited with $49,650, the amount of cash paid for the bonds. But the par value of the bonds purchased is $50,000. Why, then, are not two accounts set up, one for the par value and one for the discount? Because a separation of the two elements in different accounts will serve no useful purpose for the investor, the R S Corp.

On each interest payment date the R S Corp. increases both the Bonds Owned and Interest on Bonds Owned by $18.75. This latter is one twentieth of the discount of $350 applicable to the $50,000 face value of bonds owned. To the investor the Interest on Bonds Owned is the sum of the cash received ($1,000) plus the increase in the value of the principal sum to be received when the bonds mature. When purchased the economic value of the bonds is $49,650. At maturity the legal value will be $50,000. Over the life of the bonds, the term of the investment from the point of view of R S Corp., the economic value will gradually approach the legal value until, at maturity, they will be identical.

Gross Financial Income. In the preceding illustrations we have used two new accounts, Interest on Notes Receivable and Interest on Bonds Owned, to which were credited actual receipts of cash representing interest payments, and increases in the value of the investment in notes receivable or bonds owned. Each account measures an increase in gross proprietorship. But the increase did not arise from a purchase or from an additional investment. Nor did it arise out of the long chain of events which culminate in gross operating income.

The reader will recall that gross operating income arises out of a long series of events whose major stages include buying, making, and selling. Gross operating income is recognized when a certain stage or development in this series has been reached. Conventionally this stage is recognized as having been reached when the event called a sale has occurred. At this point in the series of events gross operating income is measured and recorded on the accounting records.

Interest on Notes Receivable and Interest on Bonds Owned do not arise from such a series of events. The investor turns over cash to the borrower. The latter uses it in business enterprises operations. Periodically the borrower pays the lender a fixed sum called interest. The latter receives it, enters the amount on the accounting records and deposits it along with other receipts of cash. The lender (investor) makes an initial

payment, then does nothing except receive periodic interest payments and finally the principal sum invested when the note or bond matures.

The investor has "hired out" a certain amount of his wealth in the form of current funds. The return he receives are "hire earnings". Interest on notes or bonds owned represents but one case of this type of income. Because it arises, not out of enterprise operations, but of strictly financial operations, it is called gross financial income.

The reader will have observed that in the case of bonds purchased at a premium or at a discount and in the case of notes discounted by a lending institution the phenomenon of leads and lags in time series is present. When the R S Corp. paid $50,250 for $50,000 redemption value of the X Company bonds it measured the semi-annual Interest on Bonds Owned as follows:

	July 15	Jan. 15	July 15	Jan. 15		July 15	Maturity Jan. 15
Cash Rec'd	$1,000.00	$1,000.00	$1,000.00	$1,000.00	....	$1,000.00	$51,000.00
Return of Investment	12.50	12.50	12.50	12.50	....	12.50	50,012.50
Gross Financial Income	987.50	987.50	987.50	987.50	....	987.50	987.50

Each $1,000 receipt consists of two parts: (1) Interest income (gross financial income) and, (2) a return of the sum which brought the coupon or nominal rate of interest to equality with the market rate. In any one period cash receipts exceed amount of income recognized because part of the cash received represents a return of investment.

Bonds purchased at a discount illustrate the case of income recognition leading cash receipts.

Using the R S Corp.'s purchase of the X Company bonds at a discount we observe the following pattern:

	July 15	Jan. 15	July 15	Jan. 15		July 15	Maturity Jan. 15
Cash Recv'd	$1,000.00	$1,000.00	$1,000.00	$1,000.00	....	$1,000.00	$51,000.00
Increase in Value of Investment	18.75	18.75	18.75	18.75	....	18.75	18.75
Gross Financial Income	1,018.75	1,018.75	1,018.75	1,018.75	....	1,018.75	1,018.75
Return of Investment							50,000.00

Gross financial income is $1,018.75 each half-year. The first interest payment is received six months after the investment is made. At that time the increases in the value of the investment is recognized because the maturity date of each investment is six months nearer. Gross financial income is recognized in the amount of $1,018.75 even though the $18.75 will not be received for nine and one-half years. The increase in value of the investment has been accrued.

Distribution of Income. Let us turn now to the books of the X Company, the issuer of the bonds. Again we find the familiar leads and lags. When the bonds are issued at a premium the time series appears as follows:

	July 15	Jan. 15	July 15	Jan. 15		July 15	Maturity Jan. 15
Cash Disbursed	$20,000	$20,000	$20,000	$20,000	....	$20,000	$1,020,000
Repayment of Premium	250	250	250	250	....	250	250
Decreases in Proprietorship	19,750	19,750	19,750	19,750	....	19,750	19,750
Repayment of Principal	.....	.....	.....	.....		.....	$1,000,000

On each interest payment date the $20,000 payment covers the six-months period then ended. In part it is a payment for the use of funds, in part a return of the interest rates equalized.

If the bonds are issued at discount the following pattern appears:

	July 15	Jan. 15	July 15	Jan. 15		July 15	Maturity Jan. 15
Cash Disbursed	$20,000	$20,000	$20,000	$20,000	....	$20,000	$1,020,000
Increase in Economic Debt	350	350	350	350	....	350	350
Decrease in Proprietorship	20,350	20,350	20,350	20,350	.. .	20,350	20,350
Repayment of Principal	.....	.....	.....	.....		.....	$1,000,000

Recognition of decreases in proprietorship leads the disbursements of cash. Six months from the date of issue of the bonds $20,000 is paid out by the X Company as interest for the half-year then ended. But it also recognizes that the *economic* indebtedness has increased by $350, one-twentieth of the excess of the *legal* over the *economic* indebtedness at date of issue. It follows that proprietorship has decreased by $20,350 although only $20,000 is disbursed at this time. The $350 will not be paid out until the bonds mature, nine and one-half years later.

One question remains to be answered. What is the nature of the decreases in proprietorship represented by interest payments plus or minus any discount or premium? Conventionally they are called interest expense and deducted along with other expenses or costs in measuring net income for a period. Historically this treatment probably arose in the case of the sole proprietorship legal form of enterprise. In that case the sole contributor of capital invested looks upon the enterprise as *his* business. He does not distinguish an economic unit of activity separate from himself. Any and every decrease in proprietorship, regardless of cause, measures a decrease in *his* investment. All of this squares with the facts.

On closer inspection however it is quite clearly not an expense of the enterprise. The interest is paid for the use of monied funds. It is the consumption of the services for which they are expended that brings about an expense. This is clearly evident if we assume that an enterprise is started on borrowed capital. The funds so acquired are invested in the enterprise. They are spent for services and service sources. These services are consumed in an attempt to obtain gross income. It is the dollar measure of the services consumed which is cost or expense for a period. If interest paid on the borrowed funds were also to be reckoned as a cost or expense a double counting would be involved. The reader may further clarify his thinking on this point if he will try to identify the service acquired by the payment of interest which was consumed in an attempt to get gross income.

Now we may answer the question asked. Interest paid on borrowed funds is a *distribution* of net income. The enterprise operates on funds furnished by two broad classes of capital contributors, investors and lenders. In many situations the former are more permanently capital contributors, but not always. The terms of the agreements entered into between the two classes of capital contributors and the enterprise differ widely and in many respects. But the realistic consequence to the enterprise is the same: funds are made available for the use of management. These funds are used to buy services whose consumption brings cost or expense into existence. A minimum periodic payment to investors is just as necessary as the payment to the lenders. Although it may be called a dividend or distribution of profits it is qualitatively no different from interest on borrowed funds. Both payments are the price paid by the enterprise for the use of monied funds without regard to

the nature of the agreement between the enterprise and the providers of the funds. Each is a payment for the use of capital in a broad sense.

Presentation in Statements. Ignoring for the present the question of grouping of items in the balance sheet, there are presented below illustrations covering notes and bonds.

	Liabilities		
(1)	Notes Payable	$ 10,000	
	Less: Discount on Notes Payable	500	$ 9,500
(2)	Bonds Payable	$1,000,000	
	Discount on Bonds Payable	7,000	$ 993,000
(3)	Bonds Payable	$1,000,000	
	Premium on Bonds Payable	5,000	$1,005,000
	Assets		
(4)	Notes Receivable	$ 10,000	
	Less: Discount on Notes Receivable	500	$ 9,500
(5)	Bonds Owned		$ 993,000
(6)	Bonds Owned		$1,005,000
	Assets		
(7)	Notes Receivable	$ 150,000	
	Less: Notes Receivable Discounted	14,000	$ 136,000
	Liabilities		
	Notes Receivable Discounted	$ 14,000	.....
(8)	Notes Receivable		$ 150,000
	Liabilities		
	Notes Receivable Discounted		$ 14,000
	Assets		
(9)	Notes Receivable	$ 136,000	
	Notes Receivable Discounted	14,000	$ 150,000
	Liabilities		
	Notes Receivable Discounted		$ 14,000

In each of the foregoing illustrations the figure in the right hand column is the significant figure, i.e., it becomes part of the total of assets or of liabilities.

Methods of showing interest income and interest on borrowed funds will be illustrated in the next chapter.

A final word about the foregoing discussion. In Chapter 5 two important conclusions were drawn from the analysis presented therein. It was stated that a third important conclusion would be drawn from the analysis in Chapter 8, 9 and 10. The conclusion follows: if any portion of the activity initiated in any period is not completed during that same period (incompleted in the sense of a closed cash to cash cycle) to that extent *estimates* must be, and are, resorted to.

CHAPTER 11

Rental Income – Capital Gains and Losses – Measurement of Net Income

Introduction. Thus far two kinds of gross income have been considered, operating income and financial income. There remain two additional kinds of income to be discussed. In its basic characteristics one lies somewhere between operating income and financial income; the other is in a class by itself.

Rental Income. Two quite unlike situations may exist. Suppose A is the owner and operator of an apartment house. Suppose further that A is actively engaged in its management; hiring doorman, janitor, supervising repairs, maintaining heat and water supplies, etc. In fact A is operating an enterprise in the fullest meaning of the term and the gross increases in proprietorship resulting therefrom are clearly gross operating income items. All the conditions assumed in earlier illustrations are here present.

But suppose A lets for the summer, his home on the lake. By agreement the tenant must attend to all maintenance problems during the term of the lease and return the property in good condition at the expiration of the lease. Here we have a situation which closely resembles the loan of monied funds. But a real difference exists. The tenant is permitted to use the property in its present place and condition. In fact he is required to return it, at the expiration of the lease, in the same condition as it was when he took possession of it. The borrower of funds, however, cannot possibly benefit from their use except by spending them for services to be consumed in enterprise operations.

In the first situation we have a case of true gross operating income. In the latter we have a new and distinct category of gross income which we will call gross rental income. The former situation may be said to yield gross operating income from rentals. In fact gross operating income as conventionally used is really gross operating income from sales. The conventional title for gross operating income from rentals is rental income, or simply rentals. Nonetheless it is qualitatively identical with sales. What is sold is a series of services yielded by the property rented.

Capital Gains and Losses. Both individuals and enterprise buy land and hold it for increase in value due to population growth and the general economic development about it. The sale of such property at a price in excess of cost yields a capital gain; in the reverse case a capital loss. The reader should note that this type of increase in proprietorship differs entirely from those heretofore discussed. Any gain is obviously the result of economic influences at work over perhaps, many years. The gain is recognized only when a sale is made. Furthermore only the gain (or loss) is reported in the income statement. The same problem exists with regard to securities owned and depreciable assets disposed of before all available services have been consumed.

Measurement of Net Income. We have now reached the point in our study of accounting where we may obtain a clearer grasp of the meaning of net income. Clearly net income is the result of the application of various procedures to the measurement of two primary categories of data: gross income (operating income, financial income, rentals, and capital gains) and costs or expenses (including capital losses). The two sets of data refer to events of a specified time interval, the fiscal year of an enterprise or some subdivision thereof. Net income is the algebraic sum of two totals, the sum of the gross income items and the sum of the cost or expense items, the former being positive in sign the latter negative. If the algebraic sum is positive it is labeled net income, contrariwise, net loss.

Obviously, for a given set of data (financial and other) the magnitude of the sum of gross income items depends upon an expressed or implied concept of gross income and its subdivisions and upon the method or methods used in making estimates of them. The same holds true for costs or expenses for the period. It follows that the full implications of a reported net income cannot be understood unless and until the reader of the statement knows something about the concepts employed and the procedures used in estimating their dollar magnitude.

Illustration. The full significance of the foregoing will be brought out in the following detailed illustration which includes all of the basic categories and concepts thus far discussed. In this chapter adjusting and closing entries will be illustrated. In the next chapter work sheet and formal statements will be presented, together with a discussion of the meaning of a reported net income.

The A B C Company

Trial Balance

December 31, 1955

Cash on Hand	$ 4,000	
Cash on Deposit	110,000	
Accounts Receivable—Trade	840,000	
Accounts Receivable—Officers & Employees	1,000	
Accounts Receivable—Other	500	
Allowances For Doubtful Accounts		$ 600
Notes Receivable	15,000	
Notes Receivable Discounted		4,000
Bonds Owned	8,000	
Inventory—Office Supplies	640	
Inventory—Other Supplies	310	
Inventory—Merchandise	450,000	
Furniture & Fixtures	110,000	
Allowances for Depreciation—Furniture & Fixtures		46,800
Land	75,000	
Building	480,000	
Allowances for Depreciation—Building		140,000
Prepaid Taxes—Land and Building	1,950	
Prepaid Taxes—Personal Property	1,350	
Unexpired Insurance	3,150	
Accounts Payable—Trade		159,000
Notes Payable—Banks		75,000
Interest on Notes Payable Banks	1,450	
Bonds Payable—Series A		100,000
Premium on Bonds Payable—Series A		900
Bonds Payable—Series B		150,000
Discount on Bonds Payable—Series B	11,800	
Discount on Notes Receivable Discounted	60	
Interest on Bonds Owned		160
Original Investment		500,000
Retained Income		340,000
Sales		2,861,490
Returned Sales	16,400	
Allowances on Sales	5,100	
Discount on Sales	31,000	
Purchases—Office Supplies	1,400	
Purchases—Other Supplies	350	
Purchases—Merchandise	1,858,700	
Discount on Purchases		29,200
Purchases—Returns		4,100
Salespeople's Salaries & Commissions	114,400	
Lighting	5,700	
Heating	2,100	
Advertising	44,100	

Office Salaries	35,000	
Telephone & Telegraph	3,800	
Credit Agency Costs	550	
Buyers' Salaries	78,000	
Officers' Salaries	60,000	
Interest on Bonds—Series A	2,750	
Interest on Bonds—Series B	6,000	
Distributions to Investors	40,000	
Estimated Returned Sales	590	
Estimated Allowances on Sales		400
Estimated Discount on Sales	1,500	
	$4,411,650	$4,411,650

Supplementary data:

The $4,000 of notes receivable discounted at the bank were dated September 1, 1955 and are due March 1, 1956. They were discounted December 1, 1955. None of the notes receivable bears interest. The remaining notes are dated Nov. 1, 1955 and are due April 30, 1956.

Inventories at December 31, 1955 were:

Office Supplies	$ 710
Other Supplies	290
Merchandise	462,000

Annual depreciation rates are 10% for furniture and fixtures and 2% for building.

Prepaid taxes cover the period September 1, 1955 to March 1, 1956.

Unexpired insurance details follow:

Type of Insurance	Property Covered	Date of Policy	Term of Policy In Years	Unexpired Premium
Fire	Furniture	Jan. 1, 1952	5	$ 700
Fire	Building	April 1, 1953	5	800
Fire	Merchandise	May 1, 1954	3	600
Public Liability	All	Jan. 1, 1953	3	600
Business Interruption		Jan. 1, 1953	3	450
				$3,150

The $75,000 due banks is represented by the following notes payable:

Date of Note	Rate of Interest	Face of Note	Interest Paid to
February 1, 1955	4½%	$20,000	Oct. 31, 1955
May 1, 1955	4½%	30,000	Oct. 31, 1955
October 15, 1955	5%	25,000	None paid.
		$75,000	

An analysis of bonds payable shows:

Series	Date of Issue	Date Due	Face Value	Redemption Value	Interest Rate
A	June 1, 1940	May 31, 1960	$100,000	$100,000	3%
B	Oct. 1, 1950	Sept. 30, 1970	$150,000	$150,000	4%

Interest on Series A is payable on the last day of February, May, August and November; on Series B on the last day of March, June, September and December.

It is estimated that an additional $3,800 of discounts will be taken on accounts payable.

Unrecorded items:

Telephone Bill	$ 360
Buyers' Salaries	6,400
Advertising	1,340
Officers' Salaries	2,900
Salespeople's Commissions	10,300

The company's history shows the following:

Doubtful Accounts	0.65% of sales
Returned Sales	0.84% of sales
Allowances on Sales	0.21% of sales
Discount on Sales	1.25% of sales

Bonds owned pay 3% per annum on August 31 and February 28.

Adjusting and Closing Journal Entries. In the next chapter are presented the work sheet and several styles of financial statements. Each adjusting entry bears a number or numbers by which it may be identified in the work sheet in Chapter 12.

Adjusting Entries

1.

Interest on Notes Receivable Discounted	$ 30	
Discount on Notes Receivable Discounted		$ 30
To transfer to expense the interest applicable to 1955		

2.

Inventory—Office Supplies	$ 1,400	
Purchases—Office Supplies		$ 1,400
To transfer to Inventory		

3.

Inventory—Other Supplies	$ 350	
Purchases—Other Supplies		$ 350
To transfer to Inventory		

4.

Inventory—Merchandise	$1,858,700	
Purchases—Merchandise		$1,858,700
To transfer to Inventory		

5.

Inventory—Office Supplies	$ 710	
Inventory—Office Supplies		$ 710
To set up inventory at Dec. 31, 1955		

6.

Inventory—Other Supplies	$ 290	
Inventory—Other Supplies		$ 290
To set up inventory at Dec. 31, 1955		

7.

Inventory Merchandise	$462,000	
Inventory—Merchandise		$462,000
To set up inventory at Dec. 31, 1955		

8 and 9.

Depreciation—Furniture and Fixtures	$11,000	
Depreciation—Building	9,600	
Allowance For Depreciation—F & F.		$11,000
Allowance For Depreciation—Building		9,600
To set up depreciation for 1955		

10 and 11.

Taxes—Land and Building	$ 1,300	
Taxes—Personal Property	900	
Prepaid Taxes—Land and Buildings		$ 1,300
Prepaid Taxes—Personal Property		900
To transfer to expense 1955 taxes		

12.

Insurance		
Unexpired Insurance	$ 1,902	
To transfer expired insurance to expense		$ 1,902

13 and 14.

Interest on Notes Payable Banks	$ 635	
Interest on Bonds—Series A	250	
Accrued Interest—N. P. Banks		$ 635
To set up accrued interest payable		250

15.

Premium on Bonds Payable—Series A	$ 166	
Interest on Bonds—Series A		$ 166
To transfer to expense bond premium applicable to 1955		

16.

Interest on Bonds—Series B	$ 114	
Discount on Bonds Payable—Series B		$ 114
To transfer to expense bond discount applicable to 1955		

17.

Estimated Discount on Purchases	$ 3,800	
Discount on Purchases		$ 3,800
To set up estimated discounts yet to be taken		

18—22.

Telephone	$ 360	
Advertising	1,340	
Buyers' Salaries	6,400	
Officers' Salaries	2,900	
Salespeople's Commissions	10,300	
Accrued Accounts Payable		$21,300
To set up unrecorded unpaid expense applicable to 1955		

23.

Accrued Interest on Bonds Owned	$ 80	
Interest on Bonds Owned		$ 80
To set up interest accrued for 1955		

24.

Doubtful Accounts	$18,600	
Allowance For Doubtful Accounts		$18,600
To set up estimate of uncollectible accounts receivable arising from sales of 1955		

25.

Allowance For Doubtful Accounts	$ 600	
Retained Income Adjustments		$ 600
To transfer to R. I. A. the overestimate of uncollectible account losses for 1954		

26.

Retained Income Adjustments	$ 590	
Estimated Returned Sales		$ 590
To transfer to R. I. A. the underestimates of returned sales for 1954		

27.

Estimated Allowances on Sales	$ 400	
Retained Income Adjustments		$ 400
To transfer to R. I. A. the overestimate of allowances on Sales for 1955		

28.

Retained Income Adjustments	$ 1,500	
Estimated Discount on Sales		$ 1,500
To transfer to R. I. A. the underestimates of discount on sales		

29—31.

Returned Sales	$ 7,637	
Allowances on Sales	909	
Discount on Sales	4,769	
Estimated Returned Sales		$ 7,637
Estimated Allowances on Sales		909
Estimated Discount on Sales		4,769
To set up estimates applicable to 1955 sales		

Closing Entries

1.

Sales	$2,861,490	
Discount on Purchases	33,000	
Purchases Returns	4,100	
Interest on Bonds Owned	240	
Income and Expense		$2,898,830
To transfer to Income and Epense		

2.

Income and Expense	$2,333,530	
Office Supplies		$ 1,330
Other Supplies		370
Merchandise		1,846,700
Interest on Notes Payable—Banks		2,085
Returned Sales		24,037
Allowances on Sales		6,009
Discount on Sales		35,769
Salespeople's Salaries and Commissions		124,700
Lighting		5,700
Heating		2,100
Advertising		45,440
Office Salaries		35,000
Telephone and Telegraph		4,160
Credit Agency Cost		550
Buyers' Salaries		84,400
Officers' Salaries		62,900
Interest on Bonds—Series A		2,834
Interest on Bonds—Series B		6,114
Interest on Notes Receivable Discounted		30
Depreciation Furniture and Fixtures		11,000
Depreciation—Building		9,600
Taxes—Land and Building		1,300
Taxes—Personal Property		900
Insurance		1,902
Doubtful Accounts		18,600
To transfer to Income and Expense		

3.

Income and Expense	$ 565,300	
Retained Income		$ 565,300
To transfer net income to Retained Income		

4.

Retained Income	$ 1,090	
Retained Income Adjustments		$ 1,090
To transfer the net adjustment of 1954 income to Retained Income		

5.

Retained Income	$40,000	
Distributions to Investors		$40,000
To transfer to Retained Income the 1954 distribution to investors		

The reader will observe that the balance in every account representing an increase in proprietorship resulting from 1955 business was closed directly into Income and Expense. Every expense account was similarly handled. The Income and Expense account will therefore be a summary of income and expense for the period, given the statistical classes of data for which accounts have been maintained. But this very detail may actually smother the most useful information. To determine, for example, the invoice cost of merchandise sold it is necessary to deduct from a debit item in the Income and Expense account, merchandise, two credit items, purchases returns and discount on purchases. Similarly, net sales does not appear as a separate item. It may be computed by deducting from a credit item, sales, the sum of four debit items, returned sales, allowances on sales, discount on sales, and doubtful accounts. In general, whenever a valuation account, e.g., returned sales or returned purchases is used in connection with an income or an expense account, the net figure must be computed from separate items in the Income and Expense account.

This difficulty may be overcome by transferring the balance in valuation accounts to the account to which they relate and the remainder, in the latter, to Income and Expense. For example, we might have made the following entries with references to merchandise:

1.

Purchases Returns	$ 4,100	
Discount on Purchases	33,000	
Purchases		$37,100
To transfer returns and discounts to purchases		

2.

Inventory—Merchandise	$1,821,600	
Purchases		$1,821,600
To transfer net purchases to beginning inventory account		

3.

Income and Expense	$1,809,600	
Inventory—Merchandise		$1,809,600
To transfer invoice cost of merchandise sold to Income and Expense		

In a similar fashion the following entries would transfer net sales to Income and Expense:

1.

Sales	$84,415	
Returned Sales		$24,037
Allowances on Sales		6,009
Discount on Sales		35,769
Doubtful Accounts		18,600
To transfer to Sales		

2.

Sales	$2,777,075	
Income and Expense		$2,777,075
To transfer net sales to Income and Expense		

In general, the procedures illustrated above may be used in all cases where it is desirable to transfer to Income and Expense fewer than all the individual gross income and expense accounts and the related valuation accounts. As stated earlier, the decision turns on the extent of detail desired.

CHAPTER 12

Working Papers — The Formal Statements — Meaning of A Reported Net Income

Working Papers. In Chapter 6 there was illustrated and explained a work sheet or working papers for the X Company. The data covered one month's operations wholly on the cash basis and on the assumption that no unconsumed service sources were on hand at the end of the month. The only asset was cash; there were no liabilities. It followed that the trial balance contained *all* data necessary for the preparation of an income statement and a balance sheet. The working papers consisted of six columns, one pair each for trial balance, income and expense, and balance sheet. All accounts with debit balances represented expenses, valuation measures applicable to gross income measures, assets, and valuation measures applicable to the primary proprietorship account. The first two groups were entered in the debit column of income and expense, the latter two in the debit column of balance sheet. Credit balance accounts represented gross income, a valuation measure applicable to an expense measure, and the primary proprietorship account. The first two groups were entered in the credit column of income and expense, the third one in the credit column of balance sheet. The determination of net income was then a simple problem in arithmetic. At this point the reader should review the section on the work sheet in Chapter 6.

We are now concerned with the more complex, because more realistic, situation represented by the trial balance and supplementary data of the A B C Company presented in Chapter 11. The trial balance no longer includes all the data relevant to the measurement of periodic income. In fact it contains both too much and not enough. Since it includes the effect on assets, liabilities, and proprietorship of all transactions *that have been recorded* it includes too much; because not all events affecting the operations of the period have been recorded, it includes not enough. As to the former, consider all the service sources acquired which have not been consumed during the period; as to the latter, all the transactions not recorded simply because of the inevitable time lag in processing vouchers for entry in the records. The supplementary data accompanying the trial

balance of The A B C Company cover the too much and not enough aspects of it.

Adjusting entries bring the account balances into agreement with what they would have been if every expense account showed the dollar measure of services consumed in obtaining the gross income of the period and if every revenue account showed the dollar measure of gross income for the period. (See Work Sheet of A B C Company, Form A, at end of this chapter.) Provision for these adjustments is made in the working papers by inserting a pair of columns for them immediately to the right of the trial balance columns. As heretofore every item in the trial balance is entered in an income or expense column or a balance sheet column. But now there is a difference; the trial balance figure may be increased or decreased by an adjustment before such entry. In effect, then, any trial balance item after adjustment may be identified as an adjusted item and after all adjustments have been made the resulting account balances called an adjusted trial balance. This procedure usually requires that new accounts be opened, accounts which would not be needed in the ordinary routine of recording transactions. Most frequently recurring are accrued accounts receivable and accrued accounts payable.

Alternative procedures are available for handling adjustments in working papers. To the right of the adjustments column may be provided a pair of columns headed Adjusted Trial Balance; or the adjusted account balances may be carried directly to income or expense or balance sheet columns. The latter procedure has been followed in the illustration in this chapter.

Algebra of Working Papers. It will be well worth our time to apply to this more complex situation the analysis first presented in Chapter 6. The adjusted trial balance data may be classified as follows:

Debit Balance Accounts

E Assets
A Expenses
L Valuation measures applicable to assets
B Valuation measures applicable to gross income measures
H Valuation measures applicable to liabilities
J Valuation measures applicable to the primary proprietorship accounts.

Credit Balance Accounts

K Liabilities
C Gross income measures
G Valuation measures applicable to assets
D Valuation measures applicable to expenses
M Valuation measures applicable to liabilities
N Primary proprietorship measures.

These groups of account balances are entered in the income and expense and balance sheet columns as follows:

Income and Expense—Debit Column

A Expenses
B Valuation measures applicable to gross income measures.

Income and Expense—Credit Column

C Gross income measures
D Valuation measures applicable to expenses.

Balance Sheet—Debit Column

E Assets
L Valuation measures applicable to assets (increasing asset valuation)
H Valuation measures applicable to liabilities (decreasing liability valuations)
J Valuation measures applicable to the primary proprietorship accounts.

Balance Sheet—Credit Column

K Liabilities
G Valuation measures applicable to assets (decreasing asset valuations)
M Valuation measures applicable to liabilities (increasing liability valuations)
N Primary proprietorship measures.

The adjusted trial data may be set up in the following equation form:

(1) $E + A + L + B + H + J = K + C + G + D + M + N$

(2) $A + B < C + D$

Subtract (2) from (1).

(3) $E + L + H + J > K + G + M + N$

(4) $(C + D) - (A + B) = (E + L + H + J) - (K + G + M + N)$

Equation (4) relates the increase in proprietorship measured by income and expense accounts to that measured by the change in the excess of assets over liabilities. The left hand member of (4) measures net income by one aspect of the double entry method while the right hand member measures it by the other aspect. The four equations are rewritten with dollar measures in place of symbols.

(1.1) $2,110,410 + 2,249,115 + 2,348 + 84,415 + 1,686 + 41,090 = 506,185 + 2,861,730 + 243,315 + 37,100 + 734 + 840,000$

(2.1) $2,249,115 + 84,415 < 2,861,730 + 37,100$

(2.2) $2,333,530 < 2,898,830$

(3.1) $2,110,410 + 2,348 + 1,686 + 41,090 > 506,185 + 243,315 + 734 + 840,000$

(3.2) $2,155,534 > 1,590,234$

(4.1) $2,898,830 - 2,333,530 = 2,155,534 - 1,590,234$

(5) $565,300 = 565,300$

These relationships are based upon the following adjusted trial balance data:

Debit Balance Accounts		Credit Balance Accounts	
Symbol	Amount	Symbol	Amount
E	2,110,410	K	506,185
A	2,249,115	C	2,861,730
L	2,348	G	243,315
B	84,415	D	37,100
H	1,686	M	734
J	41,090	N	840,000
	4,489,064		4,489,064

The following condensed version of working papers shows the forgoing in symbols and in amounts:

	Adjusted Trial Balance		Income and Expense		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Assets	E				E	
Expenses	A		A			
Valuation measures applicable to assets	L				L	
Valuation measures applicable to gross income measures	B		B			
Valuation measures applicable to liabilities	H				H	
Valuation measures applicable to the primary proprietorship accounts	J				J	
Liabilities		K				K
Gross income measures		C		C		
Valuation measures applicable to assets		G				G
Valuation measures applicable to expenses		D		D		
Valuation measures applicable to liabilities		M				M
Primary proprietorship measures		N				N

Class of Data	Adjusted Trial Balance		Income and Expense		Balance Sheet	
E	2,110,410				2,110,410	
A	8,249,115		2,249,115			
L	2,348				2,348	
B	84,415		84,415			
H	1,686				1,686	
J	41,090				41,090	
K		506,185				506,185
C		2,861,730		2,861,730		
G		243,315				243,315
D		37,100		37,100		
M		734				734
N		840,000				840,000
	4,489,064	4,489,064				
Net income			565,300			565,300
			2,898,830	2,898,830	2,155,534	2,155,534

Working Papers—A Variation in Procedure. Certain types of adjustments may be handled in the working papers without the use of adjustment columns. They are illustrated in Form B at the end of this chapter. Two distinct types are involved. In one the adjustment increases an expense or an income account and the related accrued liability, asset or valuation account. It is illustrated by allowance for doubtful accounts. A second type involves the separation of the expense and asset or the expense and valuation account element in the account balance. These two are illustrated by inventories of office and other supplies and prepaid taxes and unexpired insurance, respectively. Except for algebraic sign in income measurement premium on bonds payable is also one of this type. The beginner in accounting should employ Form A until a thorough understanding of it makes possible the advantageous use of Form B.

The Formal Statements. It is conventional practice to accompany a statement of net income for a period with a balance sheet at the end of the period. If the enterprise is a corporation there is also prepared a statement showing changes in retained income during the period. For the A B C Company these statements have been prepared for the calendar year 1955. Several arrangements of the data are presented for the income statement and the balance sheet.

FORM A -1-

THE ABC COMPANY
Work Sheet
December 31, 1955

	Trial Balance		Adjustments				Income & Expense		Balance Sheet	
	Dr.	Cr.		Dr.		Cr.	Dr.	Cr.	Dr.	Cr.
Cash on Hand	4,000								4,000	
Cash on Deposit	110,000								110,000	
Accounts Receivable:										
Trade	840,000								840,000	
Officers & Employees	1,000								1,000	
Other	500								500	
Allowance for Doubtful Accounts		600	(25)	600		18,600 (24)				18,600
Notes Receivable	15,000								15,000	
Notes Receivable Discounted		4,000								4,000
Bonds Owned	8,000								8,000	
Inventory—Office Supplies	640		(2)	1,400		710 (5)	1,330			
Inventory—Other Supplies	310		(3)	350		290 (6)	370			
Inventory—Merchandise	450,000		(4)	1,858,700		462,000 (7)	1,846,700			
Furniture and Fixtures	110,000								110,000	
Allowance for Depreciation—Furniture and Fixtures		46,800				11,000 (8)				57,800
Land	75,000								75,000	
Building	480,000								480,000	
Allowance for Depreciation—Building		140,000				9,600 (9)				149,600
Prepaid Taxes—Land & Building	1,950					1,300 (10)			650	
Prepaid Taxes—Personal Property	1,350					900 (11)			450	
Unexpired Insurance	3,150					1,902 (12)			1,248	
Accounts Payable—Trade		159,000								159,000
Notes Payable—Banks		75,000								75,000
Interest on Notes Payable—Banks	1,450		(13)	635			2,085			
Bonds Payable—Series A		100,000								100,000
Premium on Bonds Payable—Series A		900	(15)	166						734
Bonds Payable—Series B		150,000								150,000
Discount on Bonds Payable—Series B	1,800					114 (16)			1,686	
Discount on Notes Receivable Discounted	60					30 (1)			30	
Interest on Bonds Owned		160				80 (23)		240		
Original Investment		500,000								500,000
Retained Income		340,000								340,000
Sales		2,861,490						2,861,490		
Returned Sales	16,400		(29)	7,637			24,037			
Allowances on Sales	5,100		(30)	909			6,009			
Discount on Sales	31,000		(31)	4,769			35,769			
Purchases—Office Supplies	1,400					1,400 (2)				
Purchases—Other Supplies	350					350 (3)				
Purchases—Merchandise	1,858,700					1,858,700 (4)				
Discount on Purchases		29,200				3,800 (17)		33,000		
Purchases Returns		4,100						4,100		
Salespeople's Salaries and Commissions	114,400		(22)	10,300			124,700			
Lighting	5,700						5,700			
Heating	2,100						2,100			
Advertising	44,100		(19)	1,340			45,440			

THE ABC COMPANY

Work Sheet

December 31, 1955

FORM A -2-

	Trial Balance		Adjustments			Income & Expense		Balance Sheet	
	Dr.	Cr.		Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Office Salaries	35,000					35,000			
Telephone and Telegraph	3,800		(18)	360		4,160			
Credit Agency Costs	550					550			
Buyers' Salaries	78,000		(20)	6,400		84,400			
Officers' Salaries	60,000		(21)	2,900		62,900			
Interest on Bonds—Series A	2,750		(14)	250	166 (15)	2,834			
Interest on Bonds—Series B	6,000		(16)	114		6,114			
Distributions to Investors	40,000							40,000	
Estimated Returned Sales	590				7,637 (29)				7,637
					590 (26)				
Estimated Allowances on Sales		400	(27)	400	909 (30)				909
Estimated Discount on Sales	1,500				1,500 (28)				4,769
					4,769 (31)				
	4,411,650	4,411,650							
Interest on Notes Receivable Discounted			(27)	400		30			
Inventory—Office Supplies			(1)	30				710	
Inventory—Other Supplies			(5)	710				290	
Inventory—Merchandise			(6)	290				462,000	
Depreciation—Furniture and Fixtures			(7)	462,000		11,600			
Depreciation—Building			(8)	11,000		9,600			
Taxes—Land & Building			(9)	1,300		1,300			
Taxes—Personal Property			(11)	900		900			
Insurance			(12)	1,902		1,902			
Accrued Interest—Notes Payable Banks					635 (13)				635
Accrued Interest—On Bonds—Series A					250 (14)				250
Estimated Discounts on Purchases			(17)	3,800				3,800	
Accrued Interest on Bonds Owned			(23)	80				80	
Accrued Accounts Payable:									
Telephone					330 (18)				360
Advertising					1,340 (19)				1,340
Buyers' Salaries					6,400 (20)				6,400
Officers' Salaries					2,900 (21)				2,900
Salespeople's Commissions					10,300 (22)				10,300
Doubtful Accounts			(24)	18,600		18,600			
Retained Income									
Adjustments:					600 (25)				
Allowance for Doubtful Accounts								1,090	
Estimated Returned Sales			(26)	590	400 (27)				
Estimated Allowances on Sales									
Estimated Discount on Sales			(28)	1,500					
				2,409,532	2,409,532				
NET INCOME						565,300			565,300
						2,898,830	2,898,830	2,155,534	2,155,534

THE ABC COMPANY
Partial Work Sheet
December 31, 1955

FORM B

	Trial Balance		Adjustments		Income & Expense		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Allowance for Doubtful Accounts		600			18,600	600		18,600
Inventory—Office Supplies	640				640	710	710	
Inventory—Other Supplies	310				310	290	290	
Inventory—Merchandise	450,000				450,000	462,000	462,000	
Prepaid Taxes—Land & Building	1,950				1,300		650	
Prepaid Taxes—Personal Property	1,350				900		450	
Unexpired Insurance	3,150				1,902		1,248	
Interest on Notes Payable—Banks	1,450							
Premium on Bonds Payable—Series A		900				166		734
Discount on Bonds Payable—Series B	1,800				114		1,686	
Discount on Notes Receivable Discounted	60				30		30	
Purchases—Office Supplies	1,400				1,400			
Purchases—Other Supplies	350				350			
Purchases—Merchandise	1,858,700				1,858,700			

THE ABC COMPANY
Income Statement
Calendar Year 1955

Form 1

Sales		$2,861,490
Less:		
Returned Sales	$ 24,037	
Allowances on Sales	6,009	
Discount on Sales	35,769	
Doubtful Accounts	18,600	84,415
Net Sales		$2,777,075
Cost of Merchandise Sold:		
Inventory, January 1	$ 450,000	
Purchases	1,821,600	
	$2,271,600	
Inventory, December 31	462,000	$1,809,600
Gross Profit on Sales		$ 967,475
Expenses:		
Office Supplies	$ 1,330	
Other Supplies	370	
Salespeople's Salaries & Commissions	124,700	
Lighting	5,700	
Heating	2,100	
Advertising	45,440	
Office Salaries	35,000	
Telephone and Telegraph	4,160	
Credit Agency Costs	550	
Buyers' Salaries	84,400	
Officers' Salaries	62,900	
Depreciation—Furniture & Fixtures	11,000	
Depreciation—Building	9,600	
Taxes—Land and Building	1,300	
Taxes—Personal Property	900	
Insurance	1,902	$ 391,352
Net Operating Income		$ 576,123
Financial Income and Expense:		
Interest Expense	11,063	
Interest Income	240	10,823
Net Income		$ 565,300

THE ABC COMPANY
Income Statement
Calendar Year 1955

Form 2

Net Sales	$2,777,075
Cost of Merchandise Sold	1,809,600
Gross Profit on Sales	967,475
Expenses	391,352
Net Operating Income	576,123
Financial Expense—Net	10,823
Net Income	$ 565,300

THE ABC COMPANY
Income Statement
Calendar Year 1955

Form 3

Net Sales	$2,777,075
Interest on Investments	240
Total Income	$2,777,315
Advertising	45,440
Buyers' Salaries	84,400
Cost of Merchandise	1,809,600
Credit Agency Costs	550
Depreciation	20,600
Heating	2,100
Insurance	1,902
Lighting	5,700
Office Salaries	35,000
Officers' Salaries	62,900
Salespeople's Salaries and Commissions	124,700
Supplies	1,700
Taxes	2,200
Telephone and Telegraph	4,160
Total Expenses	$2,200,952
Net Operating Income	576,363
Interest Expense	11,063
Net Income	$ 565,300

The Income Statement—Comments. The three forms of the statement are illustrative only. A multitude of others could be presented. Form 1 contains the greatest amount of detail. This form, or variations of it, are usually prepared for the use of

management. Expenses are frequently divided into such groups as selling, administrative, and general. Forms 2 and 3 are widely used in reports to corporate stockholders. Much detail is submerged in totals because it is more likely to confuse than to clarify.

In each case interest on borrowed funds has been treated as an expense. The figure for net income is therefore the measure of the increase of the investors' interest in the enterprise. It measures the profitability of operations from their viewpoint not from that of the enterprise. From the latter's viewpoint the net income was $576,363 (Form 3) of which $11,063 was distributed to bondholders and bank for the use of funds. An additional $40,000 was distributed to investors for the use of the investments made by them.

The Balance Sheet—Illustrations.

THE ABC COMPANY
Balance Sheet
December 31, 1955

Form 1-a

ASSETS

Current			
Cash		$114,000	
Accounts Receivable			
Trade	$840,000		
Allowance for uncollectible accounts	31,915		
	$808,085		
Officers and Employees	1,000		
Other and Accrued	580	809,665	
Notes Receivable	$ 15,000		
Notes Receivable Discounted	4,000	11,000	
Merchandise Inventory		462,000	
Total Current Assets			$1,396,665
Fixed			
Land		$ 75,000	
Building	$480,000		
Allowance for Depreciation	149,600	330,400	
Furniture and Fixtures	$110,000		
Allowance for Depreciation	57,800	52,200	
Total Fixed Assets			$ 457,600

Investments			
Bonds			8,000
Prepaid and Deferred Items			
Prepaid Taxes		$ 1,100	
Unexpired Insurance		1,248	
Discount on Bonds and Notes		1,716	
Supplies		1,000	5,064
Total Assets			$1,867,329

LIABILITIES AND PROPRIETORSHIP

LIABILITIES

Current			
Trade Accounts Payable	$159,000		
Allowance for Discounts	3,800	$155,200	
Accrued Accounts Payable		22,185	
Notes Payable—Banks		75,000	
Total Current Assets			$ 252,385
Long-Term			
Bonds Payable—Series A		$100,000	
Bonds Payable—Series B		150,000	250,000
Deferred Credits to Income			
Premium on Bonds Payable—Series A			734
Total Liabilities			$ 503,119
Proprietorship			
Original Investment		$500,000	
Retained Income		864,210	1,364,210
			$1,867,329

Meaning of Certain Terms

The term current when applied to assets means that they will be converted into cash in the ordinary course of business provided such conversion occurs within one year from the date of the balance sheet. An exception to the year limitation is conventionally made in the case of inventories of items whose production involves an ageing process, such as whiskies, wines, baseball bats, etc.

As applied to liabilities one condition only must be satisfied: the amount owing is due within one year from the balance sheet date.

Fixed assets include all service sources which will yield services over a period exceeding one year from the balance sheet date. The term fixed as here used possesses no physical connotation. An airplane is just as much a fixed asset to a commercial airline as is the ticket office which it owns.

Prepaid expenses and deferred items are somewhat of an anomoly. The term prepaid does not necessarily carry the meaning implied by its etymology although it may. It always means that the amounts so titled are dollar measures of services which will be consumed subsequently to the date of the balance sheet on which they appear. Payments may or may not have been made for them. In this broad sense merchandise inventory and all fixed assets are prepaid. Prepaid expenses conventionally include items for which more or less regularly recurring cash outlays must be made. For this reason they are sometimes included among current assets. Unless, in total, the amounts are significant in comparison with current asset total it is really immaterial whether they are included among the current assets or are shown in a separate category.

Deferred items consists of a group of miscellaneous items of diverse origin and nature. Discount on bonds is clearly a valuation account applicable to bonds payable on the balance sheet date. In time it becomes a valuation account applicable to bond interest. Prepaid taxes and unexpired insurance are valuation accounts applicable to assets. (This aspect of the problem will be discussed more fully in connection with alternative balance sheet arrangements.) There are also usually included payments made in connection with the legal requirements for doing business under the corporate form known as organization expense. The word deferred may be understood to mean that all items so titled are deferred debits to costs or expense for a period or periods subsequent to the balance sheet date.

One additional term calls for comment. Long-term as applied to liabilities includes all obligations due after one year from the balance sheet date.

Comments on Balance Sheet—Form 1. Professional accountants have exerted considerable influence on the practice of accounting including the arrangement of data on the balance sheet and income statement. Aware of the fact that the statements prepared by them are very likely to be used as a basis for credit, the data in the balance sheet were arranged with this in mind. The practice, thus started, has continued for decades. Its principal feature is the arrangement of assets in the order of liquidity by groups and within groups. The extent of application of this convention varies considerably.

In Form 1 of the A B C Company Balance Sheet the most liquid assets are presented first. These are followed by the fixed

assets. A similar pattern is used for liabilities. The debt-paying potential of the enterprise is roughly measured by the excess of current asset dollars over current liability dollars. This comparison is facilitated by placing the two members of it opposite each other in the balance sheet.

Excepting only the allowance for uncollectible accounts, allowance for discounts on accounts payable, and for depreciation, all the balance sheet accounts with debit balances are included among the assets and all those with credit balances among the liabilities and proprietorship. The consequences to a reader of the statement are interesting. Is the total dollar measure of assets $1,867,329? The answer depends on what is included as assets and what each dollar measure means. Clearly Discount on Bonds and Notes is not an asset but a valuation account applicable to Bonds Payable. The remaining items in the asset total are assets or valuation accounts applicable to assets. Therefore total assets is $1,865,613 rather than $1,867,329.

Consider now the meaning of the dollar measure of some important assets. Cash represents general purchasing power available on demand. Trade accounts receivable, net of allowance for uncollectible accounts, represents dollars to be collected over a time interval at least as long as the credit period granted to customers. Notes receivable may include amounts not due for many months. Merchandise inventory is measured in cost dollars as are all the fixed assets. These cost dollars bear dates usually not far distant from the balance sheet date in the case of merchandise inventory but years earlier in the case of much of the fixed asset total.

The consequence of this situation is a summation of unlike dollars, in some degree akin to the addition of such dissimilar items as houses, cows and automobiles. A dollar on deposit in a commercial bank account, a dollar due from a customer in thirty days, a dollar invested in merchandise inventory two months ago, and a dollar invested in a building twenty years ago are not at all alike. To be sure each is a dollar, a monetary unit of measure and in that sense they are identical. But in magnitude they are unlike. A dollar available today is different from a dollar available thirty days hence and both are different from a dollar available ten years hence. Unless the dollar measures are all converted to their equivalents on the same day they do not possess the property of additivity. For example, a dollar due one year from today is worth $0.944, if interest be

reckoned at six per cent per annum. The more distant the date on which the dollar will be received the less its value today. The dollar invested in fixed assets will become cash over the years of the assets use, i.e., as the services are consumed and their cost recovered in collections from customers.

This situation exists for all balance sheets as conventionally prepared. It applies to liabilities as well as to assets. A fully developed analysis of its implications and consequences belongs to a more advanced stage of the study of accounting. It is merely identified here so that the reader will not be lulled into a sense of false security about the meaning of a balance sheet. The equality of the totals on the two sides of the statement may imply an accuracy that is misleading. Arithmetically the statement is accurate. But what lies behind the dollar measures is the important matter. And that cannot be fully understood until the reader of the balance sheet knows how the dollar measure of each item on the statement was determined. The "how" in every instance is a statistical procedure applied with reference to an expressed or implied concept of valuation and income measurement.

As mentioned earlier in this section the balance sheet of The A B C Company shows all debit balance accounts among the assets and all credit balance accounts among the liabilities, excepting only the allowance for uncollectible accounts receivable, allowance for discounts on accounts payable, and for depreciation. This means that, except as noted above, items are listed as assets because they are debit balance accounts, i.e., because they are left hand members of the equation. Some interesting results follow from this practice.

Suppose, for example, that a reader of the statement desired to know the indebtedness on series B bonds. The component elements are in three places on the statement. The face value of the bonds is shown separately under long-term liabilities. Applicable discount of $1,686 is included in the $1,716 of Discount on Bonds and Notes listed among prepaid and deferred items. Any accrued interest payable (there is none in this case) would be included among current liabilities as a part of accrued accounts payable. A similar scatter of details is true of series A bonds and of notes payable to banks.

The foregoing observations imply a criticism of balance sheet Form 1 in part only. All of the items listed as prepaid and deferred could be shown more effectively than they are shown. But to pull out of accrued accounts payable the accrued

interest in bonds payable in order to show it along with the bonds might yield *less useful* information to balance sheet readers than does the present arrangement. The point at issue is the impossibility of preparing a balance sheet that will be satisfactory for *all* purposes. Ordinarily but one point of view can be served by a given arrangement of the data. A different presentation must be made to serve another purpose. The following form illustrates an arrangement which gathers all related items together, i.e., all primary accounts and their valuation accounts. This form is not commonly used. It is presented to emphasize the basic idea that the arrangement of statistical data in a report will be determined by the purpose to be served by the report.

THE ABC COMPANY

Balance Sheet

December 31, 1955

Form 2-a

ASSETS

Current				
Cash			$114,000	
Accounts Receivable				
Trade		$840,000		
Allowance for uncollectible accounts		31,915		
		$808,085		
Officers and Employees		1,000		
Other		500	809,585	
Notes Receivable		15,000		
Notes Receivable Discounted	$4,000			
Less: Discounted Unamortized	30	3,970	11,030	
Merchandise Inventory		$462,000		
Unexpired Insurance		344	$462,344	
Supplies			1,000	
Total Current Assets				$1,397,959
Investments				
Bonds Owned			$ 8,000	
Accrued Interest on Bonds Owned			80	8,080
Total				$1,406,039
Prepaid Personal Property Taxes				450
Total Current Assets and Investments				$1,406,489

Fixed

Land		$ 75,000	
Building	$480,000		
Unexpired Insurance	554		
	$480,554		
Allowance for Depreciation	149,600	330,954	
Prepaid Taxes Land and Building		650	
		$460,604	
Furniture and Fixtures	110,000		
Unexpired Insurance	350		
	$110,350		
Allowance for Depreciation	57,800	52,550	
Total Fixed Assets			459,154
Total Assets			$1,865,643

THE ABC COMPANY
Balance Sheet
December 31, 1955

Form 2-b

LIABILITIES

Current

Trade Accounts Payable	$159,000		
Allowance for Discounts	3,800	$155,200	
Accrued Accounts Payable		22,185	
Notes Payable Banks	$ 75,635		
Less: Accrued Interest included in Accrued Accounts Payable	635	75,000	
Total Current Liabilities			$ 252,385

Long-Term

Bonds Payable—Series A	$100,250		
Less: Accrued Interest included in Accrued Accounts Payable	250		
	$100,000		
Plus: Premium Unamortized	734	$100,734	
Bonds Payable Series B	$150,000		
Less: Discount Not Accumulated	1,686	148,314	249,048
Total Liabilities			$ 501,433

Proprietorship

Original Investment	$500,000	
Retained Income	864,210	$1,364,210
		$1,865,643

Comments on Balance Sheet—Form 2. The distinguishing feature of this form of balance sheet is the combining of related items. The economic measure of notes receivable discounted is $3,970 on December 31, 1955. Not until they are due and payable at some future date will the liability be $4,000. The unamortized discount of $30 is a valuation account balance and should, therefore, be taken into consideration in *valuing* the related item notes receivable discounted.

In the case of merchandise inventory, building, and furniture and fixtures an amount of unexpired insurance has been added to the primary account balances. The unexpired insurance account is a valuation account. This is the first one we have encountered which increases the valuation of the primary asset account to which it is applicable. Unexpired insurance is not an asset. Unless the contingent event insured against occurs the insuring company does nothing, renders no service. Nor is any service consumed or stockpile of service exhausted with the passage of time. But the property insured is more valuable than if not insured, by at least the unexpired premium. From another point of view the probability is increased that the dollars expected to be derived from the asset will be derived when the asset is insured. The dollar value of this increased probability is assumed to be not less, at any point in time, than the unexpired insurance premium.

Analogous reasoning applies to prepaid taxes on real and personal property. Their dollar measure is not a measure of future services, i.e., assets. But they do represent a measure of value of the assets with reference to which they are paid. Property on which taxes have been paid is more valuable than the same property with the taxes unpaid, by at least the amount of the taxes. The reader will note that prepaid personal property taxes is added to the total of all non-fixed assets, i.e., to the total of personal property. If the taxes or insurance applies to a specific asset or class of asset it is added directly to that item or class. This was the situation with respect to all unexpired insurance. But one item of prepaid taxes applied to more than one but less than all fixed assets, whereas the other (per-

sonal property taxes) applied to all non-fixed assets. Had there been any unexpired public liability or business interruption insurance each would have applied to the total of *all* assets. Here the probability concept discussed above applies to all the assets.

Valuation accounts applicable to liabilities have been placed next to the related primary account. The reader should note, for example, the added detail *all collected into one place,* concerning notes payable banks. The entire amount of indebtedness arising out of the loans is shown opposite the title notes payable banks. Accrued interest and principal sum are separately identified. Yet the amount of accrued interest is included in accrued accounts payable. In a similar fashion all details concerning each separate bond issue are set out. The reader should observe that a valuation account balance is applicable to each bond issue. In the case of Series A Bonds the account contains a credit balance and therefore is added to the amount of the legal liability to arrive at the economic liability. For Series B bonds the reverse situation exists. In this balance sheet arrangement each valuation account balance stands out separately for what it is; an amount that must be taken into consideration in arriving at a valuation of the primary account to which it applies. Valuation accounts applicable to balance sheet accounts may relate to asset, liability, or proprietorship accounts. They may increase or decrease such account balances. In Form 2 four of the six possibilities are illustrated namely valuation account balances, increasing and decreasing one or more assets or liabilities.

In Form 1 there was shown a group of items under the title prepaid and deferred. By rearranging the data as in Form 2 this group has disappeared. Similarly the group title deferred credits to income shown on the right hand side of Form 1 has been eliminated. Both eliminations are the consequence of recognizing the fact that a balance sheet is a form of the modified basic equation A = L + P *after* all subdivisions of P have been summarized and the net change in P entered in the appropriate primary subdivision thereof. No matter how the data are arranged, a balance sheet contains only assets, liabilities and the resultant proprietorship. In Form 1 the use of the title prepaid and deferred items, because of the ambiguity of the words used, is more likely to mislead than to aid the reader of the statement. Similarly misleading is the title deferred credits to income. This is especially true if a total of liabilities next precedes it. The implication is that a class of item exists which

is not a liability and not a part of proprietorship. But this is impossible within the limits of double-entry accounting and the philosophy on which it is based.

Turning again to the question of total assets we find in Form 2 the figure $1,865,643. This *is* the correct total. It was arrived at by including in the valuation of all assets every applicable valuation account balance regardless of its algebraic sign. The same is true of the liability total. Consequently Form 2 is really a presentation of classified details of assets, liabilities and proprietorship. It is the modified basic accounting equation with dollar measures derived from the records of The A B C Company on a specified date.

Analysis of Retained Income. The third conventional statement is designed to show the changes in proprietorship that arose from net income or net loss and from distributions to investors. The statement follows:

The A B C Company
Statement of Retained Income
December 31, 1955

Balance, January 1, 1955		$340,000
Net Income, Calendar Year 1955		565,300
Total		$905,300
Adjustment of Prior Year's Income	$ 1,090	
Distribution to Investors	40,000	41,090
Balance, December 31, 1955		$864,210

This statement ties the balance sheet at the beginning of the period, by means of the details in the income statement, to the balance sheet at the end of the period.

Additional Illustrations and Comments. There follow several statements taken from corporate reports to stockholders. They were selected because they illustrate significant variations from the more conventional form of statement.

The first one "Disposition of Sales Income" is designed to tell the story of the results of the year's operations in non-technical language. It is addressed to the stockholder or other interested party in a manner which facilitates an understanding of what happened. It is a story of the disposition of the income derived from the year's sales to customers.

The second one tells the same story but in more technical language and in less detail. It also integrates the statement of profit for the year with accumulated retained income (profits employed in the business).

Next in order is a statement called "Financial Position". It contains all the data of the balance sheet but so arranged as to yield, by a series of additions and subtractions, the excess of current assets over current liabilities (net current assets) and the net assets, i.e., proprietorship in the terminology used throughout this book. To this is appended an analysis of the proprietorship in terms of the kinds and amounts of outstanding capital stock and profit employed in the business.

Lastly, there is presented an analysis of the cash account for a year. Since everybody is conscious of the importance of cash in business operations and since many people think of income and profits in terms of more cash on hand, this type of analysis is helpful in explaining that portion of the year's operations which resulted in cash changes during the year. The reader should note that the statement shows *net* changes only in accounts receivable and accounts payable, including accrued expenses. The statement *is not* an analysis of cash receipts and disbursements. It is a statement of changes in cash arising from the net changes in those assets and liabilities which affected the cash account during the year.

DISPOSITION OF SALES INCOME *

	1953		1952	
The Company sold goods to customers for	$217,484,369	100.0%	$202,373,467	100.0%
The costs to produce and sell these goods were:				
Raw materials	92,253,284	42.4	89,699,430	44.4
Wages and salaries	69,294,198	31.9	63,320,146	31.3
Power, maintenance materials and supplies....	7,078,132	3.2	7,779,237	3.8
Provision for accrued vacation pay	2,410,744	1.1	.....	....
Cost of consolidating operations at certain plants..	992,581	.5	.....	....
Selling and administrative expenses (not including wages and salaries)....	9,896,869	4.5	9,210,170	4.6
Depreciation of buildings, machinery and equipment	6,663,756	3.1	6,103,887	3.0
Insured employee programs	4,620,594	2.1	3,715,067	1.8
Taxes	15,562,106	7.2	13,860,359	6.8
Making a total of.....	$208,772,264	96.0	$193,688,296	95.7

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Leaving an excess of sales income over costs, of.....	8,712,105	4.0	8,685,171	4.3
Income from other sources exceeded other expenses by..	552,873	.3	88	....
Which, when added to the excess of sales income over costs, made net earnings of	$ 9,264,978	4.3	$ 8,685,259	4.3
These earnings were distributed as follows:				
Dividends paid to stockholders	$ 5,906,219	2.7	$ 5,336,626	2.6
Reinvested in the business for continuation of the Company's operations...	$ 3,358,759	1.6	$ 3,348,633	1.7

RESULTS OF OPERATIONS YEAR 1953 *

Sales		$433,802,604
Costs:		
Inventories brought forward from last year....	$105,501,835	
Materials, supplies, services purchased, etc.	233,612,164	
Wages, salaries, company contributions for group insurance, pension plan, unemployment insurance and old age benefits	134,808,362	
Portion of original cost of buildings, machinery and equipment allocated to operations (depreciation and amortization)	12,764,446	
Interest on borrowed funds	1,556,317	
Federal income and excess profits taxes	35,603,898	
	$523,847,022	
Deduct:		
Inventories carried forward to next year.....	110,298,932	
Costs allocated to year		413,548,090
Profit for year		$20,254,514
Add:		
Profit employed in the business at beginning of year		88,657,488
		$108,912,002
Deduct:		
Dividends paid in cash during year:		
Preferred stock—$4.20 per share	$ 1,002,750	
Common stock—$2.50 per share	9,626,506	

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Dividends paid in common stock—4% or 152,835 shares:			
Transferred to common stock—$10 par value per share.....	$1,528,350		
Transferred to capital in excess of par value—$47.75 per share, being the excess of market value of stock at time dividend was declared over its par value....	7,297,871	8,826,221	
			19,455,477
Profit employed in the business at end of year....			$ 89,456,525

FINANCIAL POSITION DECEMBER 31, 1953 *

Current assets:			
Stated on basis of realizable values:			
Cash		$ 11,219,379	
Receivable from customers and others.....		23,753,625	
		$ 34,973,004	
Stated at cost principally using "last-in, first-out" method:			
Inventories		110,298,932	
			$145,271,936
Deduct: Current Liabilities:			
Payable to material suppliers and others.....		$ 23,142,944	
Federal income and excess profits taxes.....		41,290,916	
Less: United States Government securities....		(17,961,620)	
			46,472,240
Net Current assets (statement 5)			$ 98,799,696
Prepaid insurance, etc.—cost allocable to future operations			253,243
Buildings, machinery and equipment—balance of original cost allocable to future operations (statement 7)			110,190,274
Land—at original cost			4,015,430
Investment in and advances to wholly owned British subsidiary			1,531,411
Patents, trade-marks and other intangibles—at nominal amount			1
			$214,790,055

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Deduct:		
Ten-year 2% debentures due 1956	$ 18,033,000	
Notes payable—3⅜%, due annually 1964-1972	35,000,000	
		53,033.000
Net assets		$161,757,055
Ownership equities (statement 3):		
Preferred stock—4.20% cumulative:		
235,000 shares of $100 par value		$ 23,500,000
Common stock:		
3,974,011 shares of $10 par value	$ 39,740,110	
Capital in excess of par value	9,060,420	
Profit employed in the business	89,456,525	
		$138,257,055
		$161,757,055

CHANGES IN CASH DURING 1953 *

Cash at December 31, 1952	$14,362,539
The Company's cash was increased by:	
Earnings before federal taxes on income	21,664,978
Provision for depreciation and amortization	6,663,756
Increase in accounts payable and accrued expenses	1,825,236
Decrease in inventories	1,658,792
Obsolescence relating to plant consolidation	836,119
Sale of capital assets and miscellaneous items	201,048
Total of items increasing cash	$32,849,929
The Company's cash was decreased by:	
Payments of federal income taxes	$10,775,987
Expenditures for property, plant and equipment	7,659,483
Increase in U. S. Government securities held for payment of federal income taxes	5,953,387
Dividend payments to stockholders	5,906,219
Payment of bank loans	2,600,000
Net increase in accounts receivable and prepaid expenses	868,800
Total of items decreasing cash	$33,763,876
Net decrease in 1953	913,947
Cash at December 31, 1953	$13,448,592

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CHAPTER 13

Errors In The Accounts — Reconcilement of Reciprocal Accounts

Introduction. In all our analysis thus far the possibility of error and its consequences have been ignored. We have taken for granted that all transactions have been recorded, that no errors have been made in the statistical classification of data (that every entry has been made to the proper account), that no clerical errors (mistakes in arithmetic) have occurred, and that the measurements of all income and expense classes have been properly distributed in time. In the real world none of the foregoing may be taken for granted. Errors of many kinds occur. It is the purpose of the following discussion to consider the several classes of error, the effect of each on periodic income measurement and on the balance sheet and how they may be corrected. Each class of error will be discussed separately.

Errors of Statistical Classification. There are two kinds of error of statistical classification. One of them affects the measurement of periodic income while the other does not. Suppose, for example, that an item of $50 properly chargeable to building maintenance is debited to the building account. A $50 decrease in proprietorship is treated as an increase in an asset. The expense total for the period in question is understated by $50. At some time $50 cash is disbursed. But it is offset by a $50 asset increase (the debit to building account) instead of by an expense increase (a proprietorship decrease). Until the error is discovered the balance sheet will show $50 more of asset value than the facts warrant. Proprietorship will be overstated by the same amount. A similar distortion but of opposite algebraic sign will result where a credit to income is erroneously entered in a liability account. In general there are four possibilities:

1. An asset increase entered as an expense increase.
2. An expense increase entered as an asset increase.
3. An income increase entered as a liability increase.
4. A liability increase entered as an income increase.

Both 1 and 3 understate income for the period and correspondingly understate proprietorship at the end of the period. The effect of 2 and 4 is just the opposite. In all four cases it

is the net income of *one period only* that is affected, the period with reference to which gross income and the related expenses were being measured. But the over or under-statement of *proprietorship* remains until the error is discovered and corrected. If discovery and correction take place before the books are closed and statements prepared all is well. If, however, discovery of the error is not made until a subsequent period, and this is commonly the case, the correcting entry always affects Retained Income, the subdivision of proprietorship in which are accumulated net income and net losses, period by period. Pro forma entries correcting the four types of error follow:

1.	Asset	xx	
	Retained Income		xx
2.	Retained Income	xx	
	Asset		xx
3.	Liability	xx	
	Retained Income		xx
4.	Retained Income	xx	
	Liability		xx

In each case a specific asset or liability account is involved.

The other type of error, because it does not affect periodic income measurement, may remain for some time undetected. Here again there are four possibilities.

1. An incorrect classification of an asset change.
2. An incorrect classification of a liability change.
3. An incorrect classification of an expense change.
4. An incorrect classification of an income change.

Examples of these are legion. Only the most common ones will be mentioned. The first possibility is best illustrated by entry in the wrong account receivable; the second, by entry in the wrong account payable; the third, by entry in the wrong expense account; the fourth, by entry in the wrong sales account. In no case will the errors affect income measurement because the proper category of item, asset, liability or proprietorship has been correctly increased or decreased. The reader should observe that for each of the four possibilities a plus or a minus change may occur; there are therefore eight separate error situations. As an exercise the reader should work out a case for each of the possibilities.

When the error is discovered the correcting entry is always of the form wherein the two or more accounts affected are of the same category or class; i.e., both are assets, or liabilities, or income, or expense. Never does the entry affect an asset or a liability *and* an income or an expense. If the latter be true we have one of the cases first discussed in this section.

Errors of Time Distribution—Compensating Type. Of all the kinds of errors that creep into accounting records those of time distribution occur most frequently. All of them stem from the problem of measuring periodic income and are associated with accruals of income and expense and with inventories of all kinds. In the following discussion these problems will be considered in relation to income, non-inventoriable expense items, supplies and finally merchandise inventories; and in that order.

To facilitate the exposition successive periods will be identified as I, II, III, etc. Our concern is always with the effect of an error in time distribution on the reported net income of successive periods and on the balance sheet at the end of one or more periods. As to the income statement the problem involves an error in gross income or expense and in net income. On the balance sheet there will be an error in the dollar measure of assets or liabilities and proprietorship.

In measuring gross income two types of error may occur, one resulting from the complete omission of a transaction, the other from a mistake as to the amount. Suppose that a sale of $48.50 on account made in period I is not recorded until period II. A shift in the time distribution of income has occurred with the following results:

Income Statement	Period I	Period II
Gross Income	Understated by $48.50	Overstated by $48.50
Net Income	Understated by $48.50	Overstated by $48.50
Balance Sheet		
Accounts Receivable	Understated by $48.50	No error
Proprietorship	Understated by $48.50	No error

In period I a sale of $48.50 took place. A new asset, an account receivable, was acquired by the enterprise. Since the value of the new asset was $48.50 an increase in proprietorship of the same amount also occurred. These facts should have been recorded as follows in period I:

Account Receivable	$48.50	
Sales		$48.50

This event is to be considered in isolation; i.e., we assume no change in all other facts concerning period I. In other words we assume all other things equal.

Because the foregoing entry was not made sales was understated by $48.50. Therefore gross income was understated by the same amount. Having assumed no change in other items it follows that net income has been understated by $48.50. Since net income is transferred to proprietorship or to a primary subdivision thereof it also follows that proprietorship is understated by $48.50. This understatement of proprietorship is offset on the balance sheet by the understatement of accounts receivable.

In period II the sale of $48.50 is recorded along with other sales of that period. Accounts receivable and sales are overstated by $48.50. A sale made in period I is reported as a sale made in period II. Since sales of period II are overstated by $48.50 gross income is similarly overstated. Since gross income is overstated so is net income. But there is no error in the balance sheet at the end of period II resulting from this error of time distribution. Let us see why this is so. The transaction in question took place prior to the end of period II. It was recorded before the end of period II. Therefore the balance sheet was correct at the end of period II. So were the gross and net income for periods I and II *combined*. If we were to prepare an income statement for period I and II combined it is immaterial whether the sale was recorded in one period rather than the other. This may be seen more readily if we think of successive monthly statements and the annual statements. Consider an enterprise which prepares monthly and calendar year statements. If the monthly statements are to be useful it is very important that every item of income be properly distributed to the appropriate month. For purposes of an annual statement, however, a sale made in any of the months January through November may be recorded one month later without effect on the reported gross income for the year. But income *is* misstated if a sale of the preceding December is reported in January or if a sale of December of this period is reported the following January. Both the reasoning involved and the conclusions of the foregoing analysis apply to every case in which a transaction involving gross income is reported in a period subsequent to that in which it occurred. This means that it applies to *all* kinds of gross income.

Suppose now that the error is discovered during the preparation of the income statement for period II and the balance sheet at the end of period II. The understated net income of period I has already been transferred to Retained income. The following entry, with appropriate explanation, should be made:

Sales—Period II	$48.50	
Retained Income		$48.50

Period II sales are now reduced by the $48.50 of sales made in period I and erroneously recorded as sales of period II. Retained Income, the accumulated net income retained in the enterprise, has been increased by $48.50. Since the sale was made in period I and since the balance in Retained Income includes all periodic net income and net loss figures *up to the end of period I* we now have the correct balance in that account. We also have the correct balance in the sales account for period II assuming no other errors in it.

Mistakes in arithmetic and failure to include all items are the chief reasons for errors involving non-inventoriable expense items. Suppose, for example, that accrued salaries of period I have been understated by $475 and that the error is discovered and corrected in period II. The results follow.

Income Statement	**Period I**	**Period II**
Expense	Understated by $475	No error
Net Income	Overstated by $475	No error
Balance Sheet		
Accounts Payable	Understated by $475	No error
Proprietorship	Overstated by $475	No error

The following entry, made in period II, will correct the error.

Retained Income	$475	
Expenses—Period II		$475

If the error is discovered *after* period II or never the results are as follows:

Income Statement	**Period I**	**Period II**
Expenses	Understated by $475	No error
Net Income	Overstated by $475	No error
Balance Sheet		
Accounts Payable	Understated by $475	No error
Proprietorship	Overstated by $475	No error

The following entry, made in period II, will correct the error.

Retained Income	$475	
Expenses—Period II		$475

If the error is discovered *after* period II or never the results are as follows:

Income Statement	Period I	Period II	Period III
Expense	Understated by $475	Overstated by $475	No error
Net Income	Overstated by $475	Understated by $475	No error
Balance Sheet			
Accounts Payable	Understated by $475	No error	No error
Proprietorship	Overstated by $475	No error	No error

The unrecorded expense and debt of $475, properly includable in period I, is paid and recorded in period II. This results in a time shift of expense from period I to period II. For the two periods combined there is no error in expense measurement and therefore none in net income measurement. The overstatement of net income for period I is precisely offset by an understatement for period II. Consequently there is no error in proprietorship at the end of period II and therefore no error in income measurement of period III or in proprietorship at the end of period III. The errors in period I and II have cancelled one another. They are compensating errors. If the expense is overstated in period I the same schematic arrangement holds with opposite algebraic signs throughout.

All merchandise owned by an enterprise should be accounted for at period end in determining cost of goods sold. This includes merchandise in transit to the enterprise. This fact has been allowed for in the schematic arrangement on page 168 in which are shown the common types of error relating to merchandise inventory and their affect on the income statement and on the balance sheet. Certain column headings need to be explained. "Booked" and "not Booked" mean "entered in the ledger accounts" and "not entered in the ledger accounts" respectively. For each case or situation an X in a column indicates what has happened. In Case I, for example, assume that the amount was $300. Therefore $300 of merchandise was received and properly entered in the accounting records, i.e., purchases was increased by $300 and so was accounts payable. The merchandise was on hand at the end of the period but was not included in the physical count in arriving at the value of the inventory for balance sheet and income statement purposes. (At this juncture it is necessary to point out that the ledger account for merchandise is always adjusted, at the end of an

accounting period, to agree with the figure arrived at by physically counting the goods on hand and multiplying the quantities by the unit cost price.) Assume the following data: opening inventory $10,000, purchases $49,000, ending inventory as counted and priced, $10,900. The reported (incorrect) and correct results follow:

	Reported (Incorrect)	Correct
Opening Inventory	$10,000	$10,000
Purchases	49,000	49,000
Total	59,000	59,000
Closing Inventory	10,900	11,200
Cost of Goods Sold	$48,100	$47,800

Let us further assume no errors in gross income measurements or in expenses for this period. At the end of the period the total merchandise to be accounted for is $59,000. This is definite. The opening inventory was $10,000 and total purchases $49,000. Their sum is the total of a mixed account; part is cost of goods sold, an expense for the period just ended; part is an asset, inventory on hand. We are assuming what is a common practice, i.e., that cost of goods sold is determined indirectly. The value of the merchandise on hand is determined directly and this figure deducted from the total merchandise to be accounted for. The balance is cost of goods sold. Obviously the greater the value of the closing inventory the smaller the value of cost of goods sold and vice versa.

In this illustration the inventory was understated by $300. Therefore cost of goods sold was overstated by $300; it was reported as $48,100 whereas it should have been reported at $47,800. The understatement of inventory by $300 resulted in an understatement of proprietorship of $300. The overstatement of cost of goods sold resulted in an understatement of net income. In the following period just the opposite takes place because the closing inventory of period I is the opening inventory of period II. But there is no error in proprietorship at the end of period II because for the two periods there is no error in closing inventory, cost of goods sold or net income.

Now let us suppose that the error is not detected until sometime in period III and that corrected income statements and

balance sheets are wanted for periods I and II. Assume also that all inventories and income and expense summaries in the ledger are to be corrected. The following adjusting entries are required:

To correct the ledger accounts for Period I		
Closing inventory—Period I	$300	
Income and Expense—Period I		$300
Income and Expense—Period I	$300	
Retained Income		$300
To correct the ledger accounts for Period II		
Income and Expense—Period II	$300	
Opening Inventory—Period II		$300
Retained Income	$300	
Income and Expense—Period II		$300

The closing inventory of period I is the opening inventory of period II. This explains the third entry above. Note that the net change in retained income is zero. For the two periods combined, i.e., treated as one longer period there is no error in income or in inventory.

The foregoing method of analysis can be applied to all errors in inventories of supplies and merchandise. All possible situations are covered by the nine cases set out in the schematic arrangement on page 168. The reader should work out for himself an illustration for each of the other eight cases, together with the appropriate adjusting entries during period III, on the assumption that corrected income statements and balance sheets are required for periods I, II, and III.

Errors of Time Distribution—Non-compensating Type. The foregoing analysis makes it clear that every compensating error is self-correcting by the end of the next period. We are now to consider a type of error for which this is not true. The only measure of net income affected is that of the period in which the error is made. But an asset or a liability *and* the proprietorship are incorrect by the amount of the error until it is discovered and corrected.

As an illustration consider the case in which there is a $27.95 error *in the amount* of a sale on account. It may be overstated or understated. It may be discovered in a subsequent period or remain forever unknown. The results of some typical possibilities are set out diagrammatically below.

Case I

The amount of a sale overstated in period I, discovered and corrected in period II:

	Period I	Period II
Income Statement		
Gross Income	Overstated by $27.95	No error
Net Income	Overstated by $27.95	No error
Balance Sheet		
Accounts Receivable	Overstated by $27.95	No error
Proprietorship	Overstated by $27.95	No error

Case II

The amount is overstated in period I, discovered and corrected in period III:

	Period I	Period II	Period III
Income Statement			
Gross Income	Overstated by $27.95	No error	No error
Net Income	Overstated by $27.95	No error	No error
Balance Sheet			
Accounts Receivable	Overstated by $27.95	Overstated by $27.95	No error
Proprietorship	Overstated by $27.95	Overstated by $27.95	No error

Case III

The amount is understated in period I, discovered and corrected in period II:

	Period I	Period II
Income Statement.		
Gross Income	Understated by $27.95	No error
Net Income	Understated by $27.95	No error
Balance Sheet		
Accounts Receivable	Understated by $27.95	No error
Proprietorship	Understated by $27.95	No error

Case IV

The amount is understated in period I, discovered and corrected in period III.

	Period I	Period II	Period III
Income Statement			
Gross Income	Understated by $27.95	No error	No error
Net Income	Understated by $27.95	No error	No error
Balance Sheet			
Accounts Receivable	Understated by $27.95	Understated by $27.95	No error
Proprietorship	Understated by $27.95	Understated by $27.95	No error

Case I

Overstatement corrected in Period II.

Retained Income	$27.95	
Accounts Receivable		$27.95

Case II

Overstatement corrected in Period III.

Retained Income	$27.95	
Accounts Receivable		$27.95

Case III

Understatement corrected in Period II.

Accounts Receivable	$27.95	
Retained Income		$27.95

Case IV

Understatement corrected in Period III.

Accounts Receivable	$27.95	
Retained Income		$27.95

The reader should note that the accounts affected by the correcting entry are not influenced by the number of periods which have elapsed before the error is discovered and the correction made. So long as the asset is overstated just so long will proprietorship be overstated—and similarly for an understatement. Furthermore exactly the same pattern would be followed in the case of an error in expense or in a liability, proper allowance being made for the algebraic sign of the error. As an exercise the reader might set up the pattern of the four cases for a plus and minus error in an expense, an account payable, and for depreciation.

Reciprocal Accounts. Accounts are reciprocal when they represent the opposing interests of two enterprises. Two accounts are involved, one each on two sets of books. The relation between a buyer and seller on account is an illustration. Let A be the seller and B the buyer. Every debit to B's account on A's books is a credit to A's account on B's books. Every credit to B's account on A's books is a debit to A's account on B's books. The following ledger accounts will serve as an illustration. Transactions initiated by A will be identified by capital letters in A's account with B, their "opposite number" by lower case letters in B's account with A. For transactions initiated by B, Roman and Arabic numbers, respectively, will be used.

Account Receivable with B on the books of A, the seller.

+	B		—
(A) Sale	450	(1) Returned Mdse	15
(B) Sale	1,000	(2) Cash	435
(3) Error in returned mdse	2	(3) Price Allowance	24

Account Payable with A on the books of B, the buyer.

—	A		+
(I) Returned Mdse	15	(a) Purchase	450
(II) Cash	435	(b) Purchase	1,000
(c) Price Allowance	24	(III) Error in returned mdse	2

Each of the two parties to the reciprocal relationship can initiate a transaction either increasing or decreasing his account balance. The other party may or may not properly enter it on his account with the first party. As a consequence four possible errors may exist. They may be stated as follows in terms of debit and credit from the viewpoint of either party:

We debit, they do not credit
We credit, they do not debit
They debit, we do not credit
They credit, we do not debit.

From time to time it is necessary to adjust differences between reciprocal accounts. The procedure is called reconcilement of reciprocal accounts. If the buyer-seller relationship illustrated above involves two parties whose accounting records are in good order such reconcilement may be necessary only infrequently. On the other hand if the particular account or group of accounts in question covers a very important asset or liability frequent reconcilement may be necessary. This is particularly true if it is important that the account balance be kept very current or that the account is one that is exposed to manipulation because of the nature of the asset in question. These considerations apply with particular force to accounts for cash on deposit with banks. The reconcilement of such accounts usually occurs every month. We now turn to an illustration and discussion of such a procedure.

We will assume that the X Company maintains a checking account with the Y National Bank. The account with Y National Bank on the books of the X Company is up to date at the end of May, 19 A and was reconciled with the bank statement at the end of April, 19 A. The balance May 31, 19 A is $27,485.36. The bank statement shows a balance of $25,360.61. How is the difference of $2,124.75 to be explained? The answer lies in the four possibilities listed above. Let us consider them one at a time. We debit; the bank does not credit. Our examination

of the bank statement discloses that a deposit of $3,743.58 entered by us on May 31 was not recorded by the bank. We credit; the bank does not debit. Checks drawn by us and mailed to creditors have not been received by the bank. They total $1,988.76. The bank debits; we do not credit. A note for $1,000 payable to the bank due on May 31 was charged to the account by the bank. The bank credits; we do not debit. The bank has collected a note for us in the sum of $630.07 and credited our account.

One each of the four possible classes of items accounting for the difference between two reciprocal account balances has been included in the foregoing data. There remains the problem of reconciling the two accounts. This is accomplished by completing on each set of books all transactions initiated by either party but not yet recorded by the other party. In each of the four cases illustrated above the event was recorded *on one set of accounts only.* The reconcilement is completed when each such event is recorded on the other set of accounts. Conventionally the work is done by means of a simple arrangement of the data prepared outside of the books of account. Appropriate entries are made in the accounts based on vouchers accompanying the bank statement. An illustration follows:

Bank Reconcilement May 31, 19 A

Balance per Books	$27,485.36
Add: Collection of Note of R S Company	630.07
	$28,115.43
Deduct: Note due bank, May 31	1,000.00
Corrected Balance per Books	$27,115.43
Balance per Bank Statement	$25,360.61
Add: Deposit of May 31	3,743.58
	$29,104.19
Deduct: Checks not yet cleared	1,988.76
Corrected Balance per Bank Statement	$27,115.43

In actual practice the details of each class of adjustment are separately listed. For example on separate sheets there would be listed the individual checks outstanding. This is, in effect, a separate accumulation of the details of one of the four classes of adjustments which are necessary to effect a reconcilement. Such a procedure may be used for any pair of reciprocal accounts.

ERRORS IN MERCHANDISE INVENTORY AND THEIR EFFECT ON BALANCE SHEET AND INCOME STATEMENT

Case	Received and on Hand	In Transit	Received and Sold	Booked	Not Booked	Counted	Not Counted	Effect on Balance Sheet End of Period: Inventory	Accounts Payable	Proprietorship (Retained Income)	Effect on Cost of Goods Sold: This Period	Next Period	Effect on Net Income: This Period	Next Period
I	X			X			X	Understated		Understated	Overstated	Understated	Understated	Overstated
II	X				X		X	Understated	Understated					
III	X				X	X		Overstated	Understated	Overstated	Understated	Overstated	Overstated	Understated
IV		X		X			X	Understated		Understated	Overstated	Understated	Understated	Overstated
V		X			X		X	Understated	Understated					
VI		X			X	X		Overstated	Understated	Overstated	Understated	Overstated	Overstated	Understated
VII			X	X		X		Overstated		Overstated	Understated	Overstated	Overstated	Understated
VIII			X		X	X		Overstated	Understated	Overstated	Understated	Overstated	Overstated	Understated
IX			X		X		X		Understated	Overstated	Understated	Overstated	Overstated	Understated

CHAPTER 14

The Time Distribution of Gross Income and Expense

Introduction. The major problem of accounting is the measurement of periodic income. The length of the period is the choice of management. Once the selection has been made the accountant's problem may be stated thus: Measure the gross income for the period and the related costs or expenses. In other words, measure the gross income for the period and then measure the cost of services consumed in the attempt to obtain that income. All illustrations thus far presented and discussed were worked out on the implied assumption that the two problems of measurement could be readily solved. This chapter is devoted to a discussion of the very real problems that must be faced and the conventional solution of them.

Gross Income Measurement. For practically every type of commercial, industrial and financial activity the problem of measuring gross income for a period is relatively simple. Furthermore for a twelve month period the degree of accuracy of measurement is very high. If all sales are on a cash basis the measurement should be definitive. If all sales are on account, credit terms are thirty days, and customers pay monthly, then at the end of twelve months only one month's sales are uncollected. As the credit period is lengthened less cash is collected in the period of sale and the more important becomes the problem of estimating the cash which will be collected.

Assume the following facts for four enterprises whose net sales are made ratably throughout the year:

	Co. A	Co. B	Co. C	Co. D
Annual net sales	$1,200,000	$1,200,000	$1,200,000	$1,200,000
Credit terms	Cash	30 days	60 days	120 days

The gross income for each of them is measured by the following statements of new assets, acquired during the year, as analyzed at the end of the year:

	Co. A	Co. B	Co. C	Co. D
Cash received during this year from sales of the year	$1,200,000	$1,100,000	$1,000,000	$ 800,000
Accounts Receivable due at end of year from sales of that year		100,000	200,000	400,000

If we assume no clerical errors Co. A's gross income is determined with absolute certainty. All the cash to be received from the year's sales has been received. With Cos. B, C and D the situation is different. In each case an estimate must be made of the cash to be yielded by the accounts receivable owing at the end of the year. Other things being equal Co. D's gross income can be determined with less certainty than Co. B's. More estimating is involved in measuring Co. D's gross income than in measuring Co. B's. That fraction of gross income which involves estimating is zero for Co. A and one-twelfth, one-sixth, and one-third, respectively for Co. B, Co. C, and Co. D.

Now it is quite obvious that the longer the time interval, the smaller the fraction of gross income which is based on estimates, and conversely. If Co. D's income is to be measured for a two year period only one-sixth rather than one-third is subject to estimating; if the period be four years the fraction is but one-twelfth. On the other hand, as the period is shortened the fraction of gross income based on estimates increases. One month's gross income for Cos. B, C and D would be based entirely on estimates. In the case of Co. D all gross income would be based on estimates, for any period up to four months in length.

The problem identified in the foregoing discussion is that of the time distribution of income. Where gross operating income is involved the problem consists of three elements; (1) the selection of the period, (2) the determination of the sales made during that period and (3) estimating *the total cash which ultimately will have been collected* from the customers to whom the sales were made. Only 2 and 3 are accounting problems, and only 3 usually presents any difficulties. All of them were discussed in Chapter 8.

In the case of gross financial income the situation is somewhat different though no more complex. Instead of determining sales made during a period the earnings of investments of funds must be measured. These earnings consist of cash actually received plus estimates of cash to be received. The procedures to be followed were illustrated and explained in Chapter 10. In every situation the amounts involved are based on contracts some of which, as in the case of bonds owned, may continue through many periods. Excepting financial institutions, the fraction of total gross income for a year represented by estimates is usually quite insignificant. For financial institutions (banks, savings and loan associations, building and loan associations,

insurance companies, investment trusts) the situation is the reverse. The discussion illustrated with the data of Cos. A, B, C and D is equally relevant to financial institutions. So are the conclusions drawn.

Expense Measurement. The really difficult problem is the matching of costs or expenses and gross income. Having measured gross income for a period there remains the problem of obtaining the dollar measure of services consumed in getting that gross income. The problem is *not* that of obtaining the dollar measure of services consumed in the period for which gross income was measured but rather that of obtaining the dollar measure of services consumed in obtaining the gross income of that period *without regard to the time distribution of the consumption of such services and without regard to the time distribution of the cash outlays for them.* The latter condition is easily satisfied as was demonstrated in Chapter 9. But the first condition is not so readily met. As we have seen in Chapter 8, the measurement of gross operating income does not present formidable difficulties. The receipts of cash or a money-claim asset signals the emergence of gross income to be recognized, measured, and recorded. The application of simple estimating techniques yields highly reliable results.

It is when we turn to the other side of the picture that real difficulties are encountered. For any measured gross income what is the dollar measure of services that were consumed in getting it? What were the related costs or expenses? The answer to this question can be obtained only by performing the following three operations: (1) identify the kinds of services consumed; (2) measure the quantities consumed; (3) obtain the dollar measure of these quantities. Let us now turn to a consideration of the practical difficulties encountered in performing these three operations.

Practical Difficulties. Of all the obstacles to be surmounted the most troublesome is the identification of the services consumed. This derives primarily from the fact that so many services are used jointly and not with reference to a specific measure of gross income arising from a particular transaction. Consider, for example, the sale for cash by a retail department store of one straw hat. The revenue from the sale is readily identified and measured. So are invoice price of the hat and the commission paid the salesman. But the identification is not so easy in the case of unpacking, rent, light, heat, depreciation, packing for delivery, delivery costs; to name only a few of the

services consumed in getting the gross income resulting from the sale of the hat. Some of them could be measured, but at costs that would far exceed the value of such added information.

From the viewpoint of enterprise operation the various services are consumed not in relation to a particular transaction but in relation to a series of transactions. There is something like a flow of services into an enterprise and their consumption on that basis. This is true even of merchandise. To be sure each sale is a separate transaction and is recorded as such. So is the purchase of each and every service and service source. But we do not prepare an income statement for a transaction but rather for a whole series of them which took place over a specified time interval. Within this time interval many sales transactions have taken place. Services of many kinds have been consumed in varying quantities. The manner of consumption of many services precludes identifying them with specific items of gross income.

How, for example can electric current used for lighting be identified with a specific sale? Obviously it is almost impossible. Similar difficulties beset any attempt to identify most services with specific items of gross income. The way out of the difficulty is to abandon any attempt at any such matching of costs with specific sales and to turn to the concept of a flow of income and related costs over a period of time.

Once this shift in approach to the problem is made an entirely different set of difficulties is encountered. It is quite simple to identify, measure in quantity and measure in dollars, the services consumed in any time interval. But the question still remains: how much of the services consumed in that period were actually consumed in getting the gross income of that period? In general, with reference to obtaining what period's gross income were they consumed?

Product Costs and Period Costs. The solution conventionally adopted runs along the following lines. A distinction is first made between what are called product costs and period costs. The former include all costs directly and unmistakably identified with the product; the latter, all costs not so identified but pertaining rather to the maintenance of the overall activity of the enterprise conceived of as extending indefinitely into the future. This notion of continuing activity not to be terminated in the foreseeable future is known as the "going concern" concept.

The significance of the product cost idea will, perhaps, be made clearer by means of an illustration. Assume that the R S Manufacturing Company shows the following costs of producing four hundred units of product during May, 19 A.

R S Manufacturing Company
Statement of Cost of Goods Manufactured
May, 19 A

Raw Materials Used	$15,000
Labor of Factory Employees	20,000
Manufacturing Expenses	18,000
Cost of Manufactured Product	$53,000

The foregoing is a very condensed statement. Manufacturing Expenses includes the cost of all the services, other than the raw materials and labor of factory employees, consumed in producing the four hundred units of product. Suppose, now, that not one of the units produced is sold. There is, consequently, no gross income. On the balance sheet of May 31, 19 A inventory of finished product would be shown at $53,000. During May, 19 A $53,000 of services were consumed in producing four hundred units of product but *not in getting any gross income.* The average unit cost of the product is $132.50. When sales are made in subsequent months a cost of $132.50 will attach to the gross income from each sale. For purposes of the balance sheet of May 31, 19 A, the value of the output of May, 19 A, is assumed to be not less than the sum of the dollar measures of the services consumed in producing it. This assumption is, in turn, based upon another one, viz.: that the management of an enterprise acts prudently in the discharge of its stewardship responsibilities and that the production would not have taken place if the management did not believe that at least the amount invested would be recovered when it was sold.

But the cost of production statement does not tell the whole story. Many other services were consumed but not in the making of the product. Salesmen were sent out to take orders for the product. They carried with them advertising matter of various kinds. This was supplemented by newspaper, magazine and, perhaps, radio and television advertising. A clerical and bookkeeping staff was busy all month as were the executive officers of the enterprise. Stationery was used up, electric current con-

sumed, office space utilized, etc. Not one dollar's worth of these services was consumed in obtaining gross income for May, 19 A since no sales were made that month. Clearly the cost of all such consumed service will apply to sales made *after* May 31, 19 A.

To which month's sales will these costs apply? Suppose the product is sold at $275 per unit and that sales for June, July, and August of 19 A are $27,500, $20,625 and $34,375, respectively. How much of each of the various costs mentioned in the preceding paragraph apply to each month's sales? Furthermore, how much of like expenses for June, for example, represent the dollar measure of services consumed in getting the gross income of June? These questions are unanswerable—and for a very simple reason. Each of the various kinds of services consumed is not used up in relation to a specific sale, or to the sales of a specific period but in relation to the maintenance of the uninterrupted activity of the enterprise.

These are the costs which are not included in the cost of goods manufactured but which are written off as expenses of the period in which they were consumed. The reader should note that the question of the time distribution of the cash outlays for the services does not enter into the discussion. The issue is solely that of the time distribution of the consumption of the services. So long as they are consumed in any named period their dollar measure is reckoned as a cost of that period.

Uncertainty and Conservatism. The basic reason for the procedure discussed above is the hard fact of uncertainty about the future. Where the degree of uncertainty can be reduced to manageable terms it is taken into account. This is exemplified by the practice of estimating returned sales, discounts on sale, etc., with respect to the uncollected accounts receivable at the end of an accounting period in measuring the gross income of the period. In such a situation the consequences of uncertainty can be converted into estimates which are highly reliable. This is possible because the future time interval involved is short, many of the forces which will influence or bring about future events are already at work and are known and the history of the recent past may be used as a useful guide to action.

Beyond the relatively immediate future the situation is quite different. Thus, although it is known that certain expenses, for example, advertising, will bear fruit in the form of additional

sales, one, two or three years hence, if all goes well, nobody knowns whether or not all will go well. The obvious course of action in these circumstances is to be "conservative"; to take a somewhat dismal view of the future. Out of this attitude certain practices have developed which are identified as reflecting the "conservatism" of accountants.

A widely quoted rule of thumb for measuring net income for a period and for presenting the balance sheet at the end of the period is "take all losses and anticipate no profits". More fully expressed the rule calls for the inclusion among expenses of all known items *plus* those likely to occur *after* the end of the accounting period in question and not to recognize even realistic measures of gross income not represented by a transaction enforceable at law or in equity. The consequence may well be an understatement of asset values, an overstatement of liability values, and a resulting understatement of net income for the period.

But conservatism may mean something entirely different. It may mean that in measuring gross income and expenses the most probable value was used whenever estimates had to be resorted to. This is well illustrated by the procedure discussed in Chapter 8 for estimating gross operating income. All the estimates of sales allowances, discounts on sales, returned sales, and uncollectible accounts receivable were based upon recent past experience. The measures used represented the best estimates of what would happen if recent history repeated itself. Of all alternatives available for making the estimate the experience of the immediate past is the most useful because it is indicative of a trend. And such trends in experience do not, except under unusual circumstances which are normally known, change suddenly. It follows that this method of estimating yields "most probable figures"; that is, the final results will turn out to be closer to these estimates than to any other estimates which might have been made. Precisely the same reasoning is applicable to expenses. Such a conservatism is based on realistic analysis of all relevant factual information past and present.

A third interpretation of conservation exists. Here the lowest of alternative values is used in respect to income and the highest in respect to expenses. The notion of anticipation, included in the first concept, is here excluded. The sole criterion of choice seems to be a fear of making an estimate of net income which is "too high" But the criterion of "too highness" is not disclosed.

The second interpretation of conservatism is clearly the only one which is realistic. It takes account of economic realities and employs statistical methods to interpret them. The resulting estimates are based on logical analysis rather than rule of thumb. Subsequent results can be checked against the estimates and the statistical procedures revised accordingly.

The consequence of the application of the first discussed notion of conservatism to the valuation of merchandise inventory will be taken up in the next chapter.

CHAPTER 15

Inventory Valuation

Introduction. In the appendix to Chapter Two, the concept of value was explained and illustrated. All through the discussion in this book, it has been assumed that the initial value, that is the acquisition price, represented by the cash outlay was the basic datum for all purchased services and service sources. It will be recalled that this basic datum or primary statistical figure was obtained from some voucher on which was reported the result of a business transaction which had been entered into by the enterprise and which had been completed by way of a market operation. The basic information was, therefore, derived from the market as a consequence of a transaction completed on the market, to which transaction the enterprise was a party.

The reader should note that once the transaction was completed, any influence of future market changes on the primary statistical data have consistently been ignored in all of the discussion in this book. Once the transaction was completed, the enterprise, it was assumed, had been insulated against any further influence on the completed transaction of changes in market prices of the service or service source acquired. It will be recalled that this assumption was based on the concept of prudent action on the part of the managers of the enterprise. Basically, it was assumed that the managers acted with such prudence as would warrant the assumption that not less than the amount invested in the goods and services would be recovered when they would be sold and all allowances for expenses had been made. As a consequence, in all the procedures heretofore discussed and illustrated in the measurement of costs of expenses, we have used throughout the historical cost of all goods and services. No attention whatever has been paid to the fact that the expectations of management concerning the recovery, through sale, of the dollar amounts invested in inventory might not be realized because of the influence of changes in market prices on the sales value to the enterprise of goods already purchased. It is to a consideration of this problem that the balance of this chapter is devoted.

Revaluation and The Measurement of Expenses. Up to this point, we have used the words "cost" and "expense" as synonyms and

as meaning the dollar outlay measure when referring to the acquisition of goods and services and as meaning the dollar measure of services consumed in getting gross income when referring to costs or expenses of a period. In using the latter concept, we have tacitly assumed that there did not occur any significant changes in the prices at which the purchased merchandise was sold as compared with the prices contemplated by the management nor in the prices at which the purchases were made. For example, if merchandise was purchased at $60 per unit at a time when such goods were selling for $100 per unit, we have assumed that after purchasing at $60 per unit, there would be no change in the $100 per unit selling price. We were thus assuming that the management did recover enough by way of the selling price to cover the historical cost ($60) of the merchandise and that the difference of $40 would repay the cost of all other services consumed in relation to that sale and leave a profit. It is also obvious that the management of an enterprise must have reasoned in much the same fashion in arriving at the decision to buy the merchandise.

Assume that in the foregoing situation, total expense other than the cost of the merchandise was $35 and that a $5 profit resulted. In this situation, the management's expectations have been realized. Now let us assume the same selling price, but that, as a consequence of poor management, the costs have increased $5 so that total costs equal selling price. Furthermore, let us assume that, at the end of a period, there is on hand unsold merchandise which cost $6,000 and is marked to sell for $10,000. Suppose, in addition that for the period just ended, because of the increases in costs, there is neither gain nor loss and that at least through the next period, such heavy costs will continue. It follows that the best the management can expect as a result of operations of the following period is neither gain or loss, only the recovery of the cost of the merchandise and the cost of all other services consumed in that period. These facts pose a very basic question. Should the merchandise which cost $6,000 be reduced in value to such a figure as would show a profit for the next period? If the answer be "yes", a second question is faced. What is the nature of the difference between the historical cost of the merchandise and the lower figure to which it would be reduced in order that the following period show profit? Still a third question presents itself. In valuing merchandise inventory which is bought for resale, what is it that we are trying to show on the balance sheet

and on the income statement? Thus far in this book, we have shown historical costs for two reasons; first, in order to provide information which will enable the management to report on the discharge of its stewardship to the investors and second, because we have tacitly ignored any influence as possibly justifying a change from historical cost to some other figure.

As a consequence of this procedure, "cost of goods sold" or "cost of sales" in the income statement has always been a measure of the historical cost of merchandise which actually was sold. In other words, the cost of goods sold always had reference to a dollar measure of completed transactions: completed in the sense that the merchandise was actually purchased, received, and sold to customers. Furthermore, all the dollar figures involved were historical cost dollars of the merchandise actually sold which could be verified in the accounting records by a cash disbursement.

Now let us return to the three questions asked above. Whether we reduce the historical cost inventory of $6,000 to a lower figure in order that the subsequent period may possibly show a profit depends upon what we want the balance sheet and income statement to show. Ideally, the balance sheet would be most valuable if the dollar measure shown opposite each item therein represented on the balance sheet date, as to assets, the present worth of the cash to be received, less any costs of obtaining the cash; as to liabilities, the present worth of the amounts to be paid out. The reader is already aware of the fact that this concept has, for practical purposes, been applied to cash, to all money-claim assets, and to all liabilities.

The obtaining of such dollar measures for merchandise inventory involves what is known as the problem of direct valuation. But because of the uncertainty involved, both as to the price at which the inventory will be disposed of and the costs of disposition, it is not possible, except in a few rare situations, to arrive at such dollar figures. The alternative to such direct valuation is indirect valuation. The latter ordinarily starts with historical cost. But since the historical cost represents outlays that were made in contemplation of sale at a profit, if such profit can not be made on such historical costs, it is common practice to reduce the historical cost to such figure as will yield the normal historical profit for the enterprise. The reader should note that such action is really a first approximation to direct valuation, i.e., a first approximation to the net cash that the inventory will yield after costs of disposition.

Now let us turn to the second question raised above concerning the treatment of the difference. Suppose that in the instant case, the inventory is reduced from $6,000 to $4,500. How is the $1,500 to be treated? Conventionally, it is included in the figure "cost of goods sold". This is the natural consequence of the procedure followed in arriving at cost of goods sold. From the sum of beginning inventory plus purchases is deducted ending inventory, the difference being labeled "cost of goods sold". But clearly it *is not* cost of goods sold. It is really the sum of two items: (1) the cost of goods actually sold and (2) a reduction in the valuation of goods on hand *not* sold. If it is not cost of goods sold, is it an expense of doing business? Again, the answer is no, if we use as our yardstick the definition presented in Chapter 5, that an expense is a dollar measure of services consumed. But in this case, the $1,500 is not a measure of services consumed. It is only a measure of the extent to which management's expectations concerning profits from sales yet to be made will fall short of having been realized because of poor administration. If it is to be presented in the income statement and accurately described, it should appear as a deduction from net income for the period. This means that cost of goods sold is really what the title says it is and that a downward adjustment in value of merchandise on hand will be labeled for just what it is.

Now let us consider a somewhat different situation in which the management faces the problem of inventory valuation which arises from an inability to sell some of the unsold goods at the prices contemplated when they were purchased, because of style changes, spoilage, etc. Consider the case of the department store whose furnishings buyer has purchased 100 dozen neckties for the Easter trade. The buyer is fully aware of the fact that not all of the neckties can possibly be sold at the figure which the purchase price warrants. Let this number of ties be 10 dozen. Why, then, does not the buyer purchase only 90 dozen ties? The answer is that he does not know which particular ties out of the 100 dozen will not be sold. He also knows that, within limits, the greater the variety of patterns and color combinations which are made available to customers, the greater will be the total dollar sales. Suppose then, that, at the end of the period 120 neckties remain unsold which cost $1 each and had been marked to sell for $1.75. Suppose further that the selling price is now reduced to $1.25. If a constant spread between cost price and selling price is to be maintained, then the valu-

ation *assigned* to this inventory should be approximately .72¢. What is the nature of the difference of .28¢ between historical cost and the assigned inventory valuation and how should it be treated in the accounts?

Actually, it is not a cost of goods sold. The goods are still on hand, but it should be equally clear that it is a cost incurred in connection with the sale of the other 90 dozen neckties. The sale of the 90 dozen was made possible, in part by the presence of the remaining 10 dozen which augmented the amount of choice available to the prospective customer. It is of the nature of a miscellaneous operating expense and should be shown separately in the income statement and *should not be included* as part of the dollar figure described as cost of goods sold.

Lower of Cost or Market. Using the necktie data presented above, let us assume that the management reduced the sales price of the 10 dozen neckties, not because they were leftovers, so to speak, but rather, because neckties of the same quality and style value can now be purchased for 72¢ each. At this cost, the normal selling price is $1.25. The management now faces the question: shall the inventory be reduced from $1 to 72¢? If the neckties can be disposed of for $1.75 each, the management's expectations will have been realized and therefore, there is no reason for reducing the inventory below historical cost. On the other hand, however, if the reduction in replacement price will immediately cause a reduction in the selling price, the management faces exactly the same situation as that discussed in the preceding paragraph. The conventional practice in accounting is to reduce the inventory from historical cost to the replacement cost. This replacement cost is conventionally referred to as *market,* i.e., the wholesale market in which the seller buys. What has been done, therefore, is to look to historical cost and compare it with market price (replacement cost) and elect the lower of the two. This basis of inventory valuation is widely used and is known as "cost or market, which ever is lower," COMWIL.

This method of inventory valuation is logical and makes sense only if two conditions are satisfied. First, that the reduction in market *does* have an impact on the selling price and second, that this impact *shows up before the enterprise can dispose of the inventory on hand.*

This may be illustrated by the necktie situation. We assume that the market or replacement price has dropped from $1 to 72¢ and that there is a corresponding drop in the selling price

from $1.75 to $1.25. The time lag between the drop in market price and its impact on sales price varies between commodities and as between industries. If, in the case of the department store, the impact of the reduction in replacement price is not reflected in a reduction in selling prices before the 120 neckties are sold there is no reason to reduce the inventory below historical cost. Obviously, management's knowledge about this time lag and its ability to dispose of its merchandise are important considerations. It follows, therefore, that if, in management's judgment, the 120 ties can be disposed of at $1.75 each, the inventory should remain at cost. If, on the other hand, in management's judgment, it will be necessary to reduce the selling price below $1.75, the corresponding reduction in inventory valuation may be made.

Again, the reader should note that such a reduction should not be treated as a cost of goods sold, but should be shown separately in the income statement as a deduction from net income or from net operating income and should be labeled for what it is, a reduction in proprietorship resulting from economic influences outside the enterprise.

The inclusion of such reductions of inventory valuation below historical cost in cost of goods sold does violence to any operationally useful concept of costs or expenses for a period. In this book we have consistently adhered to a single concept of cost or expense for a period, viz., the dollar measure of services consumed in getting the gross income of the period. But the reductions of unsold merchandise valuation from cost to any lower figure yields a difference which *is not* the cost of services consumed in getting the gross income of any period—save in peculiar situations of the kind illustrated by the neckties. Except for style goods, i.e., merchandise subject to rapid style changes, it is difficult to visualize any relationship between the reduction from cost to a lower market and any operationally useful concept of costs or expenses of a period.

If such reductions are to be included in cost of goods sold then the meaning of cost or expense for a period must be changed—the concept cost or expense for a period must be redefined. It hardly suffices to define it by saying that it includes the dollar measure of all services except those not consumed and in inventory at the end of a period. For this can mean only that it is a residue.

The full implications of this method can be better understood if we follow it through several successive periods. Assume the following data:

	Period			
	I	II	III	IV
Beginning Inventory at Cost	$10,000	$12,000	$11,000	$11,500
Purchases	50,000	53,000	52,000	53,500
Total to be accounted for	$60,000	$65,000	$63,000	$65,000
Ending Inventory at Cost	12,000	11,000	11,500	11,800
Cost of goods sold	$48,000	$54,000	$51,500	$53,200
Ending Inventory at Market	$11,500	$10,200	$11,000	$11,200

If we now show inventories at the lower of cost or market we have the following results:

At Lower of Cost or Market	Period			
	I	II	III	IV
Beginning Inventory	$10,000	$11,500	$10,200	$11,000
Purchases	50,000	53,000	52,000	53,500
Total to be accounted for	$60,000	$64,500	$62,200	$64,500
Ending Inventory	11,500	10,200	11,000	11,200
Cost of Goods Sold	$48,500	$54,300	$51,200	$53,300

Consider the first period data. Cost of goods sold was $48,000 but under this method of inventory valuation is reported as $48,500. The ending inventory cost $12,000 but is reported at $11,500, a truly meaningless figure for it is not a historical fact about the activities of this enterprise nor is it an estimate of the cash that will be left to the enterprise after the merchandise is sold and all costs of disposition allowed for. In the balance sheet it is difficult to interpret.

In the second period the mixup is worse. Cost of goods sold is reported at $54,300 whereas it is actually $54,000. The difference of $300 is compounded of two elements: a reduction from historical cost of beginning inventory of $500 (the ending inventory of the preceding period) and a reduction of ending inventory of $800. If we may assume that the ending inventory consisted only of merchandise purchased during the period then the reported cost of goods sold of $54,300 is made up of the following three elements, $\frac{11,500}{12,000}$ or 95.83% of the historical cost of preceding period closing inventory of $12,000; $42,000 of

purchases made during the period at 100% of historical cost; $\frac{10,200}{11,000}$, or 92.73% of the historical cost of unsold purchases of the period of $11,000. A similar analysis applies to periods III and IV.

The confusion becomes worse confounded if any portion of the ending inventory of one period is still on hand at the end of the second period. Suppose, for example, that, at the end of period II the inventory includes merchandise which was on hand at the beginning of the period costing $400 and valued at the then replacement cost (market) of $343. In assigning a closing inventory value current (end of second period) replacement cost will be compared with $343. The latter *is not* a cost figure to the enterprise. It is no more than an historical replacement cost. It does not reflect a cash outlay. It is not the present value expected future receipts. It is only a quoted market price at which no acquisitions of merchandise were made. To choose between it and the current replacement cost is to choose between two market quotations—nothing more. The resultant inventory valuation reflects neither the consequences of past enterprises activity nor the present worth of expectations. Its use is one of the important reasons why it is so difficult for the ordinary reader, unskilled in accounting, to interpret financial reports.

The primary defect of this method is that it ties valuation to an irrelevant market quotation—irrelevant because it is unrelated to transactions of the enterprise. The certain anchor is historical cost. The only useful alternative is the present worth of future outlays. Since the latter is hedged around by so many elements of uncertainty historical cost is the only method left. It is particularly applicable in our day when turnover of inventory is so rapid. Where an enterprise virtually replenishes its stock in trade several times a year it is not likely to make drastic reductions in its own selling prices because of declines in replacement prices.

This is not to argue against valuing inventories at less than historical cost. Situations arise in which not to do so would almost certainly result in misleading statistics. Under such circumstances the reductions should be made but labeled for what they are and so reported in the income statement. Unless they truly are cost of goods sold they should not be so identified.

First In, First Out. Another basis of inventory valuation is the first-in-first-out (FIFO) method. It is predicated on an assumption about the physical movement of merchandise inven-

tory, namely, that merchandise first acquired is first disposed of. This implies the idea of a flow of a stream of merchandise moving into the enterprise, being readied for sale, and being disposed of. It assumes that there are no back-bays or areas of still water in the stream, and therefore, that, at the end of the period, the merchandise on hand is made up of that most recently acquired, working back from the last day of the accounting period through the purchases until a quantity equal to the inventory has been accounted for. Such inventory is valued at cost.

The reader should observe that first-in-first-out is really a method of determining the cost of goods sold and that the method might more accurately be described as LILO—last-in-last-out when applied to inventory valuation. There follows an illustration of an application of the method:

First-In-First-Out Inventory Valuation

		Purchases Decreasing Prices		Purchases Increasing Prices	
	Quantity	Unit Cost	Total Cost	Unit Cost	Total Cost
July	1,000	$1.00	$1,000	$0.85	$ 850
August	1,000	.98	980	0.88	880
September	1,000	.95	950	0.90	900
October	1,000	.90	900	0.95	950
November	1,000	.88	880	0.98	980
December	1,000	.85	850	1.00	1,000
			$4,560		$4,560

Opening Inventory:

1200 units @ $1.00 = $1,200 1412 units @ 85¢ = $1,200 *

Closing Inventory: 2,100 units 2,100 units

Units	Unit Price	Total	Units	Unit Price	Total
1000	$0.85	$ 850	1000	$1.00	$1,000
1000	0.88	880	1000	0.98	980
100	0.90	90	100	0.95	95
2100		$1,820	2100		$2,075

The objective of this method is to reflect the actual physical events concerning merchandise movements as they are measured in dollars. The foregoing illustrations contain data relating, respectively, to decreasing, and increasing replacement price

*All computations to the nearest dollar.

movements. Physical quantities are identical throughout. The cost of goods sold in each of the two situations follows:

	Decreasing Prices	Increasing Prices
Opening Inventory	$1,200	$1,200
Purchases	4,560	4,560
Total to be accounted for	$5,760	$5,760
Closing Inventory	1,820	2,075
Cost of Goods Sold	$3,940	$3,685

In each case cost of goods sold is appropriate to the assumption concerning the physical flow of the merchandise. So is the closing inventory. But if the actual flow of goods differs from that assumed the cost of goods sold and the closing inventory can be misleading. Suppose that, as a matter of fact, in the case of decreasing prices, the closing inventory consisted of 500 units each of the August and September purchases, all of the October purchases and 100 units of the December purchases. The actual historical dollar cost would be as follows:

Units	Unit Cost	Total
500	$0.98	$ 490
500	0.95	475
1000	0.90	900
100	0.85	85
		$1,950

This is greater than the reported inventory of $1,820 by $130, approximately seven per cent. The same physical facts in the case of increasing prices would yield a closing inventory of $1,940 which is approximately six and one-half per cent less than the reported closing inventory.

It should be clear that, although the method rests on a realistic analysis of actual enterprise events, it is susceptible of manipulation and can result in biased reports. The actual flow of merchandise should very closely approximate the first-in-first-out assumption before it is employed. Otherwise it becomes a sort of numbers game in the hands of the unscrupulous.

Last In, First Out. Last-in-First-out as a basis of inventory valuation is gaining increased acceptance for two reasons. First, the impact on business enterprise of high income tax rates and, second, as a consequence of an attempt to off-set the influence of changes in the purchasing power of the dollar. COMWIL as a

basis of inventory valuation is designed to take account of price fluctuations which are peculiar to an industry or to a segment of it. LIFO, on the other hand, is designed to take care of the increases in the general level of prices which reflect or are reflected by a decline in purchasing power of the monetary unit.

There are two quite distinct situations which may be considered. First, there is the true, or approximately true, LIFO situation with regard to the physical flow of merchandise. That is to say there are cases in which the actual flow is one in which the goods last received are the goods first to be sold. On the other hand there is artificial LIFO, the case in which, without particular regard to the actual flow of merchandise, costs are assigned to inventory and, therefore, to the cost of goods sold on the assumption that a LIFO flow does take place.

The effect of LIFO may be illustrated by using the same data presented above for the FIFO method. It is assumed that the method is adopted effective with the opening inventory of July in each of the two cases. Details of the closing inventory and cost of goods sold are set out below.

Closing Inventory

	Decreasing Prices			Increasing Prices		
	Quantity	Unit Price	Total	Quantity	Unit Price	Total
Opening Inventory...	1200	$1.00	$1,200	1412	$0.85	$1,200 *
July Purchases	900	1.00	900	688	0.85	581 *
	2100		$2,100	2100		$1,781

*All computations to the nearest dollar.

Cost of Goods Sold

	Decreasing Prices	Increasing Prices
Opening Inventory	$1,200	$1,200
Purchases	4,560	4,560
Total to be accounted for	$5,760	$5,760
Closing Inventory	2,100	1,781
Cost of Goods Sold	$5,660	$3,979

When prices are rising this method yields a substantial understatement of the cash to be received on sale of the inventory. The cost of most recent acquisitions is $1.00 per unit. Suppose prices remain constant. Then this $1.00 cost implies a net cash yield of at least that amount. But the entire inventory

is valued at 15 cents per unit less than $1.00. On 2,100 units it amounts to $315, approximately 17.7% of the closing inventory. For those enterprises whose inventory represents a substantial fraction of total assets such differences can be significant. Furthermore the significance of the ratio of current assets to current liabilities as an index of current debt paying capacity is greatly altered. In every such case it is understated. The extent of understatement is determined by two facts: (1) the extent of the price rise since the base of the LIFO inventory, and (2) the percentage significance of inventory to total current assets.

Under conditions of declining prices the reverse of all the foregoing exists. Inventory values are greater than is warranted by the prospective selling prices of the items on hand. The current ratio is overstated. Since the consequences do violence to the accepted convention of conservatism LIFO is not used during period of a general decline in the price level.

Other Methods. Before leaving the subject of inventory valuation the reader should know that the three methods illustrated and discussed are not the only ones used. Two others in particular are worth mentioning, the base-stock method and the averaging method. The former is based on the fact that certain types of industry require a minimum stockpile of raw materials to maintain a given volume of operations. This stockpile is never reduced except in case of grave emergency. It follows that, except as a basis for credit, price increases of the base stock items can never be enjoyed. The minimum inventory representing the stockpile cannot be sold without interrupting operations. Even after sale the proceeds would have to be reinvested in the same quantity of inventory to restore and support the same volume of operations. In other situations the very nature of the operations precludes consumption of the base stock. This is well illustrated by the petroleum refining company operating its own crude oil pipeline from distant wells. The pipeline must be full at all times in order to maintain a flow of crude oil (raw material) to the refinery. The excess of the actual inventory quantity over the base stock quantity is valued on one of the other methods commonly used. The base stock method is used in those industries where the conditions mentioned above exist and where the raw material does not deteriorate from the ravages of time except to a slight degree and over long intervals.

The averaging method involves the use of a properly weighted arithmetic average of the acquisition prices of the quantities on hand at inventory date. As purchases are made they are averaged in. Cost of sales is determined by multiplying the number of units sold by the average price of the inventory on the date of sale. This method is most widely used in manufacturing enterprises where perpetual inventories of raw materials and finished parts are maintained. If the turnover of materials and parts is fairly rapid the results closely approximate those of the first-in-first-out method. On the other hand, if materials are stored in bins, piles, etc., and items sold or used are drawn from the top of the bin or pile the results may approximate those of the base stock method.

CHAPTER 16

Inventory Valuation – The Retail Method

The Lower of Cost or Market Method. As explained in the preceding chapter, of the several methods of inventory valuation commonly used, the one of widest application is the Lower of Cost or Market.

By cost is meant the landed cost of the inventory item, generally invoice price plus inward transportation costs. By market is meant the unit invoice price for items of like quality when quoted for quantities in which the purchases are generally made. For example, if an item is commonly purchased in lots of fifty to one hundred, quoted prices for lots of one thousand would not be market prices for inventory purposes. Furthermore, the lower of Cost or Market does not mean the lower valuation of *all* merchandise at cost as compared with *all* merchandise at market. The rule of Lower of Cost or Market must be applied to *each item* of inventory or to *each lot* of merchandise.

An illustration will make this clear.

Table 1

Items in Inventory	Number of Units	Unit Cost	Unit Market Price	Inventory Valuation		
				Cost	Market	Lower of Cost or Market
#8810	11	$59.25	$57.50	$ 651.75	$ 632.50	$ 632.50
#7915	5	75.00	72.00	375.00	360.00	360.00
#4041	15	42.00	42.50	630.00	637.50	630.00
#8191	75	33.00	34.25	2,475.00	2,568.75	2,475.00
				$4,131.75	$4,198.75	$4,097.50

Notice that the total of the column headed "Lower of Cost or Market" is different from the totals of the columns headed "Cost" and "Market." In this case the Lower of Cost or Market happens to be less than the inventory values obtained when all items are valued at Cost and when all are valued at Market. Depending upon the relative quantities, unit cost prices and unit market prices, the Lower of Cost or Market can result in an inventory which is less than Cost, less than Market, equal to one or both of them or greater than one or both of them.

A Short-Cut to Lower of Cost or Market. Assume that the inventory shown in Table 1 has resulted from the following operations:

Table 2

Items	Units				Unit Prices		Total Retail		
	Beginning of Period	Purchased	Sold	End of Period	Cost	Retail	Total Cost	Purchases	Ending Inventory
#8810	0	43	32	11	$59.25	$105.00	$ 2,547.75	$ 4,515.00	$1,155.00
#7915	0	19	14	5	75.00	135.00	1,425.00	2,565.00	675.00
#4041	0	62	47	15	42.00	78.00	2,604.00	4,836.00	1,170.00
#8191	0	125	50	75	33.00	55.00	4,125.00	6,875.00	4,125.00
							$10,701.75	$18,791.00	$7,125.00

The total cost ($10,701.75) of all purchases is 56.95% of the established retail prices ($18,791.00) of these same items. If this percentage is applied to the ending inventory at retail the result is $4,057.69, $74.06 less than the same inventory at cost as shown in Table 1.

The reason for this difference of $74.06 is explained in Table 2-A.

Table 2-A

Items	Total Cost	Total Retail	Cost as % of Retail	At Retail	At Retail Times Cost %
#8810	$ 2,547.75	$ 4,515.00	56.43%	$1,155.00	$ 651.77 *
#7915	1,425.00	2,565.00	55.56%	675.00	375.03
#4041	2,604.00	4,836.00	53.85%	1,170.00	630.05
#8191	4,125.00	6,875.00	60.00%	4,125.00	2,475.00
	$10,701.75	$18,791.00	56.95%	$7,125.00	$4,131.85 *

In Table 2, the ratio of cost to retail was obtained by dividing the *total cost* of all purchases by the *total retail* of all purchases ($10,701.75 by $18,791.00). The several merchandise items stood in a certain relationship to each other as to total cost and total retail.

But when we applied the ratio (56.95%) to the ending inventory at retail, the high cost ratio item #8191 accounted for a disproportionately large fraction of the inventory. Consequently the application of the ratio 56.95% produced a figure less than cost.

Table 2-A shows that when the cost to retail percentages are determined for each item and applied to the inventory at retail for each item the result is inventory at cost.

*A difference of 10¢ still remains due to cutting percentages to the fourth decimal place.

It should also be noted that 56.95% is *not* the average of the four percentages above it in Table 2-A, but is the quotient of $10,701.75 divided by $18,791.00. The average of the four percentages is 56.46%.

The important point illustrated and discussed above is this: Whenever a cost to retail ratio is computed by dividing a total cost by a total retail where the individual items are marked up by different percentages, the application of this ratio to an ending inventory at retail will *never* produce a figure equal to the cost of the inventory items.

There is one exception to this proposition: The results will be equal if the quantities of the various inventory items are in the same ratio to each other as were the quantities purchased.

It is also evident that the less the cost to retail percentages of the various inventory items differ from each other, the closer will the results of the short-cut method be to an actual item by item inventory at cost.

Now suppose that, because the market or replacement prices were different from cost, the established retail prices had been changed to the figures shown below:

Table 3

Items	Units in Inventory	Retail Per Unit	Retail Total
#8810	11	$102.00	$1,222.00
#7915	5	130.00	650.00
#4041	15	78.00	1,170.00
#8191	75	56.50	4,237.50
			$7,179.50

Applying the ratio of cost to retail, 56.95%, to $7,179.50, yields an inventory valuation of $4,088.73. This is less than Cost and less than Market (See Table 1). The reason for such a difference is explained in connection with the Table 2-A.

But notice that in Table 3 the retail price of the first two items was *decreased* while that of the last one was increased. Suppose the increase in unit retail price of $1.50 for item #8191 had been added to the total retail of purchases, increasing it from $18,791.00 to $18,903.50. (An increase of $112.50, 75 units times $1.50.) Then the ratio of total cost to total retail would be 56.61% ($10,701.50 divided by $18,903.50). Applying this cost ratio to total retail in Table 3 results in an inventory valuation of $4,064.31.

Again suppose that the decreases in unit retail price of each of the first two items had been deducted from the total retail of purchases, decreasing it from $18,791.00 to $18,733.00 (a decrease of $58.00, 11 units at $3.00 plus 5 units at $5.00). Then the ratio of total cost to total retail would be 57.13% ($10,701.75 divided by $18,733.00). Applying this cost ratio to total retail in Table 3 results in an inventory valuation of $4,101.65.

The Retail Method Illustrated. The short-cut to Lower Cost or Market is, in its main features, the Retail Method.

In essence the Retail Method of Inventory Valuation is a statistical procedure based on averages whereby many items of inventory of approximately the same ratio of cost to retail can be reduced from retail to a valuation which is essentially the Lower of Cost or Market by the application of one over-all ratio of cost to retail to the ending inventory at retail.

In the discussion about the data in Table 3 there were derived three inventory figures. The second of these ($4,064.31) correctly reflects the proper application of the Retail Method.

Before explaining further details of the method, it will be useful to know the meaning of certain terms.

Cost: Invoice price plus inward transportation.

Initially Established Retail: The retail price first placed on an item of merchandise.

Retail: Selling price at any time. (This may be the Initially Established Retail, a lesser figure or a greater figure.)

Mark-on: Initially Established Retail minus Cost.

Mark-up: Retail minus Initially Established Retail. (If this is a negative quantity, it is a *Mark-down.*)

Mark-up Cancellation: Any reduction of retail which brings it down to a figure *not less than* Initially Established Retail.

Mark-ups Net: Mark-ups minus Mark-up Cancellation. (Notice that by definition of terms this can never be a negative quantity.)

Mark-down: Initially Established Retail minus Retail. (If this is a negative quantity, it is a *Mark-up.*)

Mark-down Cancellation: Any increase of Retail which brings it up to a figure *not greater than* Initially Established Retail.

Mark-downs Net: Mark-downs minus Mark-down Cancellations. (Notice that by definition of terms this can never be a negative quantity.)

Shrinkage: The difference between book inventory at Retail and a physical count priced at Retail. Usually the book inventory must be reduced. Shrinkage is customarily expressed as a percentage of net sales and varies between departments and from year to year. It is intended to cover differences due to errors and to actual theft of merchandise.

Total Mark-up: The sum of Initially Established Retails and Mark-ups Net minus the sum of Costs.

Mark-up %: Total Mark-up divided by the sum of Initially Established Retails and Mark-ups Net.

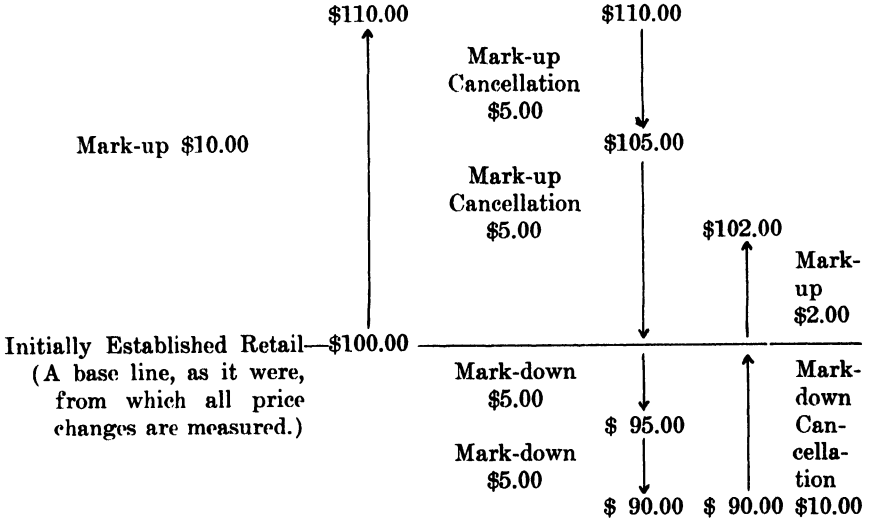
Complement of Mark-up %: 100% minus Mark-up %:

Each of the foregoing terms can be illustrated by the following assumed data:

A suit of clothes is purchased for $60.00 (including inward transportation) and marked to sell at $100.00. Later it is marked to sell at $110, then successively at $105, $95, $90 and $102.

Cost—$60.00
Initially Established Retail—$100.00
Retail—Successively $100.00, $110.00, $105.00, $95.00, $90.00 and $102.00
Mark-on—$40.00 ($100.00 minus $60.00).

All the price changes subsequent to the Initially Established Retail are classified in the following schematic arrangement:



Mark-ups Net: $2.00 (Mark-ups of $10.00 plus $2.00 minus Mark-up Cancellations of $5.00 plus $5.00).

Mark-downs Net: $0.00 (Mark-downs of $5.00 plus $5.00, minus Mark-down Cancellation of $10.00).

Total Mark-up: $42.00 (Initially Established Retail of $100.00 plus Mark-ups Net of $2.00 minus Cost of $60.00).

Mark-up %: 41.18% (Total Mark-up of $42.00 divided by the sum of the Initially Established Retail of $100.00 and Mark-ups Net of $2.00).

Complement of Mark-up: 58.82% (100.00 minus Mark-up % of 41.18%).

With the foregoing discussion as a background, the proper method of operating a retail inventory record will be illustrated and discussed. Individual treatment will be given to each situation so that the reason for the correct method of treatment may be clearly understood.

Assume the following sets of facts:

	Case Number			
	I	II	III	IV
Beginning Inventory	—	—	—	—
Purchase at Cost	45,000	45,000	45,000	45,000
Purchases at Retail	75,000	75,000	75,000	75,000
Mark-ups	5,000		5,000	
Mark-up Cancellations			2,800	
Mark-downs		4,000		4,000
Mark-down Cancellations				1,700
Sales	32,000	32,000	32,000	32,000

Case I—Mark-ups

		Correct Method		Incorrect Method	Line
Beginning Inventory at Retail		—		—	1
Purchases at Retail		$75,000		$75,000	2
Mark-ups		5,000		5,000	3
Total Retail Additions		80,000		80,000	4
Sales		32,000		32,000	5
Ending Inventory at Retail		48,000		48,000	6
Purchases at Cost		45,000		45,000	7
Total Mark-up	(4—7)	35,000	(2—7)	30,000	8
Mark-up %	(8÷4)	43.75%	(8÷2)	40%	9
Complement of Mark-up %	(100%—9)	56.25%	(100%—9)	60%	10
Ending Inventory at L.C.M.*	(6×10)	27,000	(6×10)	28,800	11

In the CORRECT METHOD mark-ups are added to preceding retail to arrive at the *total retail,* from which is subtracted the cost of these same items to determine the total mark-up and

*Lower of Cost or Market.

then the complement of mark-up %. Thus the total retail value of all purchases was compared with total cost of the same purchases to arrive at the mark-up. By the Incorrect Method this was not done. The total mark-up is the excess of the originally established retail over cost. But it is applied to an ending inventory at retail which is the result of adding to purchases at retail *additional retail value* (mark-ups of $5,000) before deducting sales. This added value is reduced to cost and represents an inflation of inventory valuation. This becomes clear if we assume that no sales were made. Then the CORRECT METHOD would show an ending inventory at retail of $80,000. Applying the mark-up complement of 56.25% yields an inventory at cost of $45,000, the actual cost. Following the Incorrect Method the ending inventory at retail of $80,000 would be multiplied by a mark-up complement of 60%, yielding an ending inventory at cost of $48,000 — $3,000 over cost. Obviously this $3,000 is 60% of the marks-ups of $5,000 which under the Incorrect Method did not, as they would have, influence the mark-up complement.

The taking of a mark-up implies a replacement cost (market) greater than actual cost. But the Retail Method is essentially a Lower of Cost or Market method of inventory valuation. The CORRECT METHOD produced an inventory at cost, where cost was lower than market. Thus the objective sought was attained.

Case II—Mark-downs

		Correct Method		Incorrect Method	Line
Beginning Inventory at Retail		—		—	1
Purchases at Retail Additions		$75,000		$75,000	2
Mark-downs		—		4,000	3
Total Retail Additions		75,000		71,000	4
Sales		32,000		32,000	5
Mark-downs		4,000		—	6
Total Retail Deductions		36,000		32,000	7
Ending Inventory at Retail		39,000		39,000	8
Purchases at Cost		45,000		45,000	9
Total Mark-up	(4—9)	30,000	(4—9)	26,000	10
Mark-up %	(10÷4)	40%	(10÷4)	36.62%	11
Complement of Mark-up %	(100%—11)	60%	(100%—11)	63.38%	12
Ending Inventory at L.C.M	(8×12)	23,400	(8×12)	24,718	13

In the CORRECT METHOD mark-downs are treated as the equivalent of sales; i.e., the amount of the mark-down is a retail value no longer obtainable by the sale of the remaining merchandise just as a sale represents a value no longer obtainable. In the case of the sale the merchandise has left the store, has been sold; in the case of mark-downs a lesser value is obtainable than would have been the fact if no mark-downs had been taken. Thus the mark-down *has* no *influence* on the mark-up %. This is proper. The taking of a mark-down implies a replacement cost (market) *less* than actual cost. In order to follow the rule of Lower of Cost or Market this decline should be reflected in the ending inventory.

Note that the Incorrect Method results in a higher complement of mark-up % than does the CORRECT METHOD. The effect is to offset the influence, on ending inventory, of the mark-downs.

Again suppose no sales had been made. Both methods would show an ending inventory at retail of $71,000. The CORRECT METHOD would yield an inventory at cost of $42,600, the Incorrect Method one of $45,000, a difference of $2,400 (60% of the $4,000 mark-downs). Again the CORRECT METHOD yields a valuation which is the Lower of Cost or Market.

Case III—Mark-up Cancellations

		Correct Method		Incorrect Method	Line
Beginning Inventory at Retail		—		—	1
Purchases at Retail		$75,000		$75,000	2
Mark-ups—Net		2,200		—	3
Mark-ups		—		5,000	4
Total Retail Additions		77,200		80,000	5
Sales		32,000		32,000	6
Mark-up Cancellations		—		2,800	7
Total Retail Deductions		32,000		34,800	8
Ending Inventory at Retail		45,200		45,200	9
Purchases at Cost		45,000		45,000	10
Total Mark-up	(5—10)	32,200	(5—10)	35,000	11
Mark-up %	(11÷5)	41.71%	(11÷5)	43.75%	12
Complement of Mark-up %	(100%—12)	58.29%	(100%—12)	56.25%	13
Ending Inventory at L.C.M.	(9×13)	26,347	(9×13)	25,425	14

A mark-up cancellation is a negative mark-up. Therefore, it should reduce total retail before arriving at the figure used in computing total mark-up. This is done in the CORRECT

METHOD. The Incorrect Method treats the mark-up cancellation as though it were a mark-down.

Suppose no sales had been made. The ending inventory at retail by both methods would have been $77,200. This multiplied by 58.29% yields a cost of $45,000 by the CORRECT METHOD. But the Incorrect Method yields a valuation of $43,425.00 ($77,200 times 56.25%). This is less than cost and is incorrect because the price changes involved retails *above* the initially established retail, which implies replacement (market) values greater than cost. The CORRECT METHOD yields a valuation which is the Lower of Cost or Market.

Case IV—Mark-down Cancellations

		Correct Method		Incorrect Method	Line
Beginning Inventory		—		—	1
Purchases at Retail		$75,000		$75,000	2
Mark-down Cancellation		—		1,700	3
Total Retail Additions		75,000		76,700	4
Sales		32,000		32,000	5
Mark-downs Net		2,300		—	6
Mark-downs		—		4,000	7
Total Retail Deductions		34,300		36,000	8
Ending Inventory at Retail		40,700		40,700	9
Purchases at Cost		45,000		45,000	10
Total Mark-up	(4—10)	30,000	(4—10)	31,700	11
Mark-up %	(11÷4)	40%	(11÷4)	41.33%	12
Complement of Mark-up %	(100%—12)	60%	(100%—12)	58.67%	13
Ending Inventory at L.C.M.	(9×13)	24,420	(9×13)	23,879	14

A mark-down cancellation is a negative mark-down. Therefore, it should reduce the total retail reductions. This it does in the CORRECT METHOD since mark-downs of $4,000 are reduced by mark-down cancellation of $1,700, leaving mark-downs net of $2,300. The effect is the same as though mark-downs of $1,700 only had been taken. The Incorrect Method erroneously treats the mark-down cancellation as though it were a mark-up, thus increasing the total retail additions with reference to which the mark-up% is determined.

If no sales had been made, the CORRECT METHOD would yield an ending inventory of $43,620 ($72,700 times 60%), whereas the Incorrect Method would show one of $42,653 ($72,700 times 58.67%). The former is the correct figure. The Incorrect Method erroneously allows the mark-down cancellations to reduce the complement of mark-up %.

Summary. From the foregoing discussion and illustrations it is clear that the Retail Method of Inventory Valuation is fundamentally a statistical device for applying to many items of merchandise the Lower of Cost or Market principle. In order that the method attain the objectives set for it, the following conditions should exist:

1. The mark-up per cent should vary as little as possible from one item of merchandise to another. This is most easily accomplished by grouping together items with mark-up per cents which are nearly the same. In practice this is achieved by departmentalizing the inventory and inventory records.
2. Price changes should be treated as illustrated in Cases I-IV by the CORRECT METHOD.

Problems of Practical Application. Actual operating conditions and policy of management will influence the practical application of the Retail Method. For example, it is common practice to sell odds and ends or broken lots of merchandise at whatever price they will bring in that market. Two procedures are available as follows:

1. Reduce the retail to the price at which the merchandise will be sold by way of a mark-down. Then write up the sale just as an ordinary sale at retail would be treated.
2. Eliminate the retail and cost from the retail inventory record. (On the general ledger, transfer the cost from merchandise inventory account to a cost of non-retail sales or to a miscellaneous accounts receivable.)

These two procedures are illustrated below:

	Procedure 1	Procedure 2	
Beginning Inventory at Retail	—	—	1
Purchases at Retail	$75,000	$75,000	2
Transfers—Net	—	—2,000	3
Total Retail Additions	75,000	73,000	4
Sales—Retail	32,000	32,000	5
Sales—Non-Retail	500	—	6
Mark-downs	1,500	—	7
Total Retail Deductions	34,000	32,000	8
Ending Inventory at Retail	41,000	41,000	9

Purchases at Cost		45,000		45,000	10
Transfers—Net		—		—1,200	11
Total Cost Additions		45,000		43,800	12
Total Mark-up	(4—10)	30,000	(4—12)	29,200	13
Mark-up %	(13÷4)	40%	(13÷4)	40%	14
Complement of Mark-up %	(100%—14)	60%	(100%—14)	60%	15
Ending Inventory	(9×15)	24,600	(9×15)	24,600	16

Both procedures yield the same inventory valuation. Procedure 1 is based on the argument that no distinction should be made between sales at retail and sales at non-retail.

Procedure 2 is supported by the following reasoning: Non-retail sales at very low prices are necessary only because of errors in judgment on the part of buyers (in selection of merchandise or pricing) and sales promotion staff. They are in no way a consequence of decline in replacement prices. Therefore such sales should always be reported separately from retail sales.

As a practical matter, non-retail sales account for but an inconsequential percentage of total sales. But if the inventory record is to follow accurately the *Retail Method,* Procedure 2 should be followed.

It may happen that merchandise is found to be defective after it has been entered on the retail inventory record. If it is returned to the resource (manufacturer) both the cost and retail should be taken out of the retail inventory record as a negative purchase. (On the general ledger the cost will be treated as a claim against the resource and be offset against any sums otherwise due.) This same procedure should be followed in the case of a fire loss of merchandise.

If more than one retail outlet is operated, the inventory record will show all necessary details for each department for each outlet. The data for each department for each outlet will generally be consolidated for financial statement purposes. The problem of transfers will also arise. Merchandise is customarily transferred at retail prices. For a given retail outlet the transfers may be an addition to or a deduction from total retail.

Statements showing the result of business operations are commonly prepared monthly. An important item in such statements is the cost of merchandise sold. Net sales minus this item yields gross merchandise margin. All of these data are obtained from the retail inventory record where one is maintained.

Since operating results are customarily accumulated for a twelve-month period, the figures for all months except the first in such a period are the result of a subtraction operation. For example, suppose a business year runs from February 1 of one year to January 31 of the next calendar year. Cost of merchandise sold for March and all subsequent months of the year will be the difference between two year-to-date figures.

It follows that whenever mark-downs are taken the result is to lodge all of them against the month in which they were taken. This means an increase in cost of merchandise sold and a corresponding reduction in gross merchandise margin. This is true even if none of the merchandise marked down has been sold.

The foregoing results are illustrated in Cases V, VI, and VII. (See Departmental Retail Inventory Record sheets for these cases.) In each case the following items are the same for any one period:

1. Total retail additions (purchases at retail value).
2. Total retail deductions (net sales).
3. Total cost additions (the cost of the retail additions).
4. Mark-up per cent.
5. Complement of mark-up per cent.

It will be observed that gross cost of merchandise sold (Line 28) is $16,500 for November in Case V and $27,500 in Case VI. This difference of $11,000 is due entirely to the mark-downs of $20,000 taken in November in Case VI. For December and January the gross cost of merchandise sold is the same in both Case V and Case VI.

In Case VII mark-downs of $40,000 were taken in November and half of them, or $20,000, restored in January. Note that November gross cost of merchandise sold in Case VII is $38,500, $22,000 more than in Case V. The entire difference is due to the $40,000 of mark-downs taken in Case VII. Also observe that the margin (Line 29) in November in Case VII is negative; cost of goods sold was greater than sales by $8,500.

Since a mark-down cancellation is a negative mark-down the effect is to reduce the total retail deductions. In Case VII $20,000 of mark-downs were restored in January, two months after the original $40,000 of mark-downs were taken. Consequently, the gross cost of merchandise sold was only $5,500 in January ($11,000 less than in Cases V and VI).

These results of mark-downs and mark-down cancellations are an integral part of the Retail Method. They will occur wherever such price changes are made, *whether or not any or all of the merchandise affected by the price changes is sold in the month of change or later.*

On page 193 it was stated that mark-ups net and mark-downs net, by definition, could never be negative quantities. This is strictly true only if we consider all price changes from the date the Retail Method was started in a particular business. In actual practice they are often negative because, for example, cancellations (in the current month) of mark-ups taken in prior months may exceed the mark-ups taken in the current month. The same relationship may be true of mark-downs and mark-down cancellations.

From this fact there may arise a special problem in the first month or two of a business year. Suppose, for example, that substantial mark-down cancellations are taken in the first month of a business year, all of them in one department. Two methods are available for handling them. They may be treated as mark-down cancellations or as mark-ups. The former treatment assumes that the initially established retail is the bench mark from which all price changes are measured regardless of fiscal year; the latter, that a new point of origin is established at the end of each fiscal year, namely, the retail price at which the merchandise is carried over from one fiscal year to the next. Inventory valuations are affected as illustrated in Cases I-IV.

Shrinkage is usually provided by department, the rate (expressed as a per cent of net sales) being based upon experience. The amount for each department may be treated in one of two ways, viz.:

1. As a retail deduction, thus reducing the ending inventory at retail and ultimately the ending inventory at cost.
2. As a reserve chargeable to operations.

The first method is usually adopted because of its simplicity and the fact that the effect of shrinkage is automatically taken into the operating statements.

As a check upon the accuracy of the retail inventory record an actual count is made of merchandise on hand priced at retail. This is customarily done at the end of a month. Once a year it is done for all departments simultaneously. Otherwise a few departments are covered at a time. Any excess of book inven-

tory over physical inventory, both at retail, is the basis for an inventory adjustment. If the amount is large, it is usually not recorded, on the assumption that errors had been made in the inventory taking and pricing, and the same departments are inventoried at the end of the next following month. When the amount is not greater than the shrinkage provision, it is recorded as a part of total retail deductions. The shrinkage provision is reduced by the amount of the inventory adjustment.

Departmental Retail Inventory Record — **Case V—No Price Changes**

Store_____ Year_____ Dept._____ Sub._____

October		November		December		January		Explanation	Line
Month	Year To Date	Month	Year To Date	Month	Year To Date	Month	Year To Date		
								RETAIL	1
								Additions	2
xx	50,000	xx	50,000	xx	50,000	xx	50,000	Stock at Beginning of Year	3
	150,000	15,000	165,000	15,000	180,000	15,000	195,000	Purchases	4
								Additional mark up—Net	5
								Transfers—Net	6
	200,000	15,000	215,000	15,000	230,000	15,000	245,000	TOTAL RETAIL ADDITIONS	7
								Deductions	8
								Gross sales	9
								Less returns	10
	100,000	30,000	130,000	30,000	160,000	30,000	190,000	NET SALES	11
								Mark downs—Net	12
								Provision for shrinkage	13
								Inventory adjustments	14
	100,000	30,000	130,000	30,000	160,000	30,000	190,000	TOTAL RETAIL DEDUCTIONS	15
xx	100,000	xx	85,000	xx	70,000	xx	55,000	Stock at End of Month (7 — 15)	16
								COST	17
xx	27,500	xx	27,500	xx	27,500	xx	27,500	Stock at Beginning of Year	18
	82,500	8,250	90,750	8,250	99,000	8,250	107,250	Purchases	19
								Transportation	20
								Transfers—Net	21
	110,000	8,250	118,250	8,250	126,500	8,250	134,750	TOTAL COST ADDITIONS	22
	90,000	6,750	96,750	6,750	103,500	6,750	110,250	Mark up (7 — 22)	23
%	45%	45%	45%	45%	45%	45%	45%	Mark up % (23 ÷ 7)	24
xx	55%	xx	55%	xx	55%	xx	55%	Complement of mark up %	25
xx	55,000	xx	46,750	xx	38,500	xx	30,250	Stock at End of Month (25 × 16)	26
								SUPPLEMENTARY DATA	27
	55,000	16,500	71,500	16,500	88,000	16,500	104,500	Gross Cost of Mdse. Sold (22 — 26)	28
	45,000	13,500	58,500	13,500	72,000	13,500	85,500	Margin (11 — 28)	29
xx		xx		xx		xx		Average stock—cost	30
xx		xx		xx		xx		retail	31
xx		xx		xx		xx		Turnover	32
%	%	%	%	%	%	%	%	Purchase Mark up % (4 — 19) ÷ 4	33
%	%	%	%	%	%	%	%	Maintained Mark up % (29 ÷ 11)	34
%	%	%	%	%	%	%	%	% of Returns (10 ÷ 9)	35
%	%	%	%	%	%	%	%	Mark down % (12 ÷ 11)	36

Departmental Retail Inventory Record

Case VI—Markdowns Taken and Not Restored

Store_____ Year_____ Dept._____ Sub._____

October		November		December		January		Explanation	Line
Month	Year To Date	Month	Year To Date	Month	Year To Date	Month	Year To Date		
								RETAIL	1
								Additions	2
xx	50,000	xx	50,000	xx	50,000	xx	50,000	Stock at Beginning of Year	3
	150,000	15,000	165,000	15,000	180,000	15,000	195,000	Purchases	4
								Additional mark up—Net	5
								Transfers—Net	6
	200,000	15,000	215,000	15,000	230,000	15,000	245,000	TOTAL RETAIL ADDITIONS	7
								Deductions	8
								Gross sales	9
	100,000	30,000	130,000	30,000	160,000	30,000	190,000	Less returns	10
		20,000	20,000		20,000		20,000	NET SALES	11
								Mark downs—Net	12
								Provision for shrinkage	13
								Inventory adjustments	14
	100,000	50,000	150,000	30,000	180,000	30,000	210,000	TOTAL RETAIL DEDUCTIONS	15
xx	100,000	xx	65,000	xx	50,000	xx	35,000	Stock at End of Month (7 — 15)	16
								COST	17
xx	27,500	xx	27,500	xx	27,500	xx	27,500	Stock at Beginning of Year	18
	82,500	8,250	90,750	8,250	99,000	8,250	107,250	Purchases	19
								Transportation	20
								Transfers—Net	21
	110,000	8,250	118,250	8,250	126,500	8,250	134,750	TOTAL COST ADDITIONS	22
	90,000	6,750	96,750	6,750	103,500	6,750	110,250	Mark up (7 — 22)	23
%	45%	45%	45%	45%	45%	45%	45%	Mark up % (23 ÷ 7)	24
xx	55%	xx	55%	xx	55%	xx	55%	Complement of mark up %	25
xx	55,000	xx	35,750	xx	27,500	xx	19,250	Stock at End of Month (25 × 16)	26
								SUPPLEMENTARY DATA	27
	55,000	27,500	82,500	16,500	99,000	16,500	115,500	Gross Cost of Mdse. Sold (22 — 26)	28
	45,000	2,500	47,500	13,500	61,000	13,500	74,500	Margin (11 — 28)	29
xx		xx		xx		xx		Average stock—cost	30
xx		xx		xx		xx		retail	31
xx		xx		xx		xx		Turnover	32
%	%	%	%	%	%	%	%	Purchase Mark up % (4 — 19) ÷ 4	33
%	%	%	%	%	%	%	%	Maintained Mark up % (29 ÷ 11)	34
%	%	%	%	%	%	%	%	% of Returns (10 ÷ 9)	35
%	%	%	%	%	%	%	%	Mark down % (12 ÷ 11)	36

Departmental Retail Inventory Record

Case VII—Markdowns Taken. One-half of them Restored Two Months Later

Store_____ Year_____ Dept._____ Sub._____

October		November		December		January		Explanation	Line
Month	Year To Date	Month	Year To Date	Month	Year To Date	Month	Year To Date		
								RETAIL	1
								Additions	2
xx	50,000	xx	50,000	xx	50,000	xx	50,000	Stock at Beginning of Year	3
	150,000	15,000	165,000	15,000	180,000	15,000	195,000	Purchases	4
								Additional mark up—Net	5
								Transfers—Net	6
	200,000	15,000	215,000	15,000	230,000	15,000	245,000	TOTAL RETAIL ADDITIONS	7
								Deductions	8
								Gross sales	9
								Less returns	10
	100,000	30,000	130,000	30,000	160,000	30,000	190,000	NET SALES	11
		40,000	40,000		40,000	(20,000)	20,000	Mark downs—Net	12
								Provision for shrinkage	13
								Inventory adjustments	14
	100,000	70,000	170,000	30,000	200,000	10,000	210,000	TOTAL RETAIL DEDUCTIONS	15
xx	100,000	xx	45,000	xx	30,000	xx	35,000	Stock at End of Month (7 — 15)	16
								COST	17
xx	27,500	xx	27,500	xx	27,500	xx	27,500	Stock at Beginning of Year	18
	82,500	8,250	90,750	8,250	99,000	8,250	107,250	Purchases	19
								Transportation	20
								Transfers—Net	21
	110,000	8,250	118,250	8,250	126,500	8,250	134,750	TOTAL COST ADDITIONS	22
	90,000	6,750	96,750	6,750	103,500	6,750	110,250	Mark up (7 — 22)	23
%	45%	45%	45%	45%	45%	45%	45%	Mark up % (23 ÷ 7)	24
xx	55%	xx	55%	xx	55%	xx	55%	Complement of mark up %	25
xx	55,000	xx	24,750	xx	16,500	xx	19,250	Stock at End of Month (25 × 16)	26
								SUPPLEMENTARY DATA	27
	55,000	38,500	93,500	16,500	110,000	5,500	115,500	Gross Cost of Mdse. Sold (22 — 26)	28
	45,000	(8,500)	36,500	13,500	50,000	24,500	74,500	Margin (11 — 28)	29
xx		xx		xx		xx		Average stock—cost	30
xx		xx		xx		xx		retail	31
xx		xx		xx		xx		Turnover	32
%	%	%	%	%	%	%	%	Purchase Mark up % (4 — 19) ÷ 4	33
%	%	%	%	%	%	%	%	Maintained Mark up % (29 ÷ 11)	34
%	%	%	%	%	%	%	%	% of Returns (10 ÷ 9)	35
%	%	%	%	%	%	%	%	Mark down % (12 ÷ 11)	36

CHAPTER 17

Long Lived Service Sources and Depreciation

The Problem of Measuring Services Consumed. The reader will recall that in Chapter 2 there was presented a discussion of the various types of services, the sources from which they are derived, and the relationship between the consumption of the service and the consumption of the service source. It was pointed out that in the case of long lived service sources: buildings, machinery, equipment of all kinds, there was no apparent or visible consumption of the material sources accompanying consumption of the service. For example, an office desk may be used day after day for many years without showing any evidence of wearing out. Over the years, it will yield the service which the enterprise management needed and for the availability of which they were induced originally to buy the desk.

What was really purchased was a stockpile of services. Over the years they were to be consumed and the desk to be worn out. This does not mean that all of the units of service which could physically be yielded by the desk will have been consumed when the management decides to replace it. Rather, it means that all of the units of service which management believes it is worthwhile to have the desk yield have been yielded and consumed.

In this context, the expression *worthwhile* is exceedingly important. It means that the management has exercised judgment as to whether or not the particular desk is capable of yielding the quality of services that the management wants. The quality may have to do with the number of drawers in the desk, the area of partitions within a desk drawer, the dimensions of the top surface, the kind of material of which it is made, and the highness of polish it will take.

The upshot of all this is that management must make an estimate at the time the desk is acquired of the total number of units of service which they expect it will yield and will be consumed while in the possession of the enterprise. In making the estimate, the management must take account of such factors as additional costs which must be incurred in order to enjoy the services of the desk and possible effects of really marked improvements in styles and kind of desks, the extent to which it believes in always being up-to-date, etc.

There are obviously many difficulties in allowing for these many factors and, as a consequence, a certain amount of arbitrariness necessarily results. Let us assume that the management has reached a decision and has made an estimate of the units of services to be derived from a service source. The next question is the really difficult one. How are these services to be valued? From the discussion in Chapter 15, it is clear that it is not possible to arrive at a direct valuation of them because they are not sold separately (except in rare cases) for an identifiable money price. Actually, they are consumed along with other services and the whole bundle sold for a price. The consequence is to leave but one alternative available, namely, indirect valuation. The solution of the difficulty runs along the following lines. A particular kind or class of service was determined by management to be essential in carrying on enterprise activities. The most convenient way to have it available when needed was to buy the service source. It is assumed that management availed itself of the most economical of the alternative service sources available to it. Having acquired the service source at a cost of a specified number of dollars, a decision is reached as to the most probable number of units of service that can economically be derived from it. From the original cost of the source is deducted the dollar measure of the services which, in the judgment of the management of this enterprise, cannot be economically consumed. This is the scrap value of the asset. The remainder is the dollar basis for determining the cost of services consumed in acquiring the gross income of any time period. This remainder is the depreciation base, the dollar measure at acquisition, of the services to be consumed over the life of the asset.

Many methods of determining the dollar measure of services consumed (periodic depreciation) during a time period are in use. Only three of them will be discussed in this book. In the immediately following section there is presented that method among all methods used which has gained the widest acceptance.

The Straight Line Method. The reader has observed the repeated emphasis of the concept that costs for a period are the money measures of the services consumed in obtaining the gross income of the period *without regard to the time distribution of cash disbursements for the services, and also without regard to the time distribution of actual consumption of the services.*

The straight line method of depreciation rests on certain assumptions concerning the two propositions *italicised* in the immediately preceding sentence. The total of the cash outlays which ultimately will have been made with regard to any long lived service source consists of the acquisition price plus a series of outlays made, in some cases more or less regularly, in other cases, more or less intermittently, throughout the total time interval during which the service source is in use. It is conventionally assumed that the basis for depreciation is the historical cost plus any outlays made thereafter which amount to additions, that is, which will result in making available more units of service than were estimated when the service source was acquired. The remaining items of the series of regular or intermittent outlays are known as repairs. It is assumed that repairs represent the cost of whatever services were consumed in the year or other accounting period in which the expense was incurred.

As to services consumed, there is an implicit assumption that the same number of units of service is consumed in any two accounting periods of identical length. Thus, for any two months, any two quarter years, any two half years, it is assumed that the number of units of service consumed remains unchanged for time intervals of the same length.

On the basis of the foregoing analysis, let us suppose the following facts concerning a service source; original cost, $6,000; estimated life, ten years; scrap value, zero.

The reader will note that no estimate is made of the number of units of service consumed each year. Obviously, if the same number of units of service is consumed each year and it is also assumed that all of such units will have been consumed at the end of 10 years, the annual depreciation will be $600. This figure will result whether we divide $6,000 by 10, or divide $6,000 by the total number of units of service expected to be yielded and consumed, say 100,000, and then multiply the quotient $0.06 by 10,000 units, the estimated constant annual consumption.

The appropriate journal entry for recording depreciation for the first four years and the related ledger accounts follow:

Depreciation	$600	
Allowances For Depreciation		$600
To record annual depreciation		
Income and Expense	$600	
Depreciation		$600
To transfer to profit and loss		

These two entries are made at the end of each year.

Depreciable Asset		Allowances For Depreciation	
Cost	6,000		
		Year 1	600
		Year 2	600
		Year 3	600
		Year 4	600

Depreciation

Year 1	600	To Profit and Loss	600
Year 2	600	To Profit and Loss	600
Year 3	600	To Profit and Loss	600
Year 4	600	To Profit and Loss	600

This method carries the implicit assumption that repair outlays are also constant per period. If the facts are in line with the assumption the *total* cost of the services consumed each period will be a constant. Nevertheless, this method is widely used in situations in which the assumptions are not realized. The consequence is unrealistic measures of periodic cost of services consumed.

It is interesting to note why this method is called the straight line method. Figures 1, 2 and 3 on page 211 show respectively depreciation per year, accumulated depreciation, and the undepreciated balance. It is obvious that in each case the graphic presentation yields a straight line. It is probable, however, that it was called a straight line because of the results shown in figure 1, where the straight line is parallel to the horizontal axis and this relationship mistaken for the concept of a straight line. The lines in figures 2 and 3 are straight lines as also are those in figures 4, 5 and 6 which are illustrative of an entirely different method of calculating periodic depreciation.

Two questions remain to be considered concerning the straight line method. One involves period costs, the other involves unit costs. Period depreciation costs under this method are always constant for all periods of the same length. With respect to unit cost, the situation is otherwise. Unless the number of units of product manufactured, or service sold, is also constant for periods of equal length, the unit cost will vary inversely to the number of units produced. If output for a period is 600 units and periodic depreciation is $600 then depreciation cost per unit of product is $1.00. If output is 1200 units then unit depreciation cost is $0.50. Conversely, if output is 300 units cost is $2.00 per unit.

The Straight Line Method of Depreciation

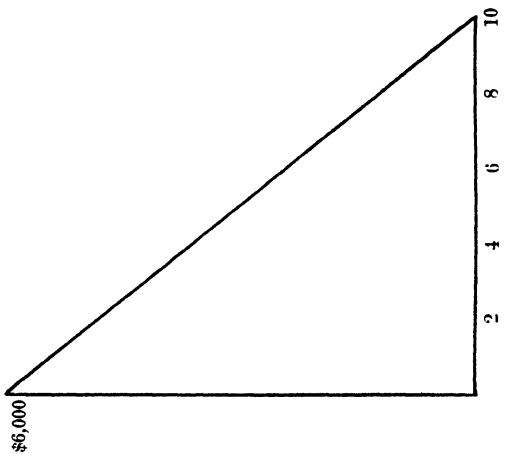


Figure 3
Undepreciated Balance

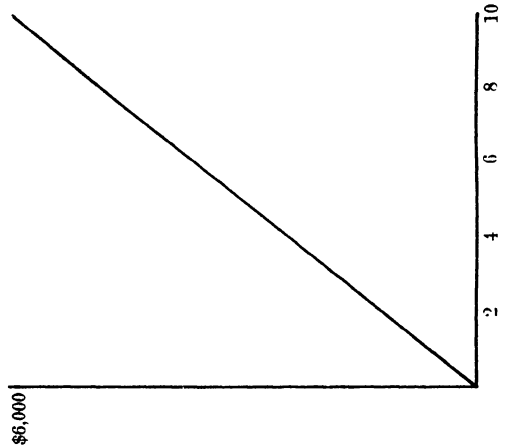


Figure 2
Accumulated Depreciation

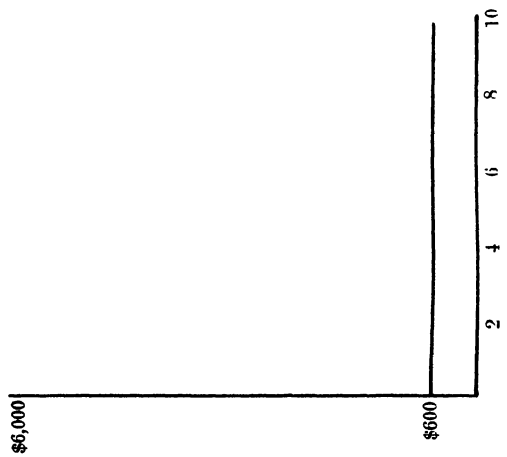


Figure 1
Depreciation Per Year

The Sum of the Year's Digits. One of the assumptions of the straight line method, namely, that repair costs will be almost constant period by period is, with respect to certain classes of service sources, quite unrealistic. To bring realism into the picture, resort is had to another assumption, namely, that the cost (so far as they represent a part of the original cost of the service source) of services consumed is greater in the early years of the asset's use and declines rapidly to the end of its useful life. Repair costs for certain asset types ordinarily follow just the opposite pattern, being small in amount during the early years of the asset's life and growing period by period until the asset is disposed of. The result of this procedure is to yield a total cost of services consumed which is pretty constant period by period. In effect, it yields results which are practically identical with those yielded by the straight line method under the conditions which are appropriate to it.

The application of the method may be illustrated by the following data concerning a machine purchased for $6,000. It is assumed that there is no scrap value and that the estimated useful life is ten years. The sum of the year's digits is 55, i.e., the sum of the integers 1 to 10 is 55. The annual charges to depreciation are shown in the following table:

Year	Fraction Of Total	Amount	Year	Fraction Of Total	Amount
1	10/55	$1090.91	6	5/55	$545.45
2	9/55	981.82	7	4/55	436.36
3	8/55	872.73	8	3/55	327.27
4	7/55	763.64	9	2/55	218.18
5	6/55	654.55	10	1/55	109.09

The reader should note that the depreciation for any year is the product of the total to be depreciated (in the illustration, $6,000) times a fraction whose numerator is a year digit and whose denominator is the sum of such digits. But the first year's depreciation is not 1/55 of $6,000 but 10/55. The fractions are applied to the successive years in inverse chronological sequence in order to yield annually decreasing depreciation charges. Successive charges decline by a constant amount which is the quotient of the total to be depreciated divided by the sum of the year's digits. In the illustration it is 1/55 of $6,000 or $109.09.

Turning to the problem of unit costs of output it is clear that a constant annual output will yield decreasing unit costs so far as depreciation is concerned and variable output will yield

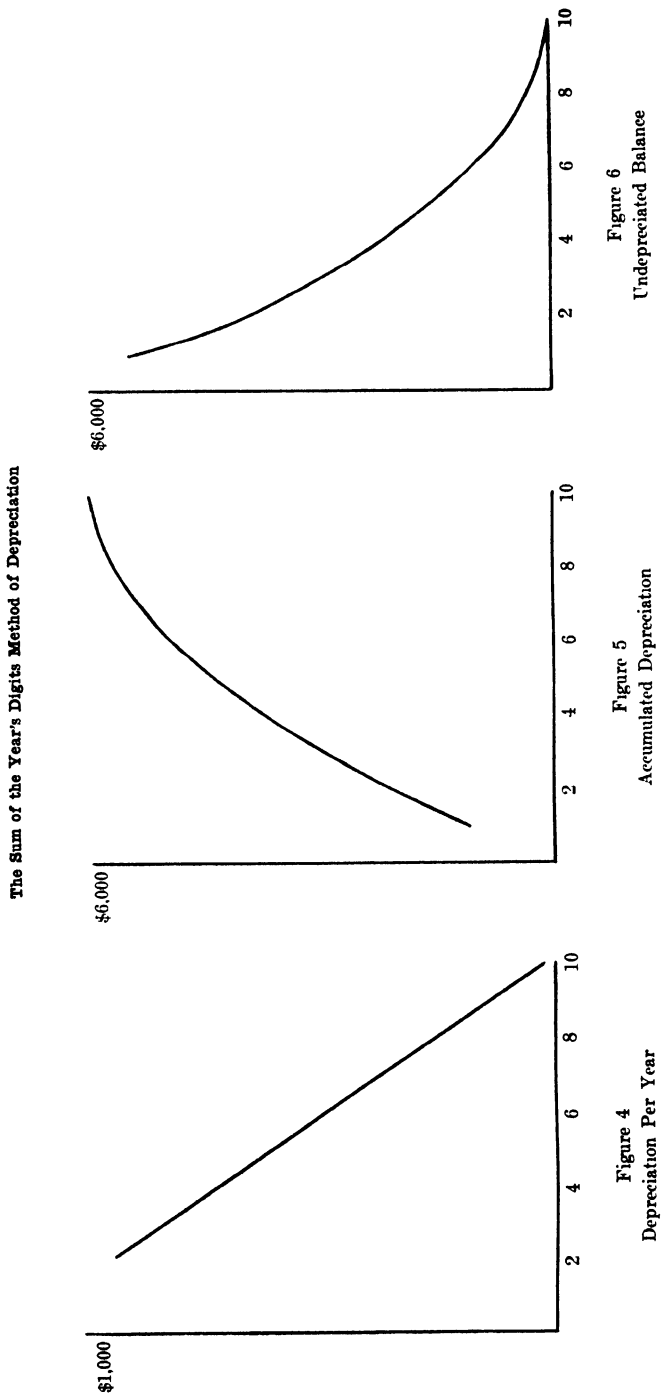


Figure 4
Depreciation Per Year

Figure 5
Accumulated Depreciation

Figure 6
Undepreciated Balance

varying unit costs. Suppose, however, that the assumptions concerning the time distribution of repairs are verified to a high degree. Then the annual repair charges will form a time series running from small amounts to large. *Ideally* we should expect the following results:

Year	Annual Depreciation	Annual Repairs	Total Cost of Services Consumed
1	$1090.91	$ 109.09	$1,200.00
2	981.82	218.18	1,200.00
3	872.73	327.27	1,200.00
4	763.64	436.36	1,200.00
5	654.55	545.45	1,200.00
6	545.45	654.55	1,200.00
7	436.36	763.64	1,200.00
8	327.27	872.73	1,200.00
9	218.18	981.82	1,200.00
10	109.09	1,090.91	1,200.00

Annual repairs follow a pattern which is precisely the reverse of depreciation. The sum of periodic repairs and periodic depreciation is a constant. Whenever the assumed conditions exist the method yields results which are identical with those yielded by the straight line method under the conditions postulated for it, viz., a constant periodic charge which is the sum of depreciation and repairs. On page 213 are presented graphic representations of periodic depreciation, accumulated depreciation, and undepreciated balance resulting from the application of this method.

The Service Unit Method. Both the straight line method and the sum of the year's digits method represent depreciation as a function of elapsed time. For the industrial enterprise neither of these methods is appropriate for the vast bulk of service sources used. The punch press, for example, does not wear out because so much time has elapsed but rather as a function of the extent to which it is actually used during a given time interval. Similarly, a railroad freight car wears out as a function of the number of miles it carries so many tons of freight, not as a function of elapsed time.

Assume then, that a machine is purchased at a cost of $6,000, that there is no scrap value, and that it is estimated to yield 60,000 units of service. This means that each unit of service costs ten cents. Let the following table represent units of service consumed per year and the annual depreciation expense.

Year	Units of Service Consumed	Annual Depreciation	Year	Units of Service Consumed	Annual Depreciation
1	6,000	$600	6	4,100	$410
2	8,000	800	7	4,800	480
3	8,500	850	8	5,200	520
4	7,000	700	9	7,000	700
5	5,000	500	10	4,400	440

Depreciation per unit of service: 10 cents.

For most items of machinery and equipment this method yields more realistic results than the two previously discussed. Depreciation expense for each period is a function of the amount of use of the asset. Amount of use may be hours run (an electric motor), holes punched (a punch press), fenders pressed (fender-press in an automobile factory) or ton-miles run (a freight car). In each case the depreciation is a measure of the dollars worth of services actually consumed. The result is a varying annual depreciation expense, but a constant charge per unit of service consumed. Thus, through appropriate cost accounting procedures, the total cost to produce each unit of product includes the cost of the services of assets which were actually consumed in its production.

On page 216 there are graphic representations of the periodic depreciation, accumulated depreciation, and undepreciated balance on the unit cost method.

Here, as with the straight line method, is an implied assumption that periodic repairs will be constant. If the facts bear out the assumption then neither periodic cost of services consumed nor service unit cost will be a constant. It is the service unit cost that should be constant. More elaborate methods have been devised to accomplish this objective. A discussion of them belongs to a more advanced work on accounting. Suffice it to comment that methods are available which will yield highly accurate and meaningful results. The only questions are whether they are worth the cost of using them and, if so, is management willing to pay it.

Disposal of Service Sources. If estimates concerning useful life of fixed assets are highly accurate we should expect to find the following balances in the ledger accounts when the asset is no longer useful.

Depreciable Asset		Allowance For Depreciation	
Cost	6,000		$6,000 (the sum of the periodic estimates)

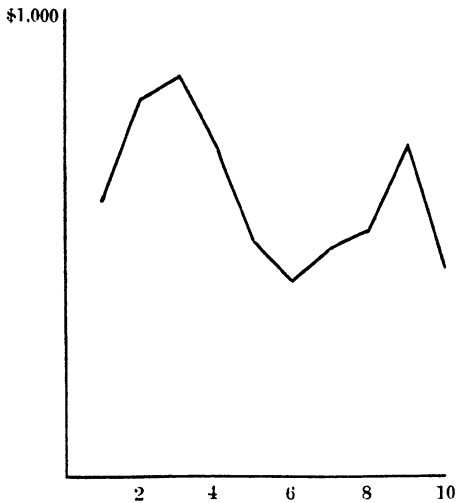


Figure 7
Depreciation Per Year

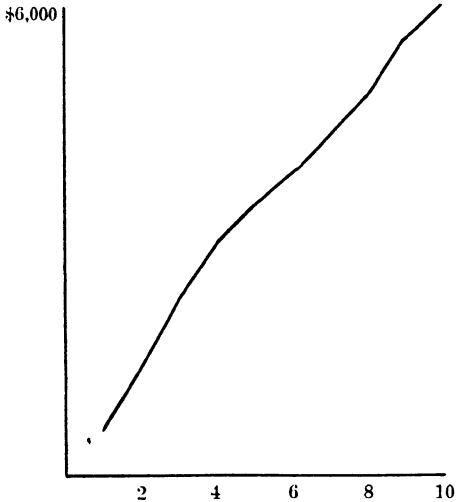


Figure 8
Accumulated Depreciation

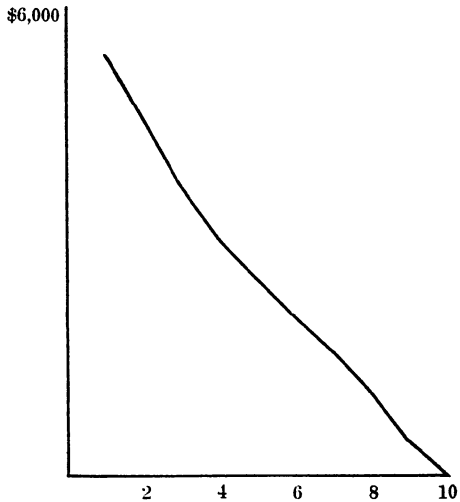


Figure 9
Undepreciated Balance

When the asset is discarded the following entry should be made:

Allowance For Depreciation	$6,000	
Depreciable Asset		$6,000

It is highly improbable that such accurate estimates will be made. Far more likely is a discarding of the asset *before* it has been fully depreciated. Suppose, for example, that the asset in question had been depreciated on the straight line basis for nine years, of an estimated ten years life, and was discarded at the end of the ninth year. Just prior to discarding, the ledger accounts would appear as follows:

Depreciable Asset			Allowance For Depreciation		
Cost	$6,000			Balance	$5,400

The following entry will record the discarding of the asset.

Allowance For Depreciation	$5,400	
Loss on Disposition of Depreciable Asset	600	
Depreciable Asset		$6,000

If the discarded asset had been sold for $350 the following entry is conventionally set up:

Allowance For Depreciation	$5400	
Loss on Disposition of Depreciable Asset	250	
Cash	350	
Depreciable Asset		$6,000

Had the asset been sold for $750 the following entry would have been made:

Allowance For Depreciation	$5400	
Cash	750	
Depreciable Asset		$6,000
Gain on Sale of Depreciable Asset....		150

The question arises whether the last two cases involved, respectively, loss and gain. The asset was acquired to be used. Presumably all the services economically useful to the enterprise had been consumed. Therefore, in each case, their total cost was $6,000. The *apparent* loss and gain result from errors in estimate of the useful life of the asset or the number of units of service available and consumed. Whatever the number of units of service consumed or years of actual use the price paid was $6,000. But in one case less use was obtained from the asset

that was originally estimated would be obtained. The apparent loss of $250 is really additional cost, over that recognized and recorded, of the services yielded by the asset. Conversely, the apparent gain of $150 is the measure of the excess of recognized and recorded cost of services yielded by the asset over the actual cost. Such differences are, therefore, proper adjustments of retained earnings. The cost of the services consumed is always measured by the historical cost of the asset less any cash received when it is disposed of. In the three cases illustrated above the cost of services consumed is $6,000, $5,650 and $5,250 respectively.

The foregoing comments about loss or gain on the disposal of a depreciating asset rests on the assumption that no marked price level changes really account for such loss or gain.

CHAPTER 18

Subdividing Journal and Ledger – Cash Receipts and Sales – Controlling Accounts.

Introduction. Thus far in this book, no consideration whatsoever has been given to the problem of alternative arrangements of the conventional two-column book of original entry, the journal. Although it is true that any business transaction, no matter how complicated, nor how many ledger accounts are affected by it, may be recorded in the simple two-column journal it also is true that in the actual business world, other styles of books of original entry are used except in the case of a very small enterprise.

There are many reasons why this is so. Most important is the obvious fact that a limited number of transaction types accounts for a very large *percentage* of all transactions. For example, in the case of our mythical X Company whose transactions were recorded in Chapter 4, every purchase immediately affected cash, as did every sale. Where credit is resorted to, we find that all sales transactions result in a debit either to cash or to a money-claim asset, most commonly accounts receivable. Except for petty cash items, all purchases bring about increase in accounts payable. All of the foregoing is quite obvious to any one who will reflect upon the nature of business enterprise activity. As a consequence, there early developed separate books of original entry, thus subdividing the general journal for most of the important classes of transactions. In this chapter, there will be considered the cash receipts journal and the sales journal.

Associated with the subdivision of the general journal was the development of the controlling account. The controlling account is simply a device for accumulating in the general ledger the total of the details of a class of account which are separately recorded in a subdivision of the general ledger. The two most widely used types of controlling accounts relate to accounts receivable and accounts payable. Only the former will be discussed in this chapter.

We now turn to a consideration of the development of the cash receipts journal.

The Cash Receipts Journal. The following illustrations, cash receipts journal, forms 1, 2, 3, and 4 are presented for teaching purposes only. It is not implied that the actual development of this book of original entry went through these four steps. It is believed, however, that by means of them, the reader may more easily grasp both the development of the more advanced form and how it changed by use.

Form 1 is the conventional two-column journal with this difference—it contains only cash receipts. This means that the debit element in every entry is an increase in cash. The credit elements are obviously to whatever the accounts are which are affected by the transaction in question. Anyone using such a cash receipts journal would soon become aware of the constant repetition of cash as the title of the account always to be debited. He would also notice the repeated entry to the debit of Y National Bank in the general ledger as is shown in the account on page 44 of Chapter 4.

It will also be clear that it is not necessary to have all of the details of such relatively simple transactions as cash receipts and cash receipts from collections on account recorded both in a book of original entry and in the general ledger account for cash.

The first step in the solution of this problem is to adopt cash receipts journal form 2 in which two columns are used—one for debits to cash and the other for credits to the individual accounts affected. The reader will notice that the word cash appears at the top of a column only. There should be recorded in every case, the title of the account to be credited. This is on each line opposite each amount.

Postings from form 2 should be as follows: The *total only* of the cash column will be posted to the debit of the cash account in the general ledger, while each item in the other column will be posted to the credit of the account whose title appears opposite it on the same line. The effect is the same as though a journal entry had been made in the general journal showing a debit to cash of the total receipts and the many credits to the off-setting accounts.

Detail can be further eliminated by use of cash receipts journal form 3 in which there is but one column. Each individual item is posted to the credit of the account whose title is on the same line and to the left of it. The total is posted to the debit of cash. The foregoing illustrations were designed to set forth in simple form the fundamental ideas and the method involved

in substituting the posting of totals rather than details from a book of original entry to the general ledger.

CASH RECEIPTS JOURNAL 1

Cash	$100.00	
Sale		$100.00
Cash	15.00	
H. Jones		15.00
Cash	500.00	
Notes Payable		500.00
Cash	50.00	
Sale		50.00
Cash	75.00	
J. Smith		75.00
Cash	90.00	
Sale		90.00
Cash	80.00	
K. Morton		80.00

CASH RECEIPTS JOURNAL 2

	Debit Cash	Credit Account Indicated
Sales	$100.00	$100.00
H. Jones	15.00	15.00
Notes Payable	500.00	500.00
Sales	50.00	50.00
J. Smith	75.00	75.00
Sales	90.00	90.00
K. Morton	80.00	80.00

CASH RECEIPTS JOURNAL 3

	Credit Account Indicated
Sales	$ 100.00
H. Jones	15.00
Notes Payable	500.00
Sales	50.00
J. Smith	75.00
Sales	90.00
K. Morton	80.00
Debit Cash	$2,870.00

Cash receipts journal, form 4, illustrates still further development of the idea of accumulating details in a book of original entry and posting totals only to the general ledger. It will also be the basis for illustrating the controlling account to be discussed shortly.

The reader will note that two columns are used for cash—one for cash on hand, the other for cash in bank—and one column each for accounts receivable, discount on sales, sales, and general ledger. In forms 1, 2, 3, all details which were credits were posted to the general ledger. It was only the debits to cash which were posted as a total. In form 4, the total of all of the columns, other than that headed general ledger, are posted to the general ledger account whose title is at the head of the column. If the totals were to become the elements of a journal entry (to be recorded in the simple two-column journal) it would read as follows:

Cash in Bank	2802.70	
Discount on Sales	67.30	
Accounts receivable		1490.00
Sales		880.00
Notes Payable		500.00

The column headed general ledger is so called to indicate that every item therein should be posted individually to the account whose title appears on the same line as the item and to its left. Where a given account is affected only infrequently during the time interval (day, week, month) for which totals are accumulated, it does not pay to establish a separate class or column for it. In the illustrations, for example, only one bank loan was effected during the month, therefore, the entry is made in the general ledger column.

The columnar arrangement illustrated in form 4 is only one of an almost infinite variety. The sequence of columns from left to right may be arranged to conform to the sequence of accounts in the general ledger, thus facilitating posting. The number of columns will always depend on the amount of detail in any one class of item which can be posted with advantage as a total instead of in detail. For example, enterprise management may wish to know the total sales for each of two or more classes of merchandise, in which case the appropriate number of sales columns, properly identified, will be used.

CASH RECEIPTS JOURNAL 4

	Debit Cash on Hand	Debit Cash in Bank	Credit Accounts Receivable	Debit Discount on Sales	Credit Sales	Credit General Ledger
Sales	$ 100.00				$100.00	
H. Jones	15.00		$ 15.00			
Notes Payable		$ 500.00				$500.00
Sales	50.00				50.00	
J. Smith	75.00		75.00			
Sales	90.00				90.00	
K. Morton	80.00		80.00			
R. Brown	107.80		110.00	$ 2.20		
Deposit	2,302.70	2,302.70				
	$ —	$2,802.70	$1,490.00	$67.30	$880.00	$500.00

The reader will observe that the cash received from the bank loan was not entered in cash on hand and then transferred to the bank, but was entered directly in the cash in bank column. This is the consequence of the conventional banking practice of directly crediting the commercial account of the borrower. The debit is to cash in bank as illustrated above.

We now turn to a consideration of the detailed handling of the items in the accounts receivable column.

The Controlling Account. As mentioned in the introduction of this chapter, the controlling account is a device for accumulating in a general ledger account totals, the details of which are accumulated in a subdivision of the general ledger called a subsidiary ledger. The most obvious use of the controlling account is in connection with accounts receivable. If the number of customers grows, so does the number of accounts in the general ledger. The taking of a trial balance then becomes a real job because it is necessary to list the balances of dozens or hundreds of individual accounts receivable. This tedious task is avoided and time saved by pulling out of the general ledger all of the individual accounts receivable ledger sheets and substituting in their stead one ledger sheet entitled Accounts Receivable Control. Supppose, for example, that three hundred separate customers accounts showed total debit balances of $8,962.47. That figure would be the initial debit entry in the controlling account. If, immediately after such transfer a general ledger trial balance is to be taken, there will be shown for Accounts Receivable the one item $8,962.47 instead of 300 separate items which add to the same total.

The controlling account is also used for accounts payable, for installment contracts receivable of all kinds, for example, those arising from the installment selling of a family residence and all the varied items of household furniture and kitchen gadgetry with which our civilization is so replete. As will be explained later, the controlling account idea can be extended to cover classifications of gross income accounts and expense accounts without the use of subsidiary ledgers.

Supposing then that a control account for customers accounts receivable has been established, let us inquire into the manner in which it is used. Except for correction of errors, all of the debits to individual customers' accounts receivable arise from sales on account. Therefore, the debits to the controlling account will arise from the same source. Credits to individual customer accounts receivable arise from the following sources: cash payments by customers, discounts allowed, returned merchandise, and price concessions or price adjustments. All of the debit entries will be posted from the general journal or from the sales journal. Credits representing cash payments will be posted from the cash receipts journal, as will ordinarily the discounts on sales. The credits arising from returned sales and the price concessions usually called sales allowances, will be posted from the returned sales and allowances journal.

The bulk of the credits to the individual accounts receivable are posted from the cash receipts journal. Form 4, cash receipts journal, contains an accounts receivable column. Using the account of our mythical H. Jones, we observe a $15 entry in that column. This $15 item is posted from the accounts receivable column of the cash receipts journal to the *credit* of H. Jones account in the accounts receivable ledger. In exactly the same fashion, every item in the accounts receivable column of the cash receipts journal is posted as a *credit* to the account of a specified customer in the accounts receivable subsidiary ledger. The total of the accounts receivable column of the cash receipts journal is posted as a credit to Accounts Receivable Control in the general ledger.

The reader will note that any discounts allowed to customers are shown separately in the discount on sales column of the cash receipts journal. For example, Mr. R. Brown settled his account of $110 by making cash payment of $107.80, having been allowed a discount of $2.20. The total credit to his account actually consists then of cash of $107.80 and a discount of $2.20. In making the credit posting to Mr. Jones' account in the accounts receiv-

able ledger, the sum of the two items, $110.00 is posted. Here is an illustration of one of the advantages of columnized books of original entry—the elimination of detail. No useful purpose is served by showing in the customers account with R. Jones the two elements which comprise the total credits to his account. It will suffice to show the details in the cash receipts journal.

The Sales Journal. Just as the elimination of detail is made possible by the use of a columnized cash book, so is it in the case of the sales journal and the returned sales journal. The same four stages of development from a simple two-column journal to a multiple-column sales journal are illustrated by sales journals numbered I, II, III, and IV.

As in the case of cash receipts, it is not implied that the actual development of the columnized sales journal went through the four stages employed in these illustrations. They are presented solely to clarify the nature of the development of a specialized sales journal.

In the first stage, represented by sales journal I, all of the sales-on-account transactions are pulled out of the general journal and set up in a separate journal. It is to be observed that the familiar two-part debit and credit journal entry is repeated for each sale on account. In this case, each individual debit is posted to the named customer's account and each individual credit to the appropriate sales account.

In sales journal II, instead of the familiar debit and credit arrangement of the two-column journal, the items are set up in two columns, with the name of the individual customer only appearing in the explanation space. Here we will again post each item to the debit of the individual customer's account but will post the *total only* of the sales column to the credit of the sales account.

In form III, one column has been eliminated. Thus the $27.50 opposite Henry Smith represents at one and the same time the debit to Henry Smith's account receivable *and* a credit element to be entered in the sales account, not as an individual item, but as part of a total. Each individual item will, therefore, be posted to the debit of the account of the individual indicated, while the total only will be posted to the credit of sales.

Sales journal form IV contains a column for accounts receivable and three separate sales columns. Obviously, as many sales columns may be used as are necessary to accomplish the desired

sales breakdown. As in forms I, II, and III, each individual item is posted to the debit of the named customer's account receivable. All such postings are from the column headed "Accounts Receivable". *No individual item is posted from any of the sales columns.* The totals only of the sales columns are posted to the credit of the respective sales accounts whose titles are at their head. If no subsidiary accounts receivable ledger is maintained, it follows that the posting to each individual customer's account is made to the general ledger, *and therefore, the total of the accounts receivable column is not posted.*

SALES JOURNAL I

Henry Smith	$ 27.50	
Sales		$ 27.50
Thomas Brown	110.00	
Sales		110.00
H. Jones	15.00	
Sales		15.00
James Green	41.25	
Sales		41.25

SALES JOURNAL II

	Debit Accounts Receivable	Credit Sales
Henry Smith	$ 27.50	$ 27.50
Thomas Brown	110.00	110.00
H. Jones	15.00	15.00
James Green	41.25	41.25
	$2,942.87	$2,942.87

SALES JOURNAL III

	Debit Accounts Indicated
Henry Smith	$ 27.50
Thomas Brown	110.00
H. Jones	15.00
James Green	41.25
	$2,942.87

SALES JOURNAL IV

	Accounts Receivable	Sales A	Sales B	Sales C
Henry Smith	$ 27.50		$ 27.50	
Thomas Brown	110.00	$ 110.00		
H. Jones	15.00			$ 15.00
James Green	41.25			41.25
	$2,942.87	$ 477.86	$ 949.88	$1,515.13

The net effect is a journal entry of the following form:

Henry Smith	$ 27.50	
Thomas Brown	110.00	
Henry Jones	15.00	
—	—	
—	—	
—	—	
James Green	41.25	
Sales A		477.86
Sales B		949.88
Sales C		1515.13

If, however, a subsidiary ledger of customers' accounts receivable is maintained, then the individual postings to the customers' accounts are made to the subsidiary ledger and the *total only* of the accounts receivable column is posted as a debit to the accounts receivable control in the general ledger. This is the equivalent of the following general journal entry to be posted to the general ledger;

Accounts Receivable, Control	$2942.87	
Sales A		$ 477.86
Sales B		949.88
Sales C		1515.13

The Returned Sales Journal. The development of the returned sales journal can also be illustrated by the same four stages which were used in connection with the sales journal. It is left as an exercise for the student to work out the development of the first three forms. Form IV of the returned sales journal is identical in appearance with form IV of the sales journal. The difference, however, lies not in the form, but in the accounting equation significance of the entry. Each item in the accounts receivable column represents a credit (a decrease) of the amount owing by the customer in question. Conversely, each item in the returned sales column represents a reduction of sales occasioned by a return of merchandise by a customer which, as the reader has learned, is entered in a returned sales account.

If no subsidiary ledger is maintained for customer accounts receivable, then each individual item in the accounts receivable column is posted as a credit to the named customer's account *in the general ledger. The total of the accounts receivable column is not posted.* No individual item in any one of the sales columns is posted, but the total of each sales column is posted as a debit to the appropriate returned sales account in the general ledger. The effect is the equivalent of that yielded by the following general journal entry.

Returned sales A	xx	
Returned sales B	xx	
Returned sales C	xx	
Individual customers' accounts		xxx

If a subsidiary ledger for customer accounts receivable is maintained, then the individual items in the accounts receivable column are posted to the credit of the respective customer's accounts *in the accounts receivable ledger.* The total of the accounts receivable column is posted as a credit to the accounts receivable control *in the general ledger.* As in the preceding case, the sales column totals are posted as debits to the respective returned sales accounts in the general ledger.

Some Short-Cuts. It is obvious that in the three books of original entry discussed in this chapter, much work is involved in transcribing from a cash sales tag to a line in the cash receipts book or from a sales-on-account sales tag to a line in the sales journal. In the same fashion, much time is consumed in writing out vouchers for returned merchandise and making entries in the returned sales journal. (The problem of handling returned sales when made for cash will be considered in the next chapter along with the discussion of cash disbursements.) In an effort to avoid much of this detail, some convenient short-cuts have been developed. Two of them will be considered here.

The first step in reducing detail work is to eliminate entirely the entry, in any one of the three journals here discussed, of each transaction and to substitute therefore a daily total of transactions. Thus in the cash receipts journal form 4, instead of each cash sale being recorded separately, there would be recorded each day the sum of the cash sales receipts for the day. This is accomplished by segregating all sales tags into two groups, cash and on account, and obtaining an adding machine total of the cash sales. The adding machine tape would be dated the day of the sales and attached to the bundle of cash

sales tags for the day and filed. This means that there would be as many items for cash receipts in the cash receipts journal as there were business days in the month or other time interval in question.

In the same fashion, collections on customers' accounts receivable could be totaled and a daily entry made in the accounts receivable column of the cash receipts journal for total collections received on accounts for that day. Postings would then be made directly from the cash receipts ticket or voucher to the individual customer's account in the accounts receivable subsidiary ledger. The amount of work saved by such a procedure can be very great. For example, suppose that an average of 100 payments on account are received each business day. This amounts to 2600 items for a 26 working-day month. By means of the described short-cuts, only one entry is made in the cash receipts journal each day instead of 100 entries. There is thus a saving of the writing in of the names of 100 customers and substituting therefore the one item "collections on account". It should be noted that if any of the customers who have paid are entitled to discounts, it will be necessary to calculate the discounts and run an adding machine tape for them as well as for accounts receivable.

It should be quite clear that the same procedure can be used for the sales journal. In the case of form IV, for example, all the sales tags for sales on account which had been segregated from cash sales tags will be further grouped according to departments A, B, C. For each day therefore, on one line of the sales journal, there will be entered in each sales column the total of the sales of each department and the grand total of sales on account for that day entered in the accounts receivable column. Postings will be made to the debit of each individual customer's account directly from the sales tag. As mentioned earlier, dated adding machine tapes are filed with the bundle of sales tags from which items on the adding machine tape were taken. At the end of the month, the posting will be effected as has been described in the preceding sections of this chapter, except that totals only will be posted since the individual credits to customer accounts receivable have already been posted. Following exactly the same line of reasoning, this short-cut can also be applied to the returned sales journal.

The work can be further reduced by still another procedure. As in the method just explained daily totals are entered in the several books of original entry. No ledger accounts are main-

tained for the individual accounts receivable. Instead a file of sales-on-account sales tags is maintained. Partial payments are noted on the relevant tags. When full payment is made the tag is marked paid, date of payment recorded on it and the tag transferred to a "paid" file. The balance in the accounts receivable control account should agree with the sum of the items on the sales tags in the "unpaid" file.

Depending upon the nature of the business, the fraction of total sales represented respectively by cash, and by credit transactions, and the extent of detail required by management, it is possible to work out a considerable variety of alternative procedures, each of which is designed to minimize the amount of clerical work involved and, at the same time, assist in maintaining internal control, a subject to be considered in the next section.

Internal Control. Internal control is a term used by accountants and business managers to identify a system of procedures or routines designed to assist management in maintaining control over enterprise property and over enterprise activity. Perhaps the fullest development of the implications of internal control are represented by the wide range of analysis and reporting encompassed in the fields of cost accounting and cost analysis. Only a few illustrations of its application will be presented here.

Since the primary obligation of management is to report upon the discharge of its stewardship, it is essential that it maintain control at all times over enterprise activity, since that means use of enterprise property in all its forms. Consider, for example, control of enterprise merchandise. The problem of controlling its acquisition will be discussed in Chapter 19. Control of its disposition involves a careful control over sales. The minimum requirement is that some document (a voucher) be maintained as evidence of the sale and of a receipt of cash or a promise to pay cash from the party to whom the sale was made. Where sales tags are used, this requires the following controls: (1) all sales tags should be numbered, (2) all sales tags should be prepared at least in duplicate, (3) sales tags should be bound in books of 50 to 100 and all unused books of sales tags should be under the control of one person, (4) when a book of sales tags is issued to a sales person, he should be required to sign for it, (5) the return by the sales person of the used book of sales tags, ordinarily containing tissue copies,

should be a condition precedent to the issuance of another book of tags, (6) the accounting office should insist upon an accounting for every sales tag and not be satisfied with any except an unusual reason or explanation of the loss or destruction of one.

All of the foregoing is designed to control the issue and use of sales tags and by that means impress upon employees the importance of control and how they may share in its maintenance.

Let us turn for a moment to control of cash receipts. Consider first the case where cash registers are used. For example, in a five-and-dime store every sales person is required to record the amount of the sale on a cash register. Modern registers are constructed to eject a small ticket, when the keys are punched, on which is recorded the date and the amount of the sale. The clerk is usually instructed to hand to the customer this ticket or to wrap it up with the merchandise before the latter is handed to the customer. The register contains a tape on which are recorded all the transactions and an adding machine counter which accumulates the sales which have been recorded. At the end of the day, therefore, the total that is in the cash drawer in the register, minus the amount on hand at the beginning of the day used for change making, should equal the total recorded on the tape for the day. The effect of this control is further strengthened by the fact that the clerk does not know when a customer will be a member of an organization employed by the enterprise to test the extent to which the clerk is following instructions.

Where the cash register is not the primary means of accumulating the information on cash sales, the conventional sales tag or sales ticket is prepared as mentioned earlier but the amount is nonetheless rung up on a register. In this case, the sum of the cash sales tags (the duplicate copies) prepared by the sales people must agree with the sum imprinted by the cash register on the register tapes. It will be noted in this case, as well as in that where only the cash register was used, that there will be an agreement between two independently determined sums. Where the register alone is used, the agreement is between the count of cash receipts and the total imprinted on the register tape. In the other case mentioned above, there is really a three-way agreement between the cash receipts, the total on the register tape, and the sum of the amounts on the cash sales tags made out by the sales people.

The foregoing brief comments are offered by way of illustration only, to indicate an exceedingly important feature of all routines for collecting data to be entered in accounting records. The important feature is this: such control devices should be established as can be integrated with the accounting data-gathering routine so that one set of procedures will simultaneously serve the following purposes; (1) provide a vehicle for accumulating the primary statistical data which are recorded in the accounting records and (2) afford some degree of control over the property of the enterprise which is acquired and consumed in the very process of bringing about the transactions whose financial effects are the primary subject matter of accounting records.

CHAPTER 19

Subdividing Journal and Ledger – Cash Disbursements and Purchases – Controlling Accounts

Introduction. In this chapter the journal will be further subdivided to provide for the speedy and economical accumulation of data concerning cash disbursements, purchases, and returned purchases.

The Cash Disbursements Journal. Once more for didactic purposes the development of the cash disbursements journal is presented in four stages. Initially there is simply the establishment of a separate two column journal for all cash disbursements. Every item must be posted individually to the account indicated. The repetition of credits to cash is obvious.

Cash disbursements journal II eliminates the posting of individual transaction credits to cash. Each individual debit is posted to the account indicated. The total only of cash is posted to the credit of the cash account. The effect is as though the following entry had been made in the general journal:

Bartlett & Sons	1000.00	
Rent Expense	500.00	
Advertising	78.00	
Tel. & Tel.	14.62	
Cash		7962.88

Cash disbursements journal III effects additional economy. One column only is used. Each individual item is posted to the debit of the account indicated. The total only is posted to the credit of cash.

The most economical of all arrangements is the multi-column cash disbursements journal. Reading from left to right the arrangement of columns is conventionally as illustrated, payee of check, check number and cash in bank or name of depository bank. The headings of the other columns depends upon the account titles used for classifying data and upon the frequency of occurrences of transaction types. In the illustration columns are provided for accounts payable, expense control and general ledger. The reader will observe that no column is provided for

cash discounts on purchases. One is not necessary since it is assumed that all discounts offered are taken and purchases are recorded net of cash discounts as illustrated in the purchases journal later in this chapter.

CASH DISBURSEMENTS JOURNAL I

Bartlett & Sons	$1,000.00	
Cash		$1,000.00
Rent Expense	500.00	
Cash		500.00
Notes Payable	500.00	
Interest on Notes Payable	10.00	
Cash		510.00
Salaries	1,280.00	
Cash		1,280.00
R. S. & Company	462.00	
Cash		462.00
XYZ Corporation	955.00	
Cash		955.00
Advertising	78.00	
Cash		78.00
Tel. & Tel.	14.62	
Cash		14.62

CASH DISBURSEMENTS JOURNAL II

	Debit Account Indicated	Credit Cash
Bartlett & Sons	$1,000.00	$1,000.00
Rent Expense	500.00	500.00
Notes Payable	500.00	500.00
Interest on Notes Payable	10.00	10.00
Salaries	1,280.00	1,280.00
R. S. & Company	462.00	462.00
XYZ Corporation	955.00	955.00
Advertising	78.00	78.00
Tel. & Tel.	14.62	14.62
	$7,962.88	$7,962.88

CASH DISBURSEMENTS JOURNAL III

	Debit Account Indicated
Bartlett & Sons	$1,000.00
Rent Expense	500.00
Notes Payable	500.00
Interest on Notes Payable	10.00
Salaries	1,280.00
R. S. & Company	462.00
XYZ Corporation	955.00
Advertising	78.00
Tel. & Tel.	14.62
	$7,962.88

The totals only of all columns except that headed general ledger are posted to the general ledger. Thus $7,962.88 is posted to the credit of cash, $3,556.54 to the debit of accounts payable and $3,146.34 to the debit of expense control. The total of the general ledger column is not posted. Each individual item in this column is posted to the debit of the account indicated. The general ledger column is used for those accounts to which debit offsets to cash credits do not occur frequently enough to justify the use of a separate column. When postings have been completed the effect is as though the following general journal entry had been recorded and posted:

Accounts Payable	$3556.54	
Expense Control	3146.34	
Notes Payable	500.00	
Other Accounts	760.00	
Cash		7962.88

We now turn to a discussion of the treatment of the details in the columns accounts payable and expense control.

The Controlling Account. The operation of a controlling account for accounts payable is analogous in all respects to that of the accounts receivable control. The controlling account is established by taking out of the general ledger all ledger sheets for accounts payable, placing them in a separate binding, and substituting for them in the general ledger one account whose balance is the total of the balances of the individual accounts payable.

CASH DISBURSEMENTS JOURNAL IV

	Check No.	Cash in Bank	Accounts Payable	Expense Control	General Ledger	
Smith & Company	1493	$1,000.00				
Atlas Bldg. Corp.	1494	500.00		$ 500.00		
First National Bank	1495	510.00		10.00	Notes Payable	$ 500.00
James Johnson	1496	500.00		500.00		
Henry Peters	1497	250.00		250.00		
Patrick O'Toole	1498	280.00		280.00		
Harlan Sweezy	1499	250.00		250.00		
R. S. & Company	1500	462.00	$ 462.00			
XYZ Corporation	1501	955.00	955.00			
The Daily Clarion	1524	78.00		78.00		
The Pac. Tel. & Tel.	1525	14.62				
		$7,962.88	$3,556.54	$3,146.34		$1,260.00

Credits to the individual accounts come from the purchases journal, debits from the returned purchases journal and from the cash disbursements journal. Each item in the accounts payable column of the cash disbursements journal is posted to the debit of the individual creditor's account in the accounts payable ledger; the total only is posted to the debit of the accounts payable controlling account in the general ledger.

Where an expense control column is used in the cash disbursements journal it is necessary to maintain an expense control account in the general ledger. Individual expense accounts are usually maintained in the same ledger and directly follow the control account. From the expense control column in the cash disbursements journal each individual item is posted to the debit of the appropriate expense account, while the total of the column is entered as a debit in the expense control account. The total of the debit balances in the individual expense accounts should always equal the debit balance in the control account. When a general ledger trial balance is taken only the control account total is included. In this illustration and explanation it is assumed that all expenses (other than purchase of merchandise) are entered only when paid.

If there are many expense accounts space may be provided to the left of the expense control column for writing in the titles of the individual expense accounts. This will expedite posting where the name of the payee does not obviously identify the expense account affected.

The Purchases Journal. The development of both the purchase journal and the returned purchase journal may be illustrated by the four stages used heretofore. This is left as an exercise for the student. The multi-column form only is illustrated on page 238.

Each individual item in the accounts payable column is posted as a credit to the appropriate account in the accounts payable ledger. The total is posted to the credit of the accounts payable control in the general ledger. No individual items are posted from any merchandise column. The totals only are posted to the debit of the respective purchases accounts in the general ledger. The results are equivalent to having entered and posted the following general journal entry:

Purchases—Dept. A	$6374.28	
Purchases—Dept. B	3988.46	
Purchases—Dept. C	2614.10	
Accounts Payable		$12,976.84

The Returned Purchases Journal. This book of original entry is identical in all respects to the purchase journal. All postings from it are the inverse of those from the latter. Each item in the accounts payable column is posted to the debit of the individual creditor's account in the accounts payable ledger. The column total is entered as a debit in the accounts payable controlling account in the general ledger. No individual item in any purchase column is ever posted. The totals only of such columns are posted to the credit of the respective purchases accounts in the general ledger.

PURCHASES JOURNAL

Account Title	Accounts Payable Control	Purchases Department A	Purchases Department B	Purchases Department C
Arnold & Sons	$ 140.50			$ 140.50
Brown & Green	749.87			$ 749.87
Halifax Corporation ...	550.60	$ 550.60		
Jones & Jones	110.95		$ 110.95	
Atlas Mfg. Company....	47.48		47.48	
The Mono Company....	237.63	237.63		
Barnes & Barnes	376.94		376.94	
	$12,976.84	$6,374.28	$3,988.46	$2,614.10

Some Short Cuts. The work involved in recording original entries in the cash disbursements journal can be reduced by using procedures similar to those discussed in connection with cash receipts. Their effectiveness is limited, however, by the fact that where checks are used the details of each check must be recorded someplace. If the stub of a check is the only recording, then the entries thereon may be classified on adding machine tapes and the totals on the tapes entered in the cash disbursements journal. For example, the checks drawn during one week might show the following:

Accounts Payable	$4,687.92
Expenses	1,291.87
Other Accounts	476.79
Total	$6,456.58

The $4,687.92 would be entered in the accounts payable column, the $1,291.87 in the expense column and the separate account details of the $476.79 entered in the general ledger column and the $6,456.58 in the cash in bank column. All

items would be dated the last day of the week. The details of the accounts payable would be posted directly from the check stub to the debit of the individual creditor's account in the accounts payable ledger. The debits to the individual expense accounts would be posted in the same manner. Postings from the cash disbursements journal would be as follows: The totals only of all columns, except general ledger, would be posted to the general ledger, all being posted as debits except cash which will be posted as a credit. The individual items in the general ledger column will be posted as debits to their respective accounts in the general ledger. The total of the column is not posted.

Analogous routines will effect reduction in entries in both the purchase journal and the returned purchase journal. In both cases summaries are recorded in the books of original entry while all postings to individual creditor's accounts are made directly from the original purchase or returned purchase voucher. In these circumstances no individual items are posted from the two books of original entry but totals only.

Petty Cash. A special case of short cut to save time and cost, as well as to effect more complete control over cash disbursements, is applied to small or "petty cash" disbursements. Included in this category are disbursements for carfare, telegrams, postage due, C. O. D.'s on supplies, etc. The disbursement is in each case a small amount, they occur frequently and the drawing of a check would be a cumbersome routine if not wholly impractical.

The reader will recall that one of the important devices for controlling cash receipts was to deposit intact each day's receipts. In keeping with this routine petty cash disbursements will have to be made out of the initial change fund or a separate fund will have to be established for this purpose. In the interest of better control the latter procedure is followed and the fund so established is known as a petty cash fund or an "imprest" cash fund.

A check is drawn payable to cash. It is cashed by the cashier and the proceeds turned over to the individual charged with handling the petty cash fund. From the general ledger column in the cash disbursements journal the amount of the check is posted to the debit of the account Petty Cash in the general ledger. The equivalent general journal entry is:

Petty Cash	$50.00	
Cash in Bank		$50.00

All payments out of the fund must be evidenced by a petty cash voucher an illustration of which follows:

Petty Cash Voucher No. 1446

Date 4/17 1956

Paid to U. S. Post Office

Description	
Postage Due	18

Approved	Entered	Receipt acknowledge
By J. R. S.	By B. W. B.	U. S. Post Office By—H. T. J.

At any time the sum of the amounts on the vouchers not yet entered in a book of original entry plus the balance in the fund should equal the amount established for the fund.

As the cash in the fund is disbursed and replenishment is necessary a check is drawn payable to cash and the petty cash vouchers covered by the check are turned over to the cashier, marked "paid" and filed. The amounts entered on the petty cash vouchers and classified by expense account affected are recorded in the cash disbursements journal in the expense control column. An alternative procedure is to record them in a columnized petty cash disbursements journal. Postings are made from it directly to the general ledger accounts affected. Under these circumstances the amount of the reimbursing check recorded in the expense column of the cash disbursements journal would not be posted as an individual item since the petty cash disbursements journal is the book of original entry for such transactions.

Internal Control of Cash. Cash disbursements are most effectively controlled by the use of checks except for petty cash items discussed above. A really effective control should include the following provisions: (1) all checks are prenumbered; (2) spoiled checks are mutilated to prevent misuse; (3) the inven-

tory of checks should be under the control of a responsible person; (4) every check should require two signatures; (5) the invoices being paid should be stamped "paid," and the check number written on them by one of the signers of the check or by an employee reporting directly to him; (6) bank statements should be reconciled monthly; (7) all paid and cancelled checks should be preserved.

CHAPTER 20

Subdividing The Journal — Invoice Register and Voucher Register

Introduction. In this chapter we will discuss the form and use of two additional methods of handling purchases. In the order here presented they represent successive degrees of refinement of the purchase register in terms of formality. They are, respectively, the invoice register and the voucher register.

The Invoice Register. The purchases journal becomes the invoice register by the simple device of numbering all invoices as they are received and entering them in the purchases journal in serial-number order. This practice is frequently accompanied by the use of a rubber stamp to mark on the invoice the serial number and the distribution of the items to the several accounts affected.

Quite frequently the detailed accounts payable ledger is dispensed with when an invoice register is used. Invoices are filed by due dates and transferred to a "paid" file after payment. Posting is carried out as described for the purchases journal in Chapter 19 except that *the total only* of the accounts payable column is posted. The individual items from this column are not posted since the subsidiary ledger for accounts payable has been abolished. At any trial balance date the sum of the invoices in the "unpaid" file should equal the balance in the accounts payable account in the general ledger and the sum of the unpaid items in the invoice register.

The Voucher System. Two additional refinements distinguish the "voucher system" from the procedures heretofore discussed: (1) the preparation of a document called a voucher, and (2) the requirement of a written authorization or approval by a responsible officer or partner for each disbursement.

The procedure requires the following steps:

1. The preparation of a voucher after an invoice has been received and checked.
2. The entry in the voucher register (in effect a columnized purchases journal) of the amounts shown on the voucher.
3. The filing of the voucher in an "unpaid" file.

4. The drawing of a check for the payment of the voucher.
5. The transfer of the voucher from the "unpaid" to the "paid" file.

The voucher is a formal document on which are transcribed certain items of information from the invoice in question. (See illustration on page 244.) The voucher may or may not be attached to a check to cover payment of the invoice. If it is attached provision may be made for detaching the voucher distribution section before mailing to the creditor. The voucher number and the check number are rarely identical because one voucher may cover several invoices received from one creditor. Where the voucher and check are separate documents no special problem arises. Each check is drawn to cover a voucher which may include more than one invoice.

The Voucher Register. The purchases journal in Chapter 19 is readily converted into a voucher register by recasting the columns to the left of Dept A to read as follows:

Date	Voucher Number	Name	Paid		Vouchers Payable
			Date	Check No.	

Occasionally a partial payment is made on a voucher. Two procedures are available for handling it. A notation may be made in the check number column that a partial payment has been made or the original voucher cancelled and two new ones prepared. The latter procedure is more in keeping with the formality of the voucher system than is the former.

Now and then a voucher is cancelled because a note is given for the amount owing. The entry for the issuance of the note will be made in the general journal. In the paid column of the voucher register will be entered the date of the journal entry and the journal reference. The voucher will be transferred from the open (or unpaid) file to the paid file.

After all postings have been made from the various special journals the following equality should exist: general ledger vouchers payable = sum of open items in the voucher register = sum of items in the unpaid vouchers file.

ATTACH ALL DOCUMENTS RELATING TO THIS INVOICE IN THIS SPACE

1. Accounts Payable No. 1461

2. This Invoice is DUE 3/10/55
LESS $29.52
Must be returned for payment at least four days before due date

3. Department Head O. K. for
TERMS J. H. P.
PRICE J. H. P.
Quality Count and Condition R.M.S.
O. K. TO PAY
T. P. Marsh

4. Our Order No.

5. Door Ticket No.

6. For Door Ticket See
Inv Date 3/1/55 Amt. $1,475.98

12. SPECIAL INSTRUCTIONS

Do not destroy: If void send to Accounts Payable Dept.

13. Bill Sent To Mdse. Dept.

14. Bill Returned To Accts. Payable

No. 2476

THE BANK OF ZENITH

April 14,1955

$ 2,986.47

VOUCHER

Invoices Paid		
4/1	No. 1687	$2,986.47

DISTRIBUTION			REMITTANCE	
Charge Account		Amount	Credit	Amount
Number	Name			
141	Machinery	$2,986.47	Check	$2,986.47
			Discount	
			Other Credits:	
			Returns	
			Allowances	
			Total	$2,986.47

H. B. Small
Approved for Payment

J. H. M.
Posted to Accounts Payable

No. 6342

THE BANK OF ZENITH

January 15, 1956

$ 1,943.28

PAY One Thousand Nine Hundred Forty-Three and 28/100 dollars

TO THE ORDER OF

In full payment of the following invoices

M S Manufacturing Company

1416 H Street

Home Town, Nebraska

12/1/55	#1568	$ 461.10
12/8/55	#1610	1,119.40
1/3/56	#1743	362.78

B. R. Jones — Signed

C. J. Smith — Countersigned

Endorsement on Check is sufficient Receipt.
If Incorrect, return to Accounting Dept.

CHAPTER 21

Consignments

Introduction. Merchandise, instead of being sold, is often shipped to a distributor or retailer under an agency arrangement. The merchandise is said to be "on consignment". The shipper of the merchandise is known as the consignor, the distributor or retailer, the consignee.

Here we have an entirely new situation, merchandise in the possession of an enterprise which *is not* its asset, but that of the consignor, for which it must render an accounting. The conventional procedures for recording consignment transactions and reporting upon them will be explained in the balance of this chapter.

The Consignor's Books. As a basis for discussion let us assume that Mars Television Co. consigns seven television sets to Ames Distributing Company at $150 each. The consignee pays $19.00 freight and $11.00 drayage. A commission of 30% of the selling price is allowed the consignee, such commission to be taken only on the cash collected from the sales made. Each television set sells for $350. Assume further that five sets are sold. Mars Television Co. pays $7.50 cartage out charges.

The entries to be made on the books of the consignor will depend on the method used in maintaining inventory control and on the amount of detailed information about the consignment business that management wants or believes it can use. As to inventory there are two possibilities: (1) the perpetual inventory basis, and (2) the periodic inventory basis. As regards details of the consignment business the alternatives involve separation or no separation of consignment sales from other sales and whether the expenses incurred by the consignee should be set up on the books of the consignor.

Assume that, (1) consignment profits are not kept separate from profits on regular sales, (2) that expenses incurred by the consignee are not taken up on the books of the consignor, and (3) that perpetual inventory records are maintained. Under these circumstances the following entries would be made.

(1)	Consignment Out—Ames Distributing Company	$1,050.00	
	Inventory		$1,050.00

(This entry establishes the claim against Ames for the merchandise consigned to it.)

(2)	Freight and Cartage Out	7.50	
	Cash		$ 7.50
(3)	Cash	$1,195.00	
	Sales		$1,195.00
(4)	Cost of Sales	750.00	
	Consignment Out—Ames Distr. Co.		750.00

At this point consignment out account will show a balance of $300.00, the cost of the two television sets unsold and in the possession of Ames Distributing Company.

If perpetual inventory records are not maintained entries (1) and (4) above are changed to the following:

(1)	a. Consignment Out—Ames Distributing Company	$1,050	
	Consignment Shipments		$1,050
(4)	a. No entry		

Entry (1) a. is a memorandum entry and is reversed when a report (account sales) is received from the consignee. In the illustration five of the seven sets were sold. Therefore the following entry is required:

(5)	Consignment Shipments	$750	
	Consignment Out—Ames Distributing Company		$750

The result is a balance of $300 in the consignment out account covering the cost of the two sets still unsold and in the possession of the consignee. All other data concerning the consignment transaction have been recorded in expense and income accounts established for the regular business of the consignor.

If the consignor wishes to maintain a separate record of the profits on consignment business the following entries would be made in lieu of numbers (2) through (4), above.

(2)	a. Consignment Out—Ames Distributing Company	$ 7.50	
	Cash		$ 7.50
(3)	a. Cash	$1,195.00	
	Consignment Out—Ames Distributing Company		$1,195.00

The ledger account for the consignment out would appear as follows:

Consignment Out—Ames Distributing Company

7 television sets	$1,050.00	Net proceeds	$1,195.00
Drayage	7.50		

If, at this point, it is desired to compute the gain on consignment sales and prepare formal statements, adjustments must be

made for the unsold consigned merchandise. The appropriate entry and the consignment out account follow:

Consignment Out—		
Ames Distributing Company	$439.64	
Profit on Consignment Sales		$439.64

Consignment Out—Ames Distributing Company

7 television sets	$1,050.00	Net proceeds	$1,195.00
Drayage	7.50	Inventory—2 sets	302.14
Profit	439.64		
	$1,497.14		$1,497.14
Inventory—2 sets	$ 302.14		

The inventory value is the sum of the billed cost per set, $150.00 plus $1.07 per set of the drayage charges. This is one more illustration of the matching of costs and income or the proper time distribution of the terms of the income and expense series.

There remains one additional situation to be considered, namely, the recording on the books of the consignor of all the expenses reported by the consignee in the account sales. Assume then, that this is done, and that the consignor wishes to report separately the profits on consignment business. In lieu of entry (3), above, the following entry would be made:

Cash	$1,195.00	
Freight	19.00	
Drayage	11.00	
Commission	525.00	
Consignment Out—Ames Distributing Company		$1,750.00

The ledger account would appear as follows:

Consignment Out—Ames Distributing Company

7 television sets	$1,050.00	Sales—5 sets	$1,750.00
Drayage	7.50		
Freight	19.00		
Drayage	11.00		
Commission	525.00		

At this stage the account is clearly a "mixed" account since it contains on the credit side gross income, on the debit side

both asset and expense. Should an income statement and a balance sheet be prepared at this point the inventory value will consist of the following items:

2 television sets		$300.00
2/7 of each item below:		
Drayage	$ 7.50	2.14
Freight	19.00	5.43
Drayage	11.00	3.14
		$310.71

After closing the ledger account would appear as shown below.

Consignment Out—Ames Distributing Company

7 television sets	$1,050.00	Sales—5 sets	$1,750.00
Drayage	7.50	Inventory—2 sets	310.71
Freight	19.00		
Drayage	11.00		
Commission	525.00		
Profit	448.21		
	$2,060.71		$2,060.71
Inventory	310.71		

Several features of this last procedure are worthy of comment. In the first place, the above account contains fictitious data, i.e., data that do not reflect economic events to which Mars Television Co. was a party. The sales were made by the consignee. Hence, at no time did the consignor possess a claim against Ames Distributing Company for the gross proceeds of the sale of five television sets. The freight and drayage paid by the consignee ($19.00 and $11.00 respectively) do not represent expenses of the consignor. If they did they would be represented by cash disbursements on the books of the consignor. In the second place, there is a resultant overstatement of *both* gross income and expense. In the third place, the ending inventory of two television sets still on consignment is overstated. The overstatement is $8.57, two-sevenths of the freight ($19.00) plus two-sevenths of the drayage ($11.00) paid by the consignee and set up as expense by the consignor. In the fourth place, the profit on the sale of five sets is overstated by the same amount, $8.57. This is clear from a comparison of profit of $448.21 in the last illustration with a profit of $439.64 in the preceding case.

From the viewpoint of management it is difficult to justify the inclusion, on the books of the consignor, of the gross sales made by the consignee and the costs incurred by him. The consignor never has a claim to the gross sales proceeds. Nor does he have any control over the expenses incurred by the consignee. As has been repeatedly emphasized throughout this book data should be accumulated only if they can be used by management for decision-making purposes. It seems obvious that unless the data reported in expense accounts reflect the cost of performing a function or functions over which management has control it is a waste of money and effort to gather them.

The foregoing discussion covered the distinguishing features of the several procedures used in recording consignment sales data on the books of the consignor. Variations were found to depend upon (1) inventory procedures, (2) separate reporting of profit on consignment sales and, (3) net or gross reporting of consignee's account sales data. The several procedures or methods may be identified as follows:

I Consignment profits not reported separately from profits on regular sales.
   A. Perpetual inventory basis.
   B. Periodic inventory basis.

II Consignment profits reported separately from profits on regular sales and account sales data taken up net.
   A. Perpetual inventory basis.
   B. Periodic inventory basis.

III Consignment profits reported separately from profits on regular sales and account sales data taking up gross.
   A. Perpetual inventory basis.
   B. Periodic inventory basis.

As between the two methods of handling the inventory the effects on procedure are inconsequential. It is otherwise as regards the basic difference between I, II, and III. In general it may be said that the sequence I, II, III identifies the several procedures in the order of their complexity. From the point of view of management the last method should never be used for the reasons set out above. If consignment business represents a substantial fraction of total business done method II is clearly superior to I because it provides management with useful data. When consignment sales are only incidental to total sales method I should be used because it provides all the data that management can use.

Consignee's Books. Upon receipt of the seven television sets the consignee may follow one of two procedures;

(1) make a memorandum entry in a consignment in account or

(2) formally set up the asset and liability. The results would appear as shown in the following accounts:

1st method.

Consignment in—Mars Television Co.

7 television sets	

2nd method.

Consignment in—Mars Television Co.

7 television sets	$1,050		

Mars Television Co.—Liability on Consigned Merchandise

		7 television sets	$1,050

The second method is rarely used, and for good reason. The television sets are not the property of the consignee. They are not assets of Ames Distributing Company. The liability of Ames is not that of rendering future services worth $1,050 but that of exercising care with respect to the seven television sets. Although the exercise of such care requires the consumption of valuable services their dollar measure will be a small fraction of $1,050 and is not known at the time of receipt of the consigned merchandise. For these reasons the first method is conventionally used.

Appropriate journal entries to record the transactions and the consignment in account are shown below;

Consignment In—Mars Television Co.	$ 30.00	
Cash (or expense accounts)		$ 30.00
Freight $19.00; drayage, $11.00		
Cash	$1,750.00	
Consignment In—Mars Television Co. ...		$1,750.00
Sale of 5 television sets		
Consignment In—Mars Television Co.	$ 525.00	
Commission Income		525.00
Commission on sale of 5 television sets		
Consignment In—Mars Television Co.	$1,195.00	
Cash		$1,195.00
Settlement on sale of 5 television sets		

Consignment in—Mars Television Co.

7 television sets		Sales—5 sets	$1,750.00
Freight	$ 19.00		
Drayage	11.00		
Commission	525.00		
Cash proceeds remitted	1,195.00		
	$1,750.00		$1,750.00

If much consignment business is done with many consignors a subsidiary ledger of consignment in accounts would be maintained. Similarly if one consignor does business with many consignees a subsidiary ledger will be maintained for consignment out accounts.

The usual problems of accrual will arise for both consignor and consignee in the preparation of income statement and balance sheet. For the consignor this requires the submission by the consignee of an account sales covering the period from the last report to the end of the consignor's accounting period for which statements are to be prepared. For the consignee it involves the appropriate adjustments based on data in his own records.

By agreement the consignor may draw on the consignee in advance of sales by the latter. Such sums are credits to consignment out on the books of the consignor and represent a liability. On the books of the consignee they represent an asset and appear as debits in the consignment in account.

Reports and Statements. The conventional report submitted by the consignee to the consignor is the account sales. Such a report submitted by Ames Distributing Company to Mars Television Co. would be set up in the following form:

Account Sales

Of a shipment of seven television sets.
Received from Mars Television Co., Philadelphia to be sold for their account and their risk.

Rendered by Ames Distributing Company, Fargo, North Dakota

We have sold for your account five television sets at $350.00 each..		$1,750.00
We deduct the following charges:		
Freight	$ 19.00	
Drayage	11.00	
Commission—30% of $1,750.00	525.00	555.00
We enclose check for net proceeds		$1,195.00

No special problem arises in reporting the result of consignment business in the income statement of either consignor or consignee. For the former the question is whether the results of consignment business are to be reported separately from other business; for the latter there is no problem whatever.

In the balance sheet of the consignor any merchandise on consignment should be shown separately if the dollar value represents a significant fraction of the total inventory; otherwise no separate showing is made. Advances by the consignee will appear as current assets on its balance sheet and as current liabilities on the books of the consignor. Expenses incurred by the consignee applicable to unsold consigned merchandise will appear as prepaid items. Such expenses incurred by the consignor are proper additions to the value of the unsold consigned merchandise for balance sheet purposes.

CHAPTER 22

Installment Sales

Nature of Installment Sales. The conventional sale on open account receivable is written up on a sales tag which is the basic document from which are taken the primary statistics concerning the transaction for entry in the formal accounting records. Customarily the amount of time which elapses between the making of such a sale and the receipt of cash does not exceed three to four months. For a very large segment of our economy, the entirety of retail operations, the conventional credit term is thirty days. It is only in wholesale and in manufacturing enterprises that the credit terms are longer. Ordinarily it is contemplated by both parties to such a sale on account that the entire amount due and payable will be paid on the due date. Any time-payments usually result either from special arrangements with the seller or as a consequence of inability of the buyer to pay because his expectations were not realized. Futhermore, no special fee or carrying charge is made by the seller in connection with the usual credit terms. The evidence that a debt exists and is owing to an enterprise usually consists of a sales tag in the case of retailing, and sales tag together with a shipping document and perhaps a formal order for the merchandise in the case of wholesalers and manufacturers.

Contrasted with the foregoing the installment sale possesses many distinct characteristics. Basically and most important there is a formal agreement, ordinarily the conditional sales contract, according to whose terms the title to the merchandise remains with the seller until the entire amount due under the contract has been paid by the buyer. The reader should keep in mind that, when the contract is entered into, or very shortly thereafter, the merchandise in question is usually delivered to the buyer. As a consequence the buyer is in possssion of and is free to use that which he possesses so long as he continues to make the money payments called for by the conditional sales contract even though the title to that which he is using still remains with the seller. It is true of course that the usual sales invoices, etc., are prepared in the case of installment sales. But it is nevertheless true that the distinguishing characteristic of the installment sale is the conditional sales contract. A second characteristic is the time distribution of the payments to be

made by the buyer to cover the total purchase price. Conventionally these payments are equal in amount and made at the end of equal intervals of time. The most common practice is a series of monthly payments numbering anywhere from as few as six to as many as thirty-six. Ordinarily the monthly payments include an amount added to the selling price of the article which is sometimes explicitly identified as interest at a specified rate charged upon the declining balance due, or is designated a carrying charge which is intended to cover interest plus some of the costs of the accounting work involved in handling a long series of payments.

Just as we have found return sales to be an event common to most business enterprises, so we will find it in the case of installment sales. A special problem arises however in the case of installment sales because the buyer of the commodity may be required against his will to return the merchandise. Under these circumstances such re-acquisitions by the seller are called re-possessions. This special designation is given these items since the return of the merchandise is initiated by the seller as a result of the failure of the buyer to maintain the schedule of payments called for by the conditional sales contract. Furthermore the payments made by the buyer are usually forfeited to the seller. As a consequence of the conventional procedure for accounting for installment sales, a rather complex problem arises in connection with re-possessions. The difficulties involved on the accounting level will be discussed later in this chapter.

Measurement of Gross Income and Expense. The reader will recall the discussion in Chapter 8 concerning the nature of gross operating income and the particular importance attached to the concept realized income. It will be recalled that income is conventionally recognized as having been realized when the selling enterprise, as the result of a sale transaction, has acquired a new asset, either cash or a claim calling for the payment of cash. The latter type of asset is most commonly an account receivable. This means, for example, that, if a sale of $600 is made in the month of August, 1955, on 90-day credit terms, $600 will be included in gross operating income for the month of August, 1955, although the cash will not be received by the enterprise until the month of November, 1955. This points up the fact that the essence of accrual accounting as regards gross operating income is the recognition of the increase in proprietorship resulting from the sale *without regard to when the money is actually received.*

Now let us suppose that this same sale of $600 is made on an installment basis, the buyer signing a conditional sales contract together with an installment note or notes, calling for six monthly payments of $100 each plus interest at six percent on the unpaid balances, the first payment to be made one month from the date of sale. If we ignore for a moment the time distribution of the expected cash receipts and follow the procedures which we have learned thus far in this book, we would include the entire $600 in the sales of August, 1955, therefore as part of the gross operating income for August, 1955, and pay no attention whatsoever to the question, "When will the cash be received?" In other words, we would simply look upon it as a sale which had resulted in the acquisition of a money-claim asset and would therefore include the entire amount of the sale as gross operating income for the month in which the sale was made.

The conventional practice, however, is quite different from the foregoing. As an additional fact let us assume that the cost of the article sold for $600 was $360, the difference between the two figures yielding a gross margin of $240. On the basis of the terms of the contract discussed above, the payment schedule would appear as follows:

Installment Sale Payment Schedule

1955	Total	Principal	Interest
September	$103.00	$100.00	$3.00
October	102.50	100.00	2.50
November	102.00	100.00	2.00
December	101.50	100.00	1.50
January	101.00	100.00	1.00
February	100.50	100.00	0.50

Realized income for August, 1955, would be zero on the installment basis. Realized income for September, 1955, would be three dollars of interest (six percent per annum on the unpaid balance of $600 for one month) plus $40 which is determined on the basis of the following line of reasoning. The sale price being $600 and the cost of the article being $360, it follows that the cost is 60 percent of the selling price. Therefore the excess of selling price over cost (gross margin) is 40 percent. Consequently we may say that each dollar of the sales price represents 60 cents of cost of what was sold and 40 cents of gross margin on what was sold. Therefore 40 percent of each dollar that is collected is looked upon and treated as realized income for the period in which the collection is made.

The significance of the foregoing can be more clearly seen and perhaps better understood by comparing the journal entries appropriate to this one transaction, first, on the simple realization basis of measuring gross income and, second, on the installment basis. The journal entries are shown on page 259.

On the realized income basis the transaction is complete. On the installment basis there remains, after the September payment, a balance due of $500 represented by a note or notes receivable. For each of the months, October through January, entries similar to those made in September will be recorded. The amount of interest will decline by fifty cents each month. The entry transferring $40.00 from unrealized gross profit on installment sales will be made each month.

An even clearer understanding of the differences between the two methods may be obtained by studying the facts. The following chart includes the data involved in the $600 sale which we have used as a basis for this discussion.

		Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
	Accts Receivable	$600.00						
Realized	Cash		$600.00					
Income	Gross Income	$600.00						
Basis	Cost of Goods Sold	$360.00						
	Gross Margin	$240.00						
	Installment Notes Receivable	$600.00						
Installment	Cash		$100.00	$100.00	$100.00	$100.00	$100.00	$100.00
Basis	Gross Income	$360.00						
	Cost of Goods Sold	$360.00						
	Gross Profit Realized		$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00

The reader will observe that the essential characteristic of the realized income method of recognizing gross operating income for a period is *NOT* a cash receipt concept but a cash or money-claim asset receipt concept. Stated otherwise, if the sales transaction results in a simultaneous receipt there is no problem concerning the recognition of gross operating income. On the other hand if the sale results not in a concurrent cash receipt but in the receipt of a claim calling for the payment of money later on, there is a problem. The problem may be stated very simply: shall income be measured when the money claim asset is acquired or shall the income be recognized later on when the cash payment called for by the money claim asset is received by the seller? For the usual sale on open account the former concept is applied. For the installment sale, however, there is a reversion, in part, to the cash receipts concept.

Realized Income Basis

August

Accounts Receivable	$600.00	
Sales		$600.00
Cost of Goods Sold	$360.00	
Inventory		$360.00
Sales	$600.00	
Profit and Loss		$600.00
Profit and Loss	$360.00	
Cost of Goods Sold		$360.00
Profit and Loss	$240.00	
Retained Income		$240.00

September

Cash	$600.00	
Accounts Receivable		$600.00

Installment Basis

August

Installment Notes Receivable	$600.00	
Installment Sales		$600.00
Cost of Goods Sold	$360.00	
Inventory		$360.00
Installment Sales	$360.00	
Cost of Goods Sold		$360.00
Installment Sales	$240.00	
Unrealized Gross Profit on Installment Sales		$240.00

September

Cash	$103.00	
Installment Notes Receivable		$100.00
Interest Income		3.00
Unrealized Gross Profit on Installment Sales	$ 40.00	
Realized Gross Profit on Installment Sales		$ 40.00

That the foregoing is true is manifestly evident in the schedule set out above. The reader will observe that under the realized income method the gross income is recognized in the month in which the sale is made and the money claim asset acquired, not in the month in which the cash is received. It is also evident that under the installment sale method gross income is recognized in the month in which the sale is made only to the extent of the cost of goods sold. The money claim asset, installment notes receivable, is recognized as a measure of gross income to the extent of the cost of the merchandise sold. In the illustration a cash payment of $100 is received in each of six months. In each of the same six months $40 is recognized as income from installment sales. But here again that which is recognized is not gross operating income but a gross marginal rate applied to the cash receipts. As was pointed out above, the total cost of the goods sold is applied against the sales price in the month in which the installment sale is made, and it is not until the cash is received that there is any recognition as income of any portion of the excess of the money-claim asset over the cost of goods sold.

If we look at the cost side of the picture we find that under both methods the cost of goods sold is deducted from the sale price in the month in which the sale was made, but it is only under the realized income method that there is recognized in that same month the gross margin of sales price over cost of goods sold. Under the installment method it is only as the money is collected that the gross margin is recognized. As a consequence, therefore, the installment sales method of recognizing income is a peculiar hybrid of the cash and the accrual methods. It is the accrual method so far as cost of merchandise sold is concerned; it is the cash method so far as recognizing gross margin is concerned; it is neither method so far as reporting gross operating income is concerned.

The proper treatment of costs or expenses poses a problem. Consistency and the desirable objective of matching costs and income require a time distributing of expenses that parallels that of the related gross income. Conventionally this question is ignored entirely. Collection and other expenses clearly related to gross income of a specific year are included as deductions from the gross income of another year, the one in which they are incurred. If heavy collection costs are incurred, for example,

in 1955 with respect to sales made in 1953, there is distortion in reported net income. The same is true of expenses incurred in the year the sale is made. They will be deducted from gross income in that year although they represent in part, the cost of services consumed in getting the gross income in one or more subsequent years.

If sales volume varies within narrow limits from year to year and the same is true of expenses there is no net effect on reported net income. When sales volume is increasing over the years there results a cumulative understatement of net income. The reverse situation obtains when sales are declining from year to year.

The proper solution of this problem requires (1) that some of the expenses of the year of sale be deferred and charged to expense in the years of collection, and (2) that estimates of collection and other expenses, to be incurred subsequently as collections are made, be set up in the records. These two things are rarely done. Why not? Accountants are reluctant to show on a balance sheet deferred charges to operations unless they represent (1) material objects that will be consumed during operations (supplies), (2) prepayments required by law (property taxes), or (3) prepayments under contracts (insurance premiums). To defer to future operations the cost of services already consumed also runs counter to the accountant's and the business man's notion of conservatism. Such deferrals have no cash value (as does prepaid insurance, for example) nor do they represent the value of services yet to be consumed (supplies). Nevertheless a proper time distribution of such expenses would improve the accuracy of measurement of periodic net income.

There is even greater reluctance to accrue the expenses which will be incurred in future periods with reference to this period's income. And a stronger argument can be offered in support of it. Conventional accrual of expense implies that the goods or services have been received. A debt therefore exists. In the present case the estimation of the future expenses would require charging the income account with an estimate of expenses yet to be incurred (service yet to be received and consumed) and crediting an account which does not represent a liability as the latter word is usually understood. This poses the problem: what is the balance sheet to include? The analysis in the earlier

chapters of this book makes it clear that from the nature of assets there can be, logically, only two derived categories, liabilities and proprietorship. The proposed accrual would introduce into the balance sheet and into the income statement an item which, in the present stage of the development of accounting practice, is still a part of the budget estimate. Unless and until the balance sheet is developed to report more than it does at present the accruals here considered will probably be ignored.

Effect of Each Method on Reported Net Income and Balance Sheet. It is interesting to observe the manner in which the results of installment sales are reported in income statements and the manner in which the related balance sheet accounts are set out. Three illustrations are presented in what follows, the first showing the situation where all sales are made on the installment basis; the second and third, the more usual case for many enterprises, that in which sales are made both on the installment basis and on open account receivable.

The Alpha Enterprises, Inc.
Income and Expense Statement
Year Ended December 31, 1955

Exhibit A

Sales	$150,000
Less Cost of Goods Sold	90,000
Gross Profit	$ 60,000
Less unrealized gross profit applicable to uncollected installment receivables	38,000
Gross profit realized on 1955 sales	$ 22,000
Add gross profits realized on collection of:	
1954 sales	17,000
1953 sales	6,000
Total realized gross profit	$ 45,000
Less loss on defaults	3,000
Gross profit less defaults	$ 42,000
Less selling, etc., expenses	

If sales are made on open account and on the installment basis either of the following modes of presentation may be used.

The Alpha Enterprises, Inc.
Income and Expense Statement
Year Ended December 31, 1955

Exhibit B

Sales—excluding installment sales	$ 75,000
Less cost of such sales	43,000
Gross Profit on non-installment sales	$ 32,000
Realized gross profit on installment sales (Schedule I)	
1955 sales	22,000
1954 sales	17,000
1953 sales	6,000
Total realized gross profit	$ 77,000
Less loss on defaults	3,000
Gross profit less defaults	$ 74,000
Less selling, etc. expenses	

The Alpha Enterprises, Inc.
Income and Expense Statement
Year Ended December 31, 1955

Exhibit C

Sales	$225,000
Less cost of goods sold (Schedule 2)	133,000
Gross profit	$ 92,000
Less unrealized profit applicable to uncollected 1955 installment receivables	38,000
Gross profit realized on 1955 sales	$ 54,000
Add gross profit realized on collection of prior years installment sales (Schedule I)	
1954 sales	17,000
1953 sales	6,000
Total realized gross profit	$ 77,000
Less loss on defaults	3,000
Gross profit less defaults	$ 74,000
Less selling, etc., expenses	

Realized Gross Profit on Installment Sales

Schedule I

	1955	1954	1953
Installment sales	$150,000	$147,000	$135,000
Cost of goods sold	90,000	84,525	81,000
Gross profit	$ 60,000	$ 62,475	$ 54,000
Rate of gross profit	40%	42.5%	40%
Collections in 1955	$ 55,000	$ 40,000	$ 15,000
Profit applicable to collections	$ 22,000	$ 17,000	$ 6,000

The three exhibits set out above possess some interesting features. Let us note them. Exhibit A starts out, as does the conventional income and expense or profit and loss statement, with sales (net sales, of course). But after the gross margin (gross profit) has been determined there is deducted that portion thereof not yet represented by cash receipts. The remainder, $22,000 in the illustration, is labeled "Gross profit realized on 1955 sales." Now in this case *all* sales were on the installment basis. The total sales may be analyzed as follows:

Sales represented by cash collections	$ 55,000
Sales represented by uncollected installment receivables	95,000
Total sales	$150,000

Against the total sales is applied the total cost of goods sold *in the period in which the sale is made.* In effect, then, under the installment method, gross operating income is recognized to the extent of cost of goods sold *in the period in which the sale is made and without regard to when the cash is collected.* For the year 1955 the gross margin was 40%. Collections on 1955 sales were $55,000. Therefore only 40% of $55,000 or $22,000 was included in *realized* income in 1955. What happened to the difference, $33,000? It, too, was collected in 1955. But it was a return of the *cost of goods sold* portion of the collections on the sales. It follows that there is in the installment method an implicit division of gross operating income into two portions (1) that representing cost of goods sold, and (2) that representing the gross margin (gross profit). There is also an explicit measuring of the extent to which the gross margin has been collected per dollar of collections. The balance of the collections representing cost of goods sold is not explicitly set out in any statement at any time. The treatment of the first two items in Exhibit A practically converts them into incidental statistics so far as realized gross profit is concerned.

That the foregoing be made clearer let us suppose that no collections had been made in 1955. Then the deduction for unrealized gross profit would have been $60,000 leaving a zero profit realized on 1955 sales. But the cost of goods sold would still show as a deduction from sales and therefore as having been recovered and represented by the uncollected installment receivables. In other words the conversion of inventory into installment receivables is recognized; the increase in proprietorship represented by a portion of those same receivables is not

recognized. This point will be raised again when we consider the balance sheet showing of installment receivables and unrealized gross profit.

Exhibit B illustrates an arrangement of the income and expense statement for the case in which sales are made on both the open account and installment basis. The reader will recall that in Exhibit A the figure for "Total realized gross profit" was a summation of like items. The figures $22,000, $17,000 and $6,000 each represented gross profit represented by cash collections. Here the word realized means "represented by cash collected." But in Exhibit B we find a hybrid figure. "Total realized gross profit" is the sum of (1) gross profit on non-installment sales (whether collected or not) and (2) gross profit on installment sales represented by cash collections. Therefore the term realized is used in two quite different senses. As applied to non-installment sales it means "represented by open accounts receivable or cash collected"; as applied to installment sales it means "represented by cash collected." The figure $77,000 is, therefore, a summation of measures of gross margin which, dollar for dollar, do not mean the same thing.

Exhibit C possesses the same characteristics as does Exhibit B plus some others. The total sales, total cost of sales, and total margin are shown. This is an improvement over Exhibit B. But the portion of each of the three items representing installment and non-installment sales, respectively, are not shown. This could easily be remedied by using three columns for total, installment, and non-installment sales, respectively. In addition it is not possible to discover from Exhibit C how much of the gross profit realized on 1955 sales was derived from each of the two classes of sales. Of course it is possible to compute the gross profit on non-installment sales by referring to Schedule I for the realized gross profit on installment sales and deducting it from the $55,000 shown on Exhibit C. But any statement should be complete in itself. Schedules should report the homogeneous details of single items in an exhibit.

Only two balance sheets are required to illustrate the other side of the foregoing exhibits since the last two represent alternative presentations of one set of facts. The balance sheet correlative to Exhibit A would include the following:

Current Assets	
Installment receivables	$119,000
Neither Liability nor Proprietorship	
Unrealized gross profit on installment sales	$ 47,000

The balance sheet correlative to Exhibits B and C follows:

Current Assets	
Accounts receivable	$ 20,000
Installment receivables	119,000
Neither Liability nor Proprietorship	
Unrealized gross profit on installment sales	$ 47,000

Both balance sheets contain a novel feature; the introduction of what *appears* to be a third category of item on the right hand side of the balance sheet. The word appears is used advisedly. From the very nature of assets and the benefits that services yield, as well as from the nature of a business enterprise, there are but two directions of flow of the benefits—either out of the enterprise or within it. In the former case they are liabilities; in the latter, proprietorship. Consequently it is logically impossible to have three categories of benefits. The so-called unrealized gross profit on installment sales is a statistical subdivision of proprietorship and should be so reported in the balance sheet. Better still, there should be no such subdivision of proprietorship at all.

In the second partial balance sheet there are two classes of receivables resulting from sales. The entire increase in proprietorship resulting from the sales represented by the accounts receivable is included in the proprietorship account. But all of the increase in proprietorship represented by the installment receivables is shown, not as a part of proprietorship, but as a new and separate category in the balance sheet. For the reasons set out above there is no logical support for this procedure.

Why then did it develop and why is it used? It developed as a consequence of the Federal income tax laws. Taxes must be paid when due and in cash. If gross margin (gross profit) is recognized to the full extent of sales, net income is obviously larger than if it is recognized only to the extent that sales are represented by cash collections. A taxpayer selling on the installment plan and reporting profits to the full extent of sales would find himself subject to a tax liability and without cash to pay it because the assets acquired as a result of the sales were still largely uncollected, not yet due and payable, installment receivables. Borrowing would be necessary in order to meet the tax liability.

As a relief to such taxpayers the reporting of income from installment sales on the basis of gross profit represented by cash collections was permitted. The obvious result was to adopt the method in the formal accounting records with the consequences discussed above. This is an excellent illustration of the fact that income tax legislation and regulations designed to treat all taxpayers equitably may result in the adoption of procedures which represent inferior if not bad accounting.

Repossessions. When a sale is made on open account and the merchandise is subsequently returned the following entry suffices:

Returned Sales	$75.80	
Accounts Receivable—H. Q. Jones...		$75.80

If the customer has paid all or a part of the sales price a credit balance appears in his account. This may be paid in cash or be applied against a subsequent purchase. Normally the merchandise is returned unused and is saleable as new merchandise. In addition, the customer makes the decision to return the goods.

In the case of installment sales all the relationships are altered. The seller repossesses the merchandise, it is usually used and must be renovated and sold as second hand, and the customer forfeits the unpaid balance. An exception to the foregoing exists in those states in which a customer whose chattel has been repossessed is entitled to credit for the proceeds of its sale, less costs of repossession and resale. Any credit balance remaining in his account is payable to him. This situation is not likely to arise very frequently because a credit balance in the customer's account would not develop unless the unpaid balance were small and a good second hand price were received on the resale of the repossession. But the small balance owing means that most of the monthly payments have been made and consequently that the chattel has been subjected to some months' use. It is not likely, therefore, to fetch a good price.

The major problem involved in repossessions is the valuation of the repossessed item. A prudent businessman will pay a price for an article which is consistent with selling price and operating costs. This is the basis upon which merchants buy their stock-in-trade. It is the soundest basis for assigning a value to repossessions. A wholly arbitrary procedure is to value the repossession at an amount equal to the cost of sales portion

of the uncollected balance, i.e., the balance of uncollected installment receivable less the applicable unrealized gross profit. The two methods are illustrated below.

A television set costing a dealer $240 was sold for $400. Total payments up to the date of default and repossession were $275. The article has an estimated selling price of $180. Normal gross margin is 40%. On these facts the set should be inventoried at $108 and the following entry made.

Repossessed Merchandise	$108.00	
Unrealized Gross Profit on Installment Sales	50.00	
Installment Receivables		$125.00
Gain on Repossessions		33.00

If the set is inventoried at the amount of the unpaid balance due less unrealized gross profit the following entry would be made.

Repossessed Merchandise	$75.00	
Unrealized Gross Profit on Installment Sales	50.00	
Installment Accounts Receivable		$125.00

Under this method no gain or loss will emerge upon repossession. The method has nothing to commend it and should never be employed because it always yields a valuation which is the uncollected portion of the cost of the article. Obviously the cost of a brand new article has nothing whatever to do with the value of the same article second hand.

Some Recordkeeping Problems. Since the gross margin percentage usually varies from year to year it is necessary to maintain an installment receivable ledger for each year's sales and the related unrealized gross profit account. Collections must be classified by year of sale; so, also, must repossessions. The former is accomplished by the simple device of providing appropriate columns in the cash receipts journal; the latter by using a columnized register on the pattern of a returned sales journal in which the several columns are used to show the repossessions classified by the year in which the sale was made.

If installment sales are made in several departments and there is variation in the gross margin percentage between departments in a given year and within a department from year to year, the problems of properly classifying collections and repossessions become more complex. Two alternatives are available: (1) a multiplication of columns in the cash receipts journal, or (2) resort to the use of averages. That the latter is the more

practicable solution is clear if we assume five departments and collections running into three separate fiscal years. The first alternative would require fifteen columns in both the cash receipts journal and the repossessions register. A vast amount of clerical work would obviously be necessary. The use of averages carefully developed will yield excellent results and eliminate much detail and expense.

CHAPTER 23

Functional Classification of Data and the Problems of Management

Introduction. The problem of classification of accounting data was first presented in Chapter 3. The reader will recall that there exists but *one* primary category and two derived categories of data in the modified basic accounting equation. The primary category is asset, the derived categories liability and proprietorship. Assets and liabilities were classified first as to kind, that is we maintained a separate statistical class of account for cash, for each account receivable, for each subdivision of inventory, etc. Similarly we maintained a separate account or statistical class for accounts payable, notes payable, bonds payable, and other liabilities. Where necessary any class of item among assets and among liabilities was further subdivided into as many sub-classes and sub-sub-classes, etc., as was necessary. Here again, for example, we found it appropriate to maintain a major account for all accounts receivable and various subdivisions of groups of accounts but always including as a final subdivision the account for each specific debtor.

For every single one of the many classes and sub-classes there was maintained a distinct accumulation for increases and again for decreases. As a further step certain types of increases and decreases were separated out and established as separate classes and sub-classes. For example, those decreases in assets which represent the dollar measure of services consumed (depreciation) were set up in a separate account. Similarly, discounts still available to debtors were set up in a separate account on the balance sheet. These two illustrations suffice to indicate the general procedure in further subdivision of changes in assets and in liabilities which are separately classified in what are known as valuation accounts.

Now let us turn to a consideration of the proprietorship account. Apart from corrections of clerical errors the proprietorship account will have included among the increases two kinds of items: (1) those representing additional investments by the investors and (2) those arising from profitable operations of the enterprise. Among the decreases there are also two

groups of items: (1) those representing withdrawals or distributions to the investor, and (2) those representing negative net income, that is losses resulting from operations of the enterprise.

For purposes of sound administration, it is the details of the second class of changes on each side of the proprietorship account which are important. The extent to which increases in proprietorship are subdivided and set up in separate accounts is determined by the extent to which the data so classified can be a useful tool in the hands of management. Identically the same statement may be made of decreases in proprietorship which measure services consumed in an attempt to get the increases. In Chapter 4 the subdivision of proprietorship and the income and expense accounts was made on the basis of the kind of service or service source involved. Similarly, the subdivision of increase in proprietorship was by kind of gross income and sometimes by subdivision of a particular kind, as when, for example, more than one sales account is used.

The argument has been advanced several times in this book that data concerning enterprise operations should be accumulated only to the extent that they become a useful tool in the hands of management. The general rule may be stated as follows: Unless data can be used by management, do not get them. With this guide to help us we now turn to a reconsideration of the problem of classification of data with special reference to the needs of management.

Area of Activity Covered by a Decision. In order to bring out the basic concept involved in the heading of this section, let us assume a somewhat mythical situation of a business which sells one product only at one place of business. Assume further that it is owned by one individual and that the aid of two clerks suffices to handle all its problems.

The basic question may be put this way: What is the area of any decision made by this business owner? Or to put the question differently: When the owner makes a decision, with reference to how much of the totality of the enterprise operations is the decision effective? More specifically, when a decision is to be reached concerning purchases what is the area covered? Again, suppose the question was: how many clerks shall be employed? Again, what size of store is appropriate? The reader will note that any one of these questions calls for an answer which refers to the entirety of the activities of the enterprise so far as that particular function is concerned. When the owner

answers the question concerning the number of clerks, it is the number of clerks with reference to the entire business. When he answers the question concerning the volume of business, the answer has reference to the total sales of the enterprise. The same is true for the size of the store premises.

Now let us introduce a second product, the first step in developing a line of products. The proprietor's problem now is a two-part problem. In like manner sales is a two-part problem, and as a consequence so are all costs involved in making sales. On the accounting level this means that there must be two accounts for purchases, two for sales, two for sales commissions, two for delivery expenses, etc. No longer is a decision with respect to any of the merchandising problems an overall decision covering the entirety of the enterprise's operations. What has happened is this. The area of decision has been reduced, which is the same thing as saying there has been a multiplication of the number of areas of decision.

Now suppose a second store is opened. What does this event do to the area of decision. For *each* store two accounts are necessary for each subdivision of activity mentioned in the preceding paragraph. If the owner now is facing the problem of making a decision concerning the number of clerks there are two areas involved, each area being a separate store. If on the other hand the decision is being reached concerning purchases there are four areas of decision since there are two different products being sold at two different locations.

The reader will observe the rapid increase in the number of areas of decision as well as the rapid diminution in size of an area of decision as the variety of products increases and the number of separate places of business increases. From the point of view of the accountant the associated problem is that of the functional classification of data. Decisions are made with reference to some function which is being performed. In making a decision the same three-part question must always be answered: (1) must the function be performed? (2) how much is it now costing to perform the function? (3) is this present cost the minimum cost of the desired quality of performance? Accounting data if properly classified are useful as an aid in reaching the decision as to costs; it can never assist in a decision as to quality. The basic problem which the foregoing raises is that of identification of costs with respect to function being performed.

Identification of Costs. The basic problem in identification of costs is not that of identifying the kind of service the dollar measures of which are included in an account but rather the identification of any costs with reference to an area of decision, that is, with reference to a function performed. In approaching this problem the straight-forward attack is to put the question, what objectives were being sought with reference to any given kind of services which were consumed. Or we might put it this way: In the performance of what function were the services of a given kind consumed?

Several illustrations will be offered by way of clarifying the ideas expressed above. Consider so simple an item as salaries in a retail department store. Obviously one could get along with a single salary account. It would include the total cost of all of the services rendered by persons employed by the enterprise. Furthermore, the results would be perfectly accurate so far as that class of data was concerned. But if management wanted to know how much was paid for services of different kinds, that is, how much was paid for different skills in various areas of activity, such an account would be of no help whatsoever.

Clearly there is not enough detail. What kind of services did they render? Were they primarily selling skills, administrative skills, mechanical skills, etc.? In accomplishing what objective or objectives were they consumed? Was the cost of the administrative skills a cost of skills all applicable to one area of decision or to several? Did such costs, for example, cover the administration of sales activity, the administration of buying, the administration of accounting, the administration of finances? Who was responsible for the decision which resulted in these costs? These questions and a host of others need to be answered. They are the kinds of questions to which useful answers can be obtained from properly classified accounting data.

As another illustration consider the costs of the electricity consumed in a department store. Here again one account would suffice to accumulate the cost of all of this kind of service consumed. But suppose that the electric current was used to heat the store, that is, the selling floor areas or the offices, as motive power for bookkeeping and office machines, to light up display windows, etc.

Again there is not enough detail. How much of the total cost of electric current represents the cost of that used for heating, of that used for lighting the selling floors, of that used for

lighting the display windows? How much of it was used for lighting each separate display window if different classes of merchandise are displayed in different windows? Again we find a series of unanswered questions because of lack of detailed classification of accounting data.

One last illustration will be presented to further clarify the problem involved. Suppose this retail department store rents the places which it occupies. The leases will probably call for a total sum payable over a specific number of years to be paid in monthly installments. How much of the rent for each month or each year is the cost of each one of the functions performed? Specifically, how much is the cost of the space devoted to selling floors, how much that of space utilized for offices, how much of space employed as display windows, etc? Again these questions are illustrative of the kinds to which answers should be found if accounting data are properly classified. Methods of resolving difficulties and finding answers to these questions are discussed in the next chapter.

Bases of Classification of Expenses. From what has been said it is clear that the first basis of classification of all income and expense data is the nature of the service being consumed, the second basis is the function performed, the third basis is the person responsible. The reader should note that these bases of classification are not mutually exclusive. For example, earlier in this chapter we assumed that our mythical department store maintained only one account for payments made to persons employed by it. Here we have the simplest kind of classification of data, namely the accumulation in one account of all of the dollars worth of service of a given kind acquired and consumed by the enterprise during a given time interval. The next step is to subdivide these into subclasses of salaries by function performed, for example, selling, administrative, clerical, etc. The third and final step, is either to identify a given subclass of salary as the responsibility of a particular person or to identify groups of salaries as the responsibility of a named individual. For example, the latter would be represented by all the clerical salaries of various kinds in the controller's office. The former would be represented by the salary of a single administrative assistant to one of the officers of a corporate enterprise.

In the first store discussed above we would properly have one salary account even though there were two clerks, but if a second store is opened there will be two salary accounts, one for each store. Now let us again increase the variety of products

sold as well as increase the number of stores and we will have a rapid increase in the number of accounts for sales people's salaries. The reader should note carefully that the multiplication of accounts follows the multiplication of separate identifiable functions performed. This proposition is true regardless of the type of activity carried on and regardless of how many separate places of business are involved. The bases of classification are always the same: (1) the nature of the service consumed, (2) the function carried on with respect to which the service was consumed, and (3) the person responsible for the decision.

Criteria for Selecting a Basis. Management actually makes the selection of the bases but the accountant should be of considerable assistance in this particular area of activity. There are two criteria which are always used: (1) the cost of obtaining the data and (2) its value as an aid in decision making. The costs of obtaining the data is essentially a cost of record keeping but may include other costs. For example, the subdivision of a salary account results automatically in added bookkeeping costs. This is a consequence of the simple but obvious fact that not only must ledger sheets be used, but the primary data must be organized to facilitate their flow into the final records.

There is another cost involved in those areas where some statistical work or careful arithmetic computation must be made prior to formal entry of the data into the accounting records. This may be illustrated in the case of electricity consumed in the operation of a department store. Technically it is very easy to determine the cost of current consumed on different floors in a building and for different sections of a floor area. The simple device used is the installation of separate meters. But such installations involves costs and it is normally accompanied, for some time at least, by a monthly service charge for each meter installed. Again the cost of electricity consumed in display windows can readily be computed by maintaining a record of the number of hours during which the windows were lighted and by knowing the wattage of the lamps which were used. Here is a case in which the costs of clerical work is incurred rather than the costs of installation of more meters. Now the value of the data obtained is not solely a question of the importance of the data as such as an aid in decision making but involves the question of timeliness. The issue is whether or not the data in the form most useful to management for decision making purposes can be obtained and be readily available before the

decisions have to be reached. The issue is essentially one of the promptness of reporting of the dollar consequences of what has already happened.

Ideally management should have the accounting results as soon after the event being accounted for as is possible. For certain operations or for certain types of transactions extreme promptness is most essential, for others immediacy is of no importance. For example, the balance of cash on hand at the end of each business day is a significant datum in the hands of management. The same is true of sales. On the other hand, once a month may be often enough to obtain the figures on such items as salaries, rentals, advertising, light and heat, etc. It follows therefore that management must weigh importance and timeliness against cost of obtaining data in relation to decision making generally. In the next chapter there will be considered some important matters concerning the classification of data and reports to management prepared therefrom.

CHAPTER 24

Operating Reports and Subdivisions of Activity

Introduction. In the preceding chapter there was discussed the problem of the area of activity covered by a division. It was pointed out that management needs to know the cost of services consumed in performing the activity, in general what we term the cost or expense involved. This may require one major account, for example the cost of maintaing an electrically iced drinking fountain. Or the management may want to know the cost of the present method of getting iced drinking water as compared with the cost of proposed alternatives.

More commonly management needs a report on an area of activity which requires the assembling of a variety of kinds of costs, that is the costs of a variety of services consumed. This involves two problems: (1) the clear-cut identification of the area of activity and, (2) the accurate accumulation of data with reference to such area. To a consideration of this problem the balance of this chapter is devoted.

Departmentalization. Many bases for subdividing the total of enterprise activity are in common use. Whatever the basis, each separate area is commonly identified as a department. In industrial operations a department may be subdivided into what are called production centers. The general idea is a group of related operations whether the product is a service or a physical object. In terms of fundamentals, all enterprises do three things: they buy, they make, they sell. All other activities are adjuncts only to these primary activities. All the problems of finance, of personnel, of accounting, of administration, arise because of the conditions under which the operations of buying, making, and selling are carried on. Because we have a money economy, there is the problem of finance; because the world's work is done by people, we have the problem of personnel; because management needs to know the consequences of what it did, we have accounting; because of the necessity of delimiting areas of authority and responsibilty, we have administration.

It is clear that the size of an enterprise and the variety of activities carried on by it will be the two primary determinants of the extent of subdivision into areas of activity. Once again the simplest illustration is a retail department store. One of the words in the expression, department store, points up the

basic notion of subdivision of activity. For our purposes a department may mean a basic area of activity such as a selling office, etc., where the departmentalization is upon the basis of differences of function and secondly, the word department may mean a subdivision of one of these broad areas of activity. Most commonly when we speak of a department in retailing we mean a subdivision of selling activity. On the other hand, however, when we speak of a department in industrial operations we have in mind differences of activity, e.g., mining, smelting, fabricating.

The basic problem in properly grouping costs by function, by department, and by area of activity or area of decision may be put in the form of the question, "How do we identify the costs involved in operating the several departments?"

Direct and Indirect Costs. The notion of direct and indirect expenses or costs and that it is possible to identify the former but not the latter runs through all accounting literature. Direct expense is most easily identified by observing that if it is truly a direct expense then its dollar measure becomes zero when the function with respect to which it is said to be a direct expense ceases. This may be clarified by a simple example. Suppose that one of the large retail five-and-dime organizations in this country were to eliminate one of its outlets. How would we determine which of all the costs which had been incurred in the organization prior to the closing of this one retailing outlet were direct costs of that outlet. The answer is quite easily found. Any cost which becomes zero when the store ceases to function is a direct cost of that particular outlet. It is quite clear that since there are no longer sales made, there will no longer be cost of sales; since no one will be employed, there will be no salaries and wages; since the store will not be operating, there will be no electric light bill, etc. The reader should observe that the electric light bill, the salaries and wages, the costs of sales, refer to that subdivision of classes of services which heretofore have been consumed in that store.

At the same time, however, certain expenses of the organization will go right on and there will be no appreciable or which is more likely, no identifiable reduction in their amount. For example, the controller's salary will go on unchanged. So will the salary of all the top executives. The whole purchasing organization will continue to operate just as it did before the store was closed.

These last items of cost represent indirect costs or indirect expenses. That is to say, they exist and must be incurred in order to operate the enterprise at all and there is no clear-cut relationship between the magnitude of these kinds of costs and the number of retail outlets in operation.

Despite this fact there is a common practice among accountants to attempt to identify these costs with specific areas of activity and to do so quite frequently on the basis of assumed functional relationships which it is easy to demonstrate do not exist.

The practice referred to above is known as the allocation of costs. What is ultimately intended is a matching of cost with gross income. By their very nature the costs which are classified as indirect can be related if at all, to specific measures of gross income only by finding some method of measuring the amount of cost incurred in relation to a specified amount of gross income. Stated another way, the accountant is attempting by indirection to accomplish what cannot be accomplished directly.

The whole procedure raises the question, "Why should indirect costs be allocated?" In general, why should an attempt be made to match indirect costs with gross income of any kind? There are many good reasons why the attempt should be made, one of the most important being the necessity of determining the total cost or total expense of performing a function or of obtaining a given amount of gross income. This is most clearly seen where an attempt is made to determine the total cost of a product in industrial activities or in determining the total costs of operating a given department in a department store. The accountant is trying to arrive at figures about which he may say, "This would be the total cost, or this is an approximation to the total cost which would result if all the indirect expenses were direct expenses." All the accountant is attempting is to overcome a very real difficulty in cost measurement which is a consequence of the very nature of business enterprise activity. Clearly the problem arises because many types of services are consumed in performing a function which in turn serves two or more subdivisions of activity within the enterprise. As an example consider the accounting office. The entire function of record-keeping and reporting is designed to serve the entire enterprise and, except at enormous cost, it is not possible to arrive at anything like figures measuring the cost of that part of the service rendered by the accounting office which serve, for example, a given sales department. Even if these huge costs

were incurred the value of the results would fall far short of the cost of getting them.

Now let us consider the volume of activity to which the costs can be related. It is clear, for example, that the item cost of goods sold increases as a direct function of total sales. This means that for each added dollar of net sales there is an increase of so many pennies of cost of goods sold. Suppose, for instance, that an enterprise sells one product and that the cost of the goods sold is always 60 percent of the selling price. That being the case, we may write a functional relationship as follows: cost of goods sold equals net sales dollars times 0.60. In this case the relationship is exceedingly direct.

If, however, we are trying to measure for a given department delivery costs it would be necessary to maintain some statistical record outside of the formal accounting records so that we might know what percentage of separate sales were represented by deliveries to the customer. Immediately a complication develops. The cost of delivery will probably be found to be constant per package. In one case, therefore, delivery cost will be a very small fraction of the sales price of the commodity delivered and in another case a very high fraction. Any solution must rest on a resort to averages and since the relative dollar values in the packages delivered are not likely to remain constant, it is easy to see that even within a short time after a relationship is carefully established the results may be erroneous.

The most common method of allocating costs to departments in retailing and commercial enterprises is on the basis of sales. There is implied in this basis the following functional relationship; allocated cost of this department = total cost to be allocated times the ratio of sales of this department to total sales. This means that as a given department's net sales become relatively more important, it is charged with relatively more of each of the kinds of costs which are allocated on this basis. The consequence is very often quite unrealistic. Let us suppose that the cost of operating the accounting office is allocated on the basis of net sales. This means that if a department's net sales grow as compared with the net sales of other departments, it is charged with or must bear a larger fraction of the cost of operating the accounting office. Yet it may be that the controller and some of his top staff members are spending their time making analyses to determine why the department whose sales are not growing have failed to grow. Similarly, it is quite clear that if top administrative salaries such as those of the

enterprise president and the chief merchandising officer of a department store are allocated on the basis of sales, the results may be wide of the mark. These top officers may spend many a sleepless night trying to work through to a solution knotty problems involving departments and areas of activity which show relatively small sales volume.

Statistically the results are worse than bad; they are positively misleading. Those departments which show relatively more net sales accordingly will bear a larger percentage of these costs and since the costs of the top officers of an enterprise are relatively constant, the departments of low sales volume will bear proportionately less. The consequence is that these latter departments will show relatively far better results than the actual facts warrant and the really serious consequence lies in the fact that if the management relies on net income figures so determined, it relies upon misleading data.

The difficulties discussed above can readily be overcome by the simple expedient of not allocating cost on the basis of net sales and if no alternative basis will yield meaningful results, not allocating at all. Wherever possible allocation is avoided by determining directly the quantity and dollar measure of services consumed in performing a given function. It is a simple matter to determine the cost of sales invoices used in a given department of a department store or the cost of operating the delivery trucks, i.e., gas, oil, repairs, licenses, depreciation, etc. Having obtained the direct costs of operating the delivery service, how should the sum of these costs be allocated to the several selling departments? Clearly the value of the merchandise delivered is a poor basis. It costs no more to deliver a $75.00 suit of clothes than it does to deliver a $150.00 garment. Suppose that some shirts and neckties are in the same package; how can the total cost of delivering the package be allocated to the several selling departments involved? The answer is that it cannot be done. A cost per package is meaningless because of the variation in package size. A cost per item of merchandise is useless because the package is the unit handled, not the item of merchandise. Furthermore the distance traveled from store to customer varies over a wide range. Beyond a certain perimeter delivery is by mail.

All the difficulties outlined above, and others that could be brought forward, make clear the futility of attempting any direct measure of delivery service costs applicable to each selling department. To begin with there is no readily identifiable, easily

measured unit of service yielded by the delivery department. Without such a unit it is impossible to measure the extent to which the services yielded by the delivery department were consumed in making deliveries of merchandise sold in each selling department. What then is to be done? Two alternatives are available. Allocate on the basis of net sales or do not allocate at all. Net sales is all too commonly used as a basis where no allocation is clearly better procedure. It almost seems that, just as nature is said to abhor a vacuum, many accountants appear, from what they do, to abhor undistributed sums of costs.

The reader should keep in mind that the foregoing is only one of many situations in which the same problem is faced. Among others are the costs of space, advertising, purchasing (though to a lesser degree), general administration, financial management, accounting, and personnel. Any "solution" of these difficulties is often no solution at all but the result of inadequate study of functional relationships. The resulting statistics are more nearly numbers than measures of cost of services consumed. For this reason they should not be relied upon for decision-making purposes. To make the foregoing very clear, there are set forth in the next section some income statements in which the results are presented with and without allocation respectively, together with comments thereon.

Meaning of Resulting Statements. Assume that an enterprise sells but one product and operates three retail outlets. The periodic income statement might appear as follows:

A Retail Enterprise
Statement of Income and Expense
July 1 to September 30, 1955

	Total	Store A	Store B	Store C
Net Sales	$150,000	$60,000	$25,000	$65,000
Cost of Goods Sold	92,000	37,000	14,500	40,500
Gross Margin	$ 58,000	$23,000	$10,500	$24,500
Direct Expenses	35,000	14,000	7,000	14,000
Profit before allocation of overhead	$ 23,000	$ 9,000	$ 3,500	$10,500
Overhead Expenses	14,000	5,600	2,333	* 6,067
Net Profit	$ 9,000	$ 3,400	$ 1,167	$ 4,433

Direct expenses of each store include only those costs which would disappear if that store were closed and ceased to operate.

*Accurate to the nearest dollar.

The overhead expenses include everything other than the direct expenses. Note the term overhead. It implies a blanketing of *all* enterprise activities. No part of it is due to the operation of any one store. Much of it, both as to kind and amount, would still have to be met if one of the stores ceased to operate. And much, if not most of it, would remain unchanged in total if one or more additional stores were put into operation. In the foregoing illustration overhead expenses were allocated on the basis of sales. Of the total sales Store A account for 40%, Store B for 16-2/3%, and Store C for 43-1/3%. Therefore the total overhead of $14,000 was allocated to each store on the basis of the above percentages.

To the extent that any class or sub-class of expense included in overhead does actually fluctuate as a direct function of net sales the method of allocation is sound; to the extent that it does not the method is unsound and the results misleading. That the latter is by all odds the more likely situation is evident from the very nature of overhead expenses in a situation such as this one. The bulk of overhead is the cost of general management of the enterprise as a whole, accounting office, financing, personnel administration, etc. Obviously they do not vary as a simple function of sales volume variations.

The pitfalls of allocation can be avoided by the simple device of not allocating overhead. The foregoing statement would appear as follows:

A Retail Enterprise

Statement of Income and Expense

July 1 to September 30, 1955

	Total	Store A	Store B	Store C
Net Sales	$150,000	$60,000	$25,000	$65,000
Cost of Goods Sold	92,000	37,000	14,500	40,500
Gross Margin	$ 58,000	$23,000	$10,500	$24,500
Direct Expenses	35,000	14,000	7,000	14,000
Contribution to Overhead	$ 23,000	$ 9,000	$ 3,500	$10,500
Overhead Expenses	$ 14,000			
Net Profit	$ 9,000			

The line titled "Contribution to Overhead" identifies for each store and for the entire enterprise the excess of gross income over the identifiable direct cost of services consumed in getting it. It truly is a contribution to overhead. There is no implication, as in the first statement, that a specified amount of overhead costs would suffice to operate a given store. There is a frank admission that the measurement of cost of services consumed in the operation of each store is limited to the class of expenses called direct. There is no manipulation of data to report what might or might not have occurred.

Certain interesting relationships are observable in the first statement. The direct expenses include items which do not vary at all with sales volume, e.g., janitorial service, heating, lighting, etc. It includes a second class of items which never fall below a certain minimum and do increase sporadically as sales volume increases. This class is represented by cashiers and wrapping clerks. At least one cashier must be employed if the store is to operate at all. And he or she may do all the wrapping of merchandise as well as all the cashiering. But if we suppose that one person does nothing but cashiering it is obvious that a substantial increase in sales volume can be handled by that person. It is only after a certain point that the services of a second cashier become necessary. Direct expenses includes a third class of items that vary directly with sales volume, e.g., commissions of salespeople and rentals.

It follows that, if the gross margin for a given store is fairly constant, i.e., varies within a narrow range, an increase in sales volume should show greater profit before allocation of overhead. This supposes, of course, that gross margin is, before the increase in sales volume, in excess of direct costs. If overhead is allocated on the basis of sales where the foregoing conditions exist each store will show a net profit—rarely a net loss. The net effect of the allocation is, therefore, wholly mechanical. As sales vary so does allocated overhead *without regard to economic realities.* The economic realities are these: that enterprise overhead consists almost exclusively of the first and second class of items identified in the discussion of direct expenses, that the consumption of some of the most important of them (important in dollar sum) in reference to individual store problems and activities bears no relationship whatever to sales volume, and that if management bases any decisions upon the reported net profit per store it is basing such decisions upon numbers devoid of content.

The reader should keep in mind that the foregoing comments apply with equal force to all similar situations. For each store he may substitute a separate manufacturing plant. Again for each store or plant he may substitute a department within it. However refined the extent of subdivision of activity within an enterprise the problem of overhead remains. It should be clear from the foregoing that more meaningful statistics are obtained when overhead is not allocated. If the cost of performing any function or the cost of rendering any service is believed to be too high then the proper procedure is to answer the three questions raised in the preceding chapter.

CHAPTER 25

The Double-Entry Principle and the Debit and Credit Mechanism

Introduction. In the first chapters of this book an attempt was made to clarify some of the basic ideas and concepts which form the foundation stones upon which all accounting is built. Particular attention was paid to a careful explanation of the nature and content of the concepts whose word handles are asset, liability, proporietorship, etc. Having worked with them through so much of this book, it is now appropriate to look at them again and go a little more deeply into the fundamental issues involved.

The Double Entry Principle. On page 20 of Chapter 2 the double-entry principle was defined as any procedure for recording the transactions of a business enterprise which accompanies any change in assets or liabilities with the corresponding change in proprietorship. The reader will note that the emphasis in the definition is that we always start our analysis of transactions with changes in an asset or in a liability. The change in proprietorship is always the effect of changes in assets or liabilities. This fact derives from a very basic proposition that enterprise managements manipulate assets. The problem of the management of a business enterprise is the problem of managing assets, that is, the problem of maintaining such dollar measures of assets and such physical quantities of various kinds of assets as will enable the management to carry on the activities of the enterprise.

The simplest situation which can be supposed is an enterprise without debts and having only one asset. Suppose then that an enterprise commences operations with $10,000 cash. We say that cash is an asset. On the basis of the definition of asset given on page 10 of Chapter 2 it is clear that cash is an asset because it represents services valuable in money. The question immediately presents itself, "Why are the services valuable?" The answer lies in the fact that the services yield benefits which somebody wants. Stated otherwise, it is because someone sees that the services will yield benefits which that someone wants, that the services are valuable. Clearly these may be used to acquire any other kind of service or any kind of service source.

Therefore the cash is valuable because the service which it aids in acquiring or the service sources which it aids in acquiring are valuable to someone. And the services or service sources acquired by parting with the cash are valuable because the benefits to be yielded by them are valuable. The casual relationship is benefits to services.

The reader will note again that two aspects of a situation are here involved, the service aspect and the benefit aspect. Which comes first, or in the very nature of the case are both always present? To answer this question it is necessary to distinguish the natural service of an asset from the money measure of that service. The natural service which can be yielded by an automobile is transportation. That service is valuable because somebody thinks it is, because somebody wants it. In other words, someone wants the benefits of transportation. The benefit may be enjoyed if the service can be obtained. Therefore, since the benefit is in someone's eyes valuable, and since the benefit can be enjoyed only if the service is available, it follows that the service is valuable, and because the service cannot be enjoyed without the automobile, it follows that the automobile is valuable.

It should be clear from the foregoing that if a service is valuable it is because the benefits to be derived from it are valuable. It is therefore possible for services to be available and the benefits which they yield not to be valuable in money because the services are available in greater quantity than are needed and at no cost of other service to those who held them. The classic example of this is the air we breathe. But we may turn this problem around and observe that many a discarded item of clothing or piece of furniture is still capable of yielding many natural units of service when neither article possesses a money value. Consequently such an item is not considered an asset for purposes of accounting for enterprises operated for profit. Unless a money value attaches to the benefits, that is, unless someone is willing to pay for the benefits, no money value can attach to the service. And since the essence of asset is a valuable-in-money service, there can be no asset under these circumstances.

Double-entry accounting might be called double-aspect accounting, or double-facet accounting, or obverse and reverse accounting. Possibly many other pairs of terms could be substituted for double-entry or for any of the pairs suggested above. The important point to remember is that double-entry *DOES*

NOT mean double accounting. It is true that there are two dollar measures which are identical in magnitude but they represent, not a dual recording of the same dollar measure of the same thing, but a single recording of two aspects of the same thing which for the reasons discussed above, must necessarily be of the same dollar measure.

It is this double aspect which is the logical foundation supporting the basic accounting equation. The enterprise starting operations with $10,000 cash would show an initial balance sheet as follows:

Cash	$10,000	
Proprietorship		$10,000

Although the equal sign is missing it is none the less implied. The relationship might be set up in any of the following ways:

(1) Cash $10,000 = Proprietorship $10,000
(2) Cash $10,000 = Benefits $10,000
(3) Services in money $10,000 = Benefits to be derived from services $10,000

The question arises as to why the dollar measures of the services and of the benefits are the same. Is this always so and if so, why? Could not the benefits turn out to be more valuable than the services? The answer is no. As was pointed out earlier, services are valuable only because benefits are derivable from them. The dollar measure of the benefits *is* the dollar measure of the services. No one acting prudently would pay more for services than his estimate of the value of the benefits to be derived from them. Market prices are paid for services. Yet right behind the services are the benefits. And it is the benefits which, consciously or unconsciously, a buyer has in mind when a purchase is contemplated or actually made. The foregoing explains why the basic equation is a statement of an identity, not a statement of equality. There are not two dollar measures separately determined but only one. The measure of cash $10,000 is at one and the same time the money measure of services and the money measure of benefits. Only one measurement has been made. But two aspects have been simultaneously measured, services and benefits. The statement of the one measure of the two aspects is the basic accounting equation. It is also the basis of the equality of totals on the balance sheet, a fact which so puzzles both the layman and the embryo accountant.

It was stated above that the basic equation is a statement of an identity, not a statement of equality. Algebraic parallels will

make this clear. If we write X − 5 = 23, there is only one value of X that will satisfy the relationship, i.e., X = 28. The statement, X − 5 = 23, is an equality. But if we write X − 5 = Y, and adopt the usual convention that X is the independent variable and Y the dependent variable, then the number of values of X which will satisfy the relationship is without limit. The magnitude of Y is always 5 greater than the magnitude assigned to X. Therefore X − 5 = Y is the expression of an identity. This means that Y is identically equal to the sum of X − 5, i.e., the determination of the sum of X − 5 *is* the determination of Y. And the number of different determinations of Y is without limit.

From the foregoing it should be clear that the basic accounting equation is an identity. A = P is only a shorthand expression for the more complete statement that the sum of the dollar valuations assigned to all the assets is proprietorship. The reader should note that the summation of dollar measures or valuation applies to assets only, *not* to proprietorship. In the basic accounting equation the independent variable is A, the dependent variable is P. This is why the determination of the sum of the dollar measures assigned to all the assets is, at one and the same time, by the same operation, the determination of proprietorship.

The above line of reasoning applies as well in the case of the modified basic equation. A = L + P is an algebraic transformation of A − L = P. Here both A and L are independent variables and P again the dependent variable. No matter what values are assigned to A and to L the magnitude of P is always A − L. Therefore the number of paired magnitudes assignable to A and to L is without limit. A − L = P and its transformation A = L + P are each an identity.

When liabilities enter into the picture it is not an addition of another category but rather a separating of proprietorship, or we might say there is a separating of the total money measure of the benefits. This two-way division is essentially a question of the direction of the flow of the benefits whose dollar measure is the dollar measure of the total assets of the enterprise. When a liability is incurred the debtor enterprise has obligated itself to render to another enterprise, or to a person or persons, services which are valuable in money. Clearly these services can be rendered only by using up some of the stockpile of services which represent the total assets of the enterprise. But rendering of the services implies that there will go to the other enterprise

or person or persons the benefits associated with those services. Consequently the modified basic equation which reads: Assets equal liabilities plus proprietorship, indicates in the right hand member, first, liabilities, the dollar measure of benefits which will have to flow out of the enterprise and, second proprietorship, the dollar measure of benefits which will remain with the enterprise. Therefore the above equation should really be read as follows: The total dollar measure of benefits to be derived from assets equals that part of such total benefits which must move out of the enterprise to creditors plus that part of the benefits which remains with the enterprise.

From the foregoing it is clear that the statement "Assets minus liabilities equals proprietorship", is a loose way of stating the following proposition: Total benefits to be derived from all assets minus benefits to flow to creditors equals benefits to stay with the enterprise. It follows that the modified basic equation involves two measurements, viz., (1) total benefits and, (2) benefits to be rendered to creditors. The measure of total benefits is, of course, the measure of total assets while the measure of benefits to be rendered to creditors is the measure of liabilities. Proprietorship, the net benefits remaining with the enterprise, is the algebraic sum of these two measurements. With respect to magnitude there are three possible relationships between the two primary measures:

$$\begin{aligned} \text{Total benefits} &> \text{Benefits due creditors} \\ \text{Total benefits} &= \text{Benefits due creditors} \\ \text{Total benefits} &< \text{Benefits due creditors} \end{aligned}$$

These may be translated to the following:

$$\begin{aligned} \text{Total assets} &> \text{Total liabilities} \\ \text{Total assets} &= \text{Total liabilities} \\ \text{Total assets} &< \text{Total liabilities} \end{aligned}$$

The first inequality yields a positive proprietorship or net worth. The equality yields a zero proprietorship. The second inequality yields a negative proprietorship, which is impossible. The money measure of benefits *is* the money measure of the assets. Since this is a statement of an identity it follows that the money measure of the assets (services) *is* the money measure of benefits. But the condition precedent to benefits is the existence of assets. The total of benefits to be shared by creditors and investors is measured by the total assets. If the total assets is less than creditor claims to benefits then these claims must be scaled down to a measure not greater than the measure of

the assets. This means that the second inequality represents the case of a bankrupt enterprise and, until the difficulties are resolved, is properly represented by the equality. In other words, the creditors must scale down their claims to equate total claims to total assets.

If we assume that the enterprise which started with $10,000 cash, purchases on account $2,000 of merchandise we write the following equation:

Cash $10,000 + Merchandise $2,000 = Liability $2,000 + Proprietorship $10,000

Two measurements are involved and one summation. The steps are as follows:

1st Measurement: Cash $10,000 + Merchandise $2,000 = Benefits $12,000

2nd Measurement: Liabilities $2,000 = Benefits $2,000

Subtract the second measurement from the first measurement.

Cash $10,000 + Merchandise $2,000 − Liabilities $2,000 = Benefits $10,000

Obviously since assets are different from liabilities it is the benefits aspect which is involved in the preceding equation. We may, therefore, write it as follows:
$10,000 of Benefits from $10,000 Cash + $2,000 of Benefits from $2,000 of Merchandise − $2,000 of Benefits due Creditors = $10,000 of benefits to remain with the enterprise. In condensed form this may be written:

Total Benefits $12,000 − Benefits due Creditors $2,000 = Net Benefits $10,000. Translating this into conventional terminology we have:

(1) Total Assets $12,000 − Total Liabilities $2,000 = Net Proprietorship $10,000

Availing ourselves of the rule in algebra that the addition of equals yields equals we write:

(2) + Total Liabilities $2,000 = + Total Liabilities $2,000

Adding (1) and (2) we obtain

(3) Total Assets $12,000 = Total Liabilities $2,000 + Net Proprietorship $10,000

The last equation above is the one with which all students of accounting are familiar. As it stands there is a surface implication that total assets is the sum of total liabilities and

net proprietorship. The last term rather lets the cat out of the bag. If there is net proprietorship there must first have been a gross proprietorship. This gross proprietorship is gross benefits, i.e., total assets. In every case in the preceding discussion where the term benefits was used the term proprietorship may be substituted. In the last analysis then the modified basic equation is built up as follows:

(1) Total Proprietorship \$12,000 − Proprietorship due Creditors \$2,000 = Net Proprietorship

(2) + Proprietorship due Creditors \$2,000 = + Proprietorship due Creditors \$2,000

Add (1) and (2).

(3) Total Proprietorship \$12,000 = Proprietorship due Creditors \$2,000 + Net Proprietorship \$10,000

In conventional terms we write:

Assets \$12,000 = Liabilities \$2,000 + Proprietorship \$10,000

The reader should note with care that the writing of the equation in terms of services on the left side and direction of flow of benefits on the other side does not change the nature of the relationship, which is one of identity, nor the fact that the equation is constructed by a consideration throughout of the benefits aspect of services, i.e., of assets.

The Equation Mechanism. The two aspects, services and benefits, whose dollar measures are identical readily suggests the use of an equation for setting up accounting transactions. Every conceivable business transaction when resolved into its elements may be written as an equation or as a set of equations. As a matter of fact, most transactions when analyzed in detail would yield a set of equations.

As an illustration consider the simple transaction of a sale for cash. Let us assume that a sale is made of \$100 of merchandise. What has happened is this; there has been an increase in the asset cash and a decrease in the asset merchandise. There was a two-way flow: inward flow of \$100 of cash, an outward flow of merchandise at cost \$60. Since benefits are necessarily associated with services, it follows that the increase in cash of \$100 was accompanied by an increase in proprietorship of \$100. It also follows that since there was a decrease in merchandise of \$60, there was a decrease in proprietorship of \$60. There was, however, a net increase in proprietorship of \$40.

Now let us consider alternative ways in which this simple transaction may be set up in equation form. First let us suppose the details of all changes in proprietorship are recorded. In this case we would write the following equations:

(1) + Cash $100 = + Proprietorship $100.

(2) − Merchandise $60 = − Proprietorship $60.

Now let us add up equation (1) and (2) and obtain equation (3).

(3) + Cash $100 − Merchandise $60 = + Proprietorship $40.

The reader will note that equations (1) and (2) set out every detail of the change in asset and the accompanying change in proprietorship. He will also note that equations (1) and (2) show the *gross* changes whether they are plus or minus. Equation (3) however, shows only the *net* change in proprietorship. The question immediately arises as to whether equation (3) provides sufficient information about the transaction. The answer lies in what the management of the enterprise wants. If the management is desirous of knowing each separate statistical change in total sales and in total cost of the merchandise sold, then equations (1) and (2) would be used. From having studied this book thus far, the reader is well aware of the fact that the right hand member of equation (1) is conventionally a sales account and that the right hand member of equation (2), when properly transposed algebraically to the left hand side thereof, is cost of merchandise sold. The two then read:

(4) + Cash $100 = + Sales $100, and

(5) + Cost of Goods Sold $60 − Merchandise $60 = 0

All transactions which result in no net change in proprietorship involve (1) an equal value exchange of assets, (2) an equal value exchange of liabilities, (3) the incurring of a liability, and (4) the payment of a liability. Each of them is illustrated below.

(6) + Any Assets $1,000 − Any Other Asset $1,000 = Proprietorship 0

(7) + Any Liability $500 − Any Other Liability, $500 = Proprietorship 0

(8) + Any Assets $750 + Any Liability $750 = Proprietorship 0

(9) − Any Liability $600 − Cash $600 = Proprietorship 0

Every transaction which results in a gross change in proprietorship which is also the net change is one of the following two types:

(10) + Any Asset $150 = + Proprietorship $150

(11) − Any Asset $400 = − Proprietorship $400

Equation (1) is typical of all sales transactions. The conventional form is (4). Equation (2) illustrates cost of goods sold and all expenses where the service or service source is initially classified as an asset. Its alternative, form (5) is the conventional form.

Number (6) represents the exchange of cash for a non-cash asset, a non-cash asset for cash, or one non-cash asset for another. The giving of a note for the balance due on open account and the giving of a new note for one due illustrates (7). Any asset acquired on credit is covered by (8). Number (9) is the obvious payment of a debt. The initial and subsequent investments made in an enterprise as well as interest income and dividend income are covered by (10). The many outlays for expense illustrate (11).

Any transaction can be set up in equation form. How the elements or terms of an equation are to be distributed on the two sides of the = sign is a matter of convenience. So is the question of the degree to which changes in proprietorship are to be classified and the basis or bases of classification. Consider, for a moment, equation (1) and its alternative form (4). The establishment of the class of gross increase in proprietorship called sales is the first subdivision of proprietorship. If several separate (departmental, for example) sales subdivisions are to be employed the portion of the modified basic equation to the right of the = sign will contain many items. If we divide liabilities into classes and sub-classes the number of items grows. Similar results will follow on the left side if we divide assets into classes and sub-classes. Furthermore, from equations (10) and (11) it is obvious that care will have to be exercised to maintain separately to the left of the = sign both increases and decreases in assets and on the other side of the equation increases and decreases in liabilities as well as increases and decreases in proprietorship.

The Debit and Credit Mechanism. From the foregoing it is clear that any business enterprise transaction may be analyzed into elements which may be set out in equation form. From what

the reader has discovered so far in this book it is quite clear that the use of equations in a conventional algebraic form is altogether too complex a method to follow in maintaining accounting records. It is also clear that if any method other than that of equations in the conventional algebraic form is to be used it is desirable that the procedure provide for left and right hand members in order to maintain an equation at all times.

The conditions which have to be satisfied having been discovered, the manner in which they are to be satisfied can easily be deduced from an analysis of the elements of types of business transactions. Since every business transaction involves (1) two assets, (2) an asset and a liability, (3) an asset and proprietorship, (4) or two liabilities, it follows that a convenient physical arrangement of accounting data in formal records should provide the elements of an equation.

A purchase therefore involves the increase of one asset and the decrease of another asset. If an equation is to be maintained it is obviously necessary that the increase in assets must be on the opposite side of the equation from the decreases in assets. Again, if a purchase is made on account, we have an increase in an asset and an increase in a liability. Consistency requires that we continue to use the same side of an equation for increases of assets and consequently the increase in the liability must be on the same side of the equation as the decrease in the asset. Consider the case in which a cash payment is made to a creditor. Again consistency requires that the decrease in the liability be on the opposite side of the equation from the decrease in the asset.

An analysis of the consequences of the conditions applicable to the illustrations set out above will make it clear that it does not matter on which side of the equation increases or decreases are shown so long as, once the pattern is established, it is consistently followed.

The foregoing may be illustrated as follows. Suppose we consider the first type of transaction, the purchase of merchandise for cash. Let us assume that we show the decrease in cash on the left side of the equation and the increase in merchandise purchases on the right hand side. Now if we want to place these same facts in accounting records, and plan to keep all increases in any item together and separate from all decreases which will be kept together, having used the left hand

side of the equation for decreases in cash, we will show decreases in cash on the left side of a page established for it in the formal accounting records. Obviously we will have to show increases in merchandise on the right hand side of the page established for merchandising transactions. Since we have established the left hand side of the page for decreases in cash, and both cash and merchandise are assets they must be treated the same way in both the equation and in the account. We have thus established the position of increases and decreases for all assets. This means that increases in cash will be shown on the right hand side of the page set aside for cash and decreases in merchandise on the left hand side of the page set aside for merchandise.

Now let us consider the purchase of merchandise on account. Since we have chosen the right hand side of the page on which to report increases of an asset, the merchandise purchases on account will appear on the right hand side of the merchandise account. But since we are trying to maintain an equation, there is no alternative save placing the increase in the liability on the left hand side of the page devoted to dealings with the creditor. Consistency having required the use of the left hand side of the page for increases in liabilities, the right hand side of the page must be used for decreases.

The category proprietorship remains to be considered. The reader knows that from the very nature of assets, an increase in an asset involves an increase in proprietorship where the increase in the asset is not offset by a like amount of decrease in another asset or increase in a liability. The left side of the page having been set aside for decreases in assets it follows that the right side must be used for decreases in proprietorship and the left side for increases in proprietorship.

The result of the foregoing analysis leads to the following position of the plus and minus sign on the three primary categories of accounts.

The alert reader will note that the position of the plus and minus signs as here developed is exactly the opposite of the position which they occupy in conventional practice. This conclusion was deliberately aimed at in order to emphasize the importance of the proposition that double-entry accounting is a concept wholly separate and distinct from the debit and credit mechanism. It is furthermore quite clear that a simple algebraic transposition

of all of the items shown above will not destroy the equation in any way whatsoever.

The important properties of the debit and credit mechanism are: (1) it makes possible the maintenance in the accounting records of an equation of the form, assets equals liabilities plus proprietorship, which equation is continually changing as to the amounts involved as successive transactions are accumulated in books of original entry and entered in the general ledger accounts; (2) it facilitates almost any degree of detailed analysis of the changes in proprietorship because the latter account may be subdivided at will *almost without limit within the framework of the equation.*

The first of these properties should be pretty clear to the reader at this point. The second property can be illustrated very readily by the use of a few simple figure facts such as those set out below.

Assume that the following transactions have taken place, all on a cash basis:

Cash Received		Cash Disbursed	
Sales—Dept A	$ 8,300	Salaries	$ 1,600
Sales—Dept B	4,200	Rent	300
Sales—Dept C	2,500	Advertising	75
		Heat	15
Total	$15,000	Light	12
		Delivery Expense	84
		Total	$ 2,086

Assume, further, that only the accounts for cash and for proprietorship are maintained. The foregoing transactions would appear as follows when entered in the accounts.

Cash				Proprietorship			
Sales	$15,000	Salaries	$1,600	Salaries	$1,600	Cash Sales	$15,000
		Rent	300	Rent	300		
		Advertising	75	Advertising	75		
		Heat	15	Heat	15		
		Light	12	Light	12		
		Delivery Expense	84	Delivery Expense	84		

Without alteration of the cash account we may subdivide both classes of changes in proprietorship and have the following:

Salaries	Heat	Sales—Dept A
$1,600	$15	$8,300

Rent	Light	Sales—Dept B
$300	$12	$4,200

Advertising	Delivery Expense	Sales—Dept C
$75	$84	$2,500

If it is desirable to show separately the salaries for each department we subdivide the salaries account as follows:

Salaries—Dept A	Salaries—Dept B	Salaries—Dept C
$810	$390	$400

When only a cash account and a proprietorship account were used it is easy to see how an equation is maintained. The subdividing of the proprietorship account poses some problems. The cumulative equation resulting from the assumed transactions reads as follows:

I + Cash $12,914 = + Proprietorship $12,914

1. 0 = − Prop. $2,086 + Prop. $15,000

II + Cash $12,914 = − Prop. $2,086 + Prop. $15,000

Equation 1 does no more than replace the net change in proprietorship of $12,914 by the two gross changes, i.e., the total increases and total decreases. Now write equation

2. + (− Proprietorship $2,086) = + Proprietorship $2,086

Add II and 2 obtaining

III + Cash $12,914 + (− Proprietorship $2,086) = + Proprietorship $15,000

Write equation

3. 0 = − Prop. $15,000 + Sales - Dept A $8,300 + Sales - Dept B $4,200 + Sales - Dept C $2,500

Add III and 3 obtaining

IV + Cash $12,914 + (− Prop. $2,086) = + Sales - Dept A $8,300 + Sales - Dept B $4,200 + Sales - Dept C $2,500

Write equation

4. − (− Prop. $2,086) + Salaries $1,600 + Rent $300 + Advertising $75 + Heat $15 + Light $12 + Delivery Expense $84 = 0

Add IV and 4 obtaining

V + Cash $12,914 + Salaries $1,600 + Rent $300 + Advertising $75 + Heat $15 + Light $12 + Delivery Expense $84 = + Sales - Dept A $8,300 + Sales - Dept B $4,200 + Sales - Dept C $2,500

We started with equation I which showed, as to proprietorship, only the net change resulting from a group of transactions. Equation 1 restored the total decreases. The sum of I and 1 gives us an equation which shows the total decreases and the total increases. This equation, II, is defective in an important respect; both the increases and decreases are shown on the same side of the equation. This defect is corrected by 2 which transposes the decreases in proprietorship to the left side of the equation thus separating increases and decreases. The reader should note that in equation 2 the laws of algebra regarding sign are not applicable. + (− Proprietorship $2,086) does not mean that the parentheses may be removed and the negative sign affixed. It does mean that we are adding to the other items on the left side of the equation a class of items which, singly and collectively, are measures of decreases in proprietorship. Therefore equation III should be read, Cash $12,914 plus decreases in proprietorship $2,086 equals increases in proprietorship $15,000. We have accomplished two things: (1) separated increases in proprietorship from decreases, and (2) placed increases and decreases on opposite sides of the cumulative equation.

The next step is to effect (1) a subdivision of increases in proprietorship and (2) a subdivision of decreases in proprietorship. Equation 3 effects the first objective; equation 4, the second objective. The net result is equation V which is no more than the partial trial balance resulting from the assumed transactions with which we started. Although the account titles and the related dollar amounts are presented in conventional algebraic form they are the components of a partial trial balance.

What have we demonstrated? Only the fact, though a most important one, that the essence of the debit and credit mechanism can be developed by deductive analysis applied directly to the use of left and right sides of pages (accounts) or by the use of elementary algebraic relationship. In both approaches, however, we rely upon the paired concepts, services and benefits. At this point the reader ought to reread very carefully Chapter 2.

The obvious advantage of the debit and credit mechanism is the advantage of an equation mechanism. Since every transaction can be cast into equation form the sum of any number of transactions is also an equation. Furthermore the equal sign always connects identical sums; there is no equating to zero. If there is a numerical error on one side of the equation an inequality results. The "trial" balance does not balance! This fact provides another advantage; preventive measures may be taken to insure mechanical (arithmetic) accuracy in the process of accumulating data *before* entry in the accounts. The self-balancing feature of all books of original entry is the most important application of this principle.

As with any man-devised system there are defects. The equation feature will not detect or disclose:

(1) the fact that transactions have been omitted completely,

(2) that incorrect amounts have formed the elements in an equation, and

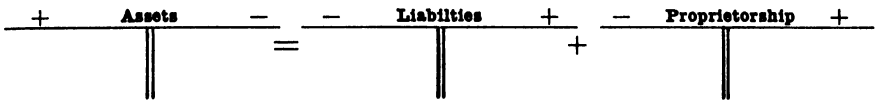
(3) that elements of a transaction have been erroneously classified. But for each of these defects preventive measures have been established primarily in systems of internal control.

Are other equation arrangements possible? Can the same results be achieved by any other arrangements of data than the one we know as the debit and credit mechanism? Are non-equation mechanisms available? The remaining sections of this chapter are devoted to a discussion of these questions.

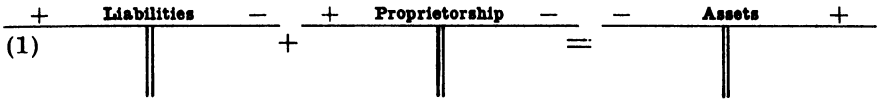
Alternative Equation Arrangements and their Consequences. The debit and credit or equation mechanism as conventionally employed requires that every transaction be of the form

$$X = X$$

This is, every transaction is set up in a form which is an equation containing left and right dollar amounts which are equal. The equals sign connects two single amounts, one single amount and a sum of two or more items, or two sums. The cumulation of the effects of transaction entries yields an equation whose most common forms are the trial balance and balance sheet. The pattern of arrangement of increases and decreases which facilitates this operation follows:



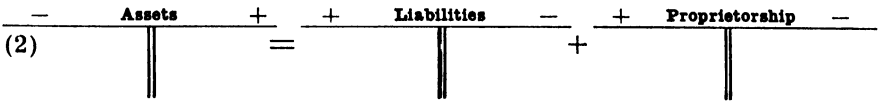
Can the same results be achieved by any other arrangement of the elements of the equation or the position of the algebraic signs? Consider the following

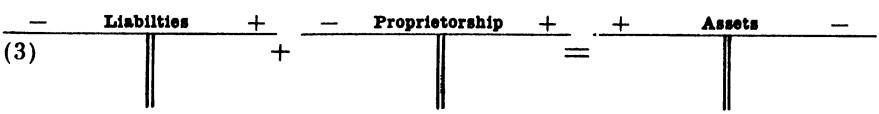


Any transaction may be cast into equation form and satisfy the required conditions of the positions of increases and decreases in the equation. As illustrations the following transactions are cast into journal entry form.

Transaction	Journal Entry		
1. Invest $10,000 cash	Proprietorship	$10,000	
	Cash		$10,000
2. Purchase $2,000 of merchandise for cash	Cash	$ 2,000	
	Merchandise		$ 2,000
3. Purchase $1,500 of fixtures on account	Account Payable	$ 1,500	
	Fixtures		$ 1,500
4. Sell for $500 merchandise which cost $300	Merchandise	$ 300	
	Proprietorship	200	
	Cash		$ 500
5. Pay $400 cash on the purchase of fixtures	Cash	$ 400	
	Accounts Payable.		$ 400

This alternative arrangement is as satisfactory as the one conventionally used. Any other arrangement of the equation elements makes impossible the equation form of journal entry. This is illustrated by two other possible plans.





Transactions 1 through 5 can be set up in equation form according to (2). But the position of the accounts in the equation is awkward. The posting of all the journal entries will yield an equation. Entry 1, for example, directs the bookkeeper

to enter $10,000 on the left side of the proprietorship account and $10,000 on the right side of the cash account. After posting all entries a trial balance can be drawn off. The listing of the balances will be identical with the listing derived from the use of procedure (1). Procedure (2) is awkward but it will work because every transaction can be written in equation form and transposed to journal entry form.

As compared with the conventional arrangement alternative (1) involves a transposition of A, L and P to opposite sides of the equation and an interchange of the position of increases and decreases in each category of account. It was this double change that preserved the equation properties that permitted the continued use of the journal entry. In (2) the only change made was the interchange of position of increases and decreases. We found that the system would work but not very smoothly. In (3) A, L and P have been transposed without altering the positions of increases and decreases in each category of account.

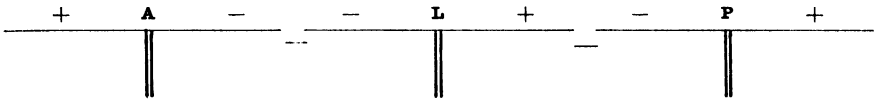
The first transaction results in an increase in an asset and in proprietorship. This can be set out in equation form to fit into (3) and in conventional journal entry form.

As an equation;	+ Cash $10,000 = + Prop. $10,000		
As a journal entry;	Cash	$10,000	
		Prop.	$10,000

All the transactions can be recorded in conventional journal entry form. Although all increases and decreases in (3) are arranged in the usual pattern the categories are arranged differently. But an equation mechanism is still maintained. So is the debit and credit mechanism if we limit the meanings of the terms debit and credit to left side and right side, respectively, of a ledger account. If however, debit is to mean not only left side of an account but left side of the equation then the conventional procedure is the only one that will satisfy this set of conditions.

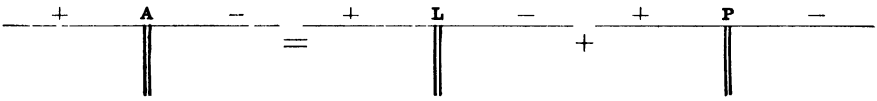
In each of the three alternative arrangements discussed above an equation was maintained. The double-entry principle was in operation throughout. The debit and credit mechanism as we know it was not maintained. The purpose of the foregoing discussion was to emphasize once more the importance of distinguishing the double-entry principle from the debit and credit mechanism. A non-equation mechanism will be discussed in the next section of this chapter.

A Non-Equation Mechanism. Suppose the following arrangement of A, L and P be used:



Transaction 1 of the preceding section can be set into this pattern in equation form. But transaction 3, cannot. The purchase of $1,500 of fixtures on account requires an increase in A and in L, both of which are on the same side of the equals sign. It is therefore not possible to maintain an equation of A, L and P. As set out above we have an equation yielding net P. What we want is one that yields separately the summation of A, L and P *and* equates A to the sum of L and P. It is clear that the form in which A, L and P are related above yields an equation in the sense that A − L = P, but not in the sense that A = L + P. An examination of the income and expense accounts related to this arrangement will show all details appropriately equated. The defect of the arrangement is the submerging of L.

One more possibility will be considered. Assume that the following arrangement is used



Now record in journal entry form the five transactions used in the preceding section:

Transaction	Journal Entry		
1. Invest $10,000 Cash	Debit: Cash	$10,000	
	Debit: Prop	$10,000	
2. Purchase $2,000 of merchandise for cash	Debit: Merchandise	$ 2,000	
	Credit: Cash		$ 2,000
3. Purchase $1,500 of fixtures on account	Debit: Fixtures	$ 1,500	
	Debit: Acct. Payable	$ 1,500	
4. Sell for $500 merchandise which cost $300	Debit: Cash	$ 500	
	Debit: Prop	$ 200	
	Credit: Merchandise		$ 300
5. Pay $400 cash on the purchases of fixtures	Credit: Cash		$ 400
	Credit: Accts. Payable		$ 400

An equation is maintained for transaction 2 which involves two assets. Any transaction involving two liabilities will yield an equation. So will any adjustment of balances in two expense accounts or in two income accounts. All other transactions will not yield an equation. This arrangement of the increases and decreases in the three categories of accounts makes impossible the maintenance of a cumulative equation, therefore of a trial balance. All the arithmetical check properties of the debit and credit mechanism are lost. But the double entry principle is still in operation. The arrangement, however unorthodox, does provide for the change in proprietorship accompanying every change in an asset or in a liability.

The degree of unorthodoxy can be further heightened by adding the following:

Every sale transaction would appear as two debits as would every expense resulting from a purchase on account. Every expense transaction involving immediate cash disbursement would result in an equation. The system as a whole, however, is of the non-equation type. Its defects are obvious.

Summary. The double-entry principle is a double-facet concept. It calls for the simultaneous recording of changes in assets or liabilities *and* the accompanying change in proprietorship. Any method of maintaining accounting records of the transactions of an enterprise which satisfies these conditions is a method operating on the double-entry principle.

The most important mechanical property of the double-entry principle is the equation. This property makes possible the recording of every transaction as an equation and the maintenance of an equation as the effects of successive transactions are accumulated. This mechanical feature is put to fullest use by means of the debit and credit mechanism which facilitates the expansion of classification of detail within the framework of the equation. The debit and credit mechanism is not double-entry but the most advantageous device for exploiting to the full the finest features of the double-entry principle. Double-entry is a fact about the relationship between human beings and services. The debit and credit mechanism is a marvelously flexible mechanical procedure which makes possible the fullest fruition of the consequence of the fact which is double-entry.

CHAPTER 26

Legal Forms of Organization

Introduction. Thus far in this book the only mention made of the problem of the legal form under which a business enterprise operates were the comments in Chapter 1, which were made in order to draw attention to the fact that the real problems of accounting do not derive from the legal form of enterprise organization but really flow from the economic problems of administrating and managing enterprise assets. Nonetheless there are some really significant problems which do depend upon the legal form of business enterprise but they are essentially problems of relative interest in the fruits of enterprise operations and relative interest in the total of proprietorship. The three most common forms of business organization from the legal point of view are the sole proprietorship, the general partnership, and the corporation. In connection with each of them there are four broad classes of matters which merit some consideration. The first of these concerns the criteria on the basis of which the election is made to choose one form rather than another. These criteria are at rock bottom not criteria on an accounting level but rather deal with non-accounting matters. The other three problems arise due to the presence of situations which have to be solved on the accounting level. They are represented by the problems respectively of organization, of operation, and of dissolution. These four problem areas will be discussed in this chapter.

Criteria of Selection of Legal Form. In this section there will be identified only the criteria that need to be considered in arriving at a decision concerning the legal form of enterprise to be adopted. Broadly speaking they relate to the following: (1) ease and cost of organizing, (2) flexibility of management in operations, (3) facility of change of relative interests in proprietorship, (4) tax burden, (5) the ease with which new capital can be acquired or funds borrowed.

Accounting Problems Common to All Forms. Certain accounting problems are common to all three legal forms of enterprise. For example the problem of organization properly speaking is not an accounting problem at all. Whatever needs to be done in order to bring into existence the enterprise is done by satisfying certain legal requirements. Once these are satisfied and

capital has been contributed the problem on the accounting level is simply the setting up on the accounting records of the contributed assets at the valuation agreed upon and establishing the corresponding proprietorship account or accounts.

Once the enterprise has commenced to operate the only accounting problems peculiar to a given legal form are associated with borrowing money, acquiring of additional investment funds, and distributing of net income. All the other problems of operation, since they involve the management of assets, are common to all legal forms of enterprise operating for profit.

In the event of dissolution the common feature in all cases is the setting out on the accounting records the disposal of assets, payment of liabilities, and the distribution of the net proceeds as called for by the proprietorship accounts. Some special problems may arise because of certain relationships between partners and, in the case of a corporation, among the stockholders. The various problems peculiar to each legal form will be discussed in the next three sections.

The Sole Proprietorship. The problems of organization and operation of the sole proprietorship are simple in the extreme. The entries needed to set up the initial balance sheet data are not at all complex nor are the problems involved in day to day operations. A real difficulty may present itself in the case of a dissolution if the latter is occasioned by bankruptcy because the question of priority of interests of creditors will have to be resolved if the proprietor owns assets in addition to those of the bankrupt enterprise. These problems are not discussed in this text because they properly belong in a more advanced course in accounting which deals specifically with the complex features of bankruptcy proceedings.

The General Partnership. The general partnership poses a special problem on the accounting level at organization which is tied in with the question of the valuation of assets and the proper measure of each partner's interest in the total proprietorship.

A partnership is a contractual relationship. The rights, privileges and duties of each partner should be set out in detail in a formal written document known as a partnership agreement. In the absence of such an agreement, or if certain matters are not covered by it, their resolution rests upon the law concerning partnerships. Many states in this country have adopted as basic partnership law the Uniform Partnership Act. Prospective partners should have carefully drafted the partnership

agreement in such terms as will facilitate the execution of their wishes.

The initial problem is that of organization and the establishment of proprietorship interests. If property other than cash is contributed by a partner the agreement should state the dollar valuation at which it is to be accepted as a contribution to total assets. The simplest case is that of two partners each contributing cash to the enterprise. Suppose A and B each contribute $15,000 to the firm of A and B. The appropriate journal entry and ledger accounts follow:

Cash	$30,000	
A, Capital		$15,000
B, Capital		$15,000

A. Capital	B. Capital
$15,000	$15,000

Here a new term is introduced. Total proprietorship is shown in two ledger accounts called capital accounts. This convention probably derives from the fact that it was once a common practice of partners to contribute goods, i.e., physical capital in lieu of or in addition to cash. At any rate the term has stuck and we refer to partners' proprietorship accounts as capital accounts.

A partner will speak of his interest in the partnership. By this is meant the balance shown by his capital account. An interest in the business is not to be confused with a share on the profits. Partners may agree to share profits and bear losses in the ratio of their capital accounts but this is wholly a matter of agreement.

If A contributed $15,000 of property, instead of cash the credits to the capital accounts would remain unchanged. But A and B should agree that the property contributed by A was to be valued at $15,000 *before* the entries are set up in the accounting records. The agreement as to valuation of each partner's contribution should be an integral part of the partnership agreement.

The problems of operation center around the following questions: (1) if partners are paid salaries, are they to be treated as salaries or as drawings in the computation of periodic income?; (2) if salaries are not paid but drawings are permitted, is interest to be charged on the excess of actual drawings over the agreed amount?; (3) is interest to be allowed on the average balance in partners' accounts?; and (4) in what manner are

profits and losses to be shared or borne respectively, by the partners? Each of these four problems is illustrated in the following paragraphs.

Assume that the partnership of A and B showed net income for a period of $18,000. In the absence of agreement concerning the division of profits or losses the Uniform Partnership Act provides for equal division. The proper journal entry would be:

Income and Expense Summary.....	$18,000	
A, Capital		$ 9,000
B, Capital		$ 9,000

If the partnership agreement called for a division of 40% to A and 60% to B the entry would be:

Income and Expense Summary	$18,000	
A, Capital		$ 7,200
B, Capital		10,800

Obviously the profits and losses may be shared in any manner agreed upon by the partners. Losses need not be borne in the same ratio as gains.

Partners customarily draw cash sums rather regularly to cover their own and family living expenses. Such sums are called drawings. In order to free the partners' capital accounts from details a separate account is set up for each partner entitled Partner-Drawings. When the accounts are summarized and closed at the end of a business year the balances in such accounts are closed to the partners' capital accounts. Suppose the drawing accounts of A and B showed the following:

A. Drawings

300	To A,	
$ 300	Capital	$3,600
300		
$3,600		$3,600

B. Drawings

$ 400	To B,	
400	Capital	$4,800
400		
$4,800		$4,800

Assume that A drew $300 per month and B, $400 per month, that net income for the period was $18,000, that profits and losses are to be divided 40% to A and 60% to B, and that the initial investment was $15,000 each as set out earlier in this section. The journal entry distributing the profits is set out above. The entry transferring drawings to capital accounts would be:

A, Capital	$3,600	
B, Capital	$4,800	
A, Drawings		$3,600
B, Drawings		$4,800

The Capital accounts would appear as follows:

A. Capital			
Drawings	$ 3,600	Investment	$15,000
Balance	18,600	Net Income	7,200
	$22,200		$22,200
		Balance	$18,600

B. Capital			
Drawings	$ 4,800	Investment	$15,000
Balance	21,000	Net Income	10,800
	$25,800		$25,800
		Balance	$21,000

Instead of drawings the partners may agree to a salary arrangement to compensate them for their personal services. If such salaries are to be charged against income the balance of the income represents the return on the capital invested. Suppose, in the above case, that no drawings were permitted but that A was to receive a salary of $300 per month and B one of $400 per month, such salaries to be deducted from gross income in determining the net income to be divided 40% to A and 60% to B. Assume the net income before salaries to be $18,000. The income and expense summary would appear as follows:

Income and Expense Summary			
Salary A	$ 3,600	Net income before salaries	$18,000
Salary B	4,800		
A, Capital	3,840		
B, Capital	5,760		
	$18,000		$18,000

The partners' capital accounts are tabulated below:

	Total	A. Capital	B. Capital
Original Investment	$30,000	$15,000	$15,000
Net Income	9,600	3,840	5,760
Balance, End of Period	$39,600	$18,840	$20,760

A comparison of the above results with those obtained where salaries were not paid but the same amounts taken as drawings discloses that A is $240 better off under the latter plan and B is worse off by a like amount. Had the salaries been in the profit sharing ratio the results under the two procedures would have been identical.

Under some partnership agreements drawings are permitted not in excess of specified amounts at specified intervals. If drawings exceed the dollar limits or occur more frequently than agreed upon interest on the excess drawings is charged to the partner and credited to income. Assume that A and B share

profits and losses, 35% and 65% respectively, that drawings may not exceed $300 per month per partner and that excess drawings are to bear interest at 6% per annum from the date drawn until the end of the period. Let the drawing accounts of the partners appear as shown below and the income and expense summary show $18,000 net income before effect is given to the partnership agreement concerning drawings;

A. Drawings		B. Drawings	
April 1	400	March 1	500
July 1	650	May 1	600
Dec. 1	500	Sept. 1	400
Other nine months	2,700	Other nine months	2,700

Income and Expense Summary

A, Capital	$ 6,314	Net income before adding interest on partners' drawings	$18,000
B, Capital	11,726	Interest on excess drawings:	
		A	16
		B	24
	$18,040		$18,040

The computation of interest on drawings can be simplified by remembering that interest at i % per annum on $ X for n months is equivalent to i % per annum on $ nX for one month. Thus 6% per annum on $100 for nine months is equivalent to 6% per annum on $900 for one month. Availing ourselves of this relationship we set out the computation of interest on the excess drawings of A and B in the following schedule. The $2,700 item in each drawing account is the sum of nine drawings of $300 each made on the first of each of the nine months other than those listed.

Computation of Interest on Excess Drawings

	A				B		
Date	Amount of Excess	No. of Months	Dollar Months	Date	Amount of Excess	No. of Months	Dollar Months
April 1	100	9	900	March 1	960	10	2,000
July 1	350	6	2,100	May 1	300	8	2,400
Dec. 1	200	1	200	Sept. 1	100	4	400
Totals			3,200				4,800

Interest at 6% per annum is at the rate of ½% per month. The interest chargeable on A's excess drawings is $16, that on B's, $24. The journal entry follows:

A, Drawings	$16	
B, Drawings	24	
Income and Expense Summary		$40

The income and expense summary is closed by the following entry:

Income and Expense Summary	$18,040	
A, Capital		$ 6,314
B, Capital		11,726

The usual entry is made transferring drawings to capital accounts.

Interest on the average balance in a partner's capital account is most frequently interpreted as interest on the successive balances for the number of months that each remains unchanged. Assume that partners A and B have agreed that interest at 6% per annum shall be allowed on the average balance in their capital accounts, and that profits and losses shall be divided 45% to A and 55% to B. Assume further that any drawings are to be treated as reductions of capital for the purposes of the interest calculation. Let the capital accounts be as follows:

A. Capital				B. Capital			
Feb. 1	400	Jan. 1 Bal.	$14,000	March 1	600	Jan. 1 Bal.	$10,000
April 1	1000	July 1	3,000	June 1	300	May 1	2,000
Sept. 1	200			Aug. 1	500	Oct. 1	3,500
Dec. 1	700			Nov. 1	800		

The tabular arrangement used above will facilitate the determination of interest to be charged to income and expense summary and credited to the respective partners' capital accounts. The table follows:

Computation of Interest on Average Capital Invested

	A				B		
Date	Amount	No. of Months	Dollar Months	Date	Amount	No. of Months	Dollar Months
Jan. 1	$14,000	1	$14,000	Jan. 1	$10,000	2	$20,000
Feb. 1	13,600	2	27,200	Mar. 1	9,400	2	18,800
April 1	12,600	3	37,800	May 1	11,400	1	11,400
July 1	15,600	2	31,200	June 1	11,100	2	22,200
Sept. 1	15,400	3	46,200	Aug. 1	10,600	2	21,200
Dec. 1	14,700	1	14,700	Oct. 1	14,100	1	14,100
				Nov. 1	13,300	2	26,600
Totals			$171,100				$134,300

Six per cent per year on $171,000 for one month is $855.00, on $134,300 it is $671.50. The following journal entry should be made:

Income and Expense Summary	$1,526.50	
A, Capital		$855.00
B, Capital		671,50

The balance remaining in the income and expense summary will be transferred to the partners' capital accounts in the profit and loss sharing ratio.

The dissolution of a partnership remains to be considered. Since a partnership results from an agreement voluntarily entered into, the death or withdrawal of a partner dissolves the partnership. In the event of death the interest of the deceased partner must be paid to his estate. Upon voluntary dissolution the retiring partner is paid his interest by the remaining partners. If a new partner is taken into a firm the old partnership is dissolved and a new one established. This change is effected through adjustment of capital accounts without interruption of enterprise activity. Upon the admission of a partner there arises the problem of agreeing upon the value of assets to be contributed by him and his share of gains and losses. When the dissolution of a partnership is accompanied by a piecemeal disposition of assets and periodic distribution of the proceeds to the partner the possibility arises of paying a partner more than he is entitled to. This can happen if the percentage of losses he must bear is greater than the percentage of total capital represented by the balance to the credit of his capital account. These two rather complex problems are properly a part of the study of multiple proprietorship and are not discussed in this book.

The Corporation. A corporation is a voluntary association of persons which is treated by law as a distinct and separate being. On the accounting level its chief characteristic is the existence of a minimum proprietorship and the division of that proprietorship into transferrable units called shares. A second characteristic is the division of the proprietary interest into broad classes having different rights but also divisible into transferable shares.

The minimum proprietorship is called capital stock. It may or may not be of a stated nominal value. In the former case it is said to be par value stock; in the latter, no-par value stock. The par value attaches to a share. If there are two kinds of

stock they may be called common stock and preferred stock. Each of these major categories may be further subdivided.

Every corporation is organized under the law of some jurisdiction. In this country the jurisdiction is a state, the District of Columbia, or the United States of America. The basic document is the corporate charter issued by the incorporating jurisdiction. It contains the terms of the agreement between the members of the corporation and between the corporation as a separate being and the jurisdiction under whose laws it is incorporated.

Corporate assets are acquired by the issuance of shares of capital stock for cash, or property, or services. The total capital stock is specified in the corporate charter as so many shares of such-and-such par value or without par value and is referred to as authorized stock. Until issued in exchange for cash, other assets, or services it is called unissued stock. After issue it is called issued and outstanding. If any shares are reacquired by the issuing corporation they are called reacquired or treasury stock.

The entries required to record stock issues may be illustrated by assuming that X Company is organized with authorized common stock of 10,000 shares of $100 par value. Suppose that 500 shares are issued for cash. The following entry is in order:

	Cash	$ 50,000	
	Common Stock		$ 50,000

Or the facts may be set out thus:

1.	Unissued Common Stock	$1,000,000	
	Authorized Common Stock		$1,000,000
2.	Subscriptions Receivable—Common Stock..	$ 50,000	
	Unissued Common Stock Subscribed....		$ 50,000
3.	Cash	$ 50,000	
	Subscriptions Receivable—Common Stock		$ 50,000
4.	Unissued Common Stock Subscribed	$ 50,000	
	Unissued Common Stock		$ 50,000

Entry 1 is a memorandum entry. In 2 there are recorded the claims against the subscribers, the prospective investors or stockholders, and the offsetting obligation to issue certificates evidencing share ownership when the subscriptions are paid. The credit portion of this entry may be interpreted as a reduction of Unissued Common Stock in which case it is viewed as a credit to a valuation account applicable to Unissued Common Stock.

The foregoing facts would be shown in the balance sheet as follows:

Capital Stock		
Authorized 10,000 shares of $100 par value		
Issued and outstanding		$50,000

As an alternative the following presentation may be made:

Capital Stock		
Authorized 10,000 shares, par value $100	$1,000,000	
Less:		
9,500 shares unsubscribed and unissued	950,000	
Issued and outstanding		$50,000

The reader should note that the second presentation discloses much more information than does the first. Although the entire difference in the two presentations is the presence in the latter of memorandum data only a reader of the balance sheet is told a more complete story. Of course, in the first case, the same additional information could be presented in footnotes or in accompanying comments.

Operating problems peculiar to the corporation on the accounting level revolve around the acquisition of additional permanent investment and the distribution of net income. The former involves the issuance of additional capital stock. Typical entries have been illustrated. The latter requires formal action by the board of directors, the governing body of the corporation representing the stockholders. Such formal action is called a declaration of a dividend. Upon declaration a portion of retained income becomes a liability. (See equation type 9 in Chapter 2 and the comments thereon.) The dividend is usually specified as so many dollars per share.

Assume that Y Corporation has 5,000 shares of common stock outstanding and the directors declare a dividend of $1.75 per share. The following entries are in order:

When the dividend is declared.		
Retained Income	$8,750	
Dividends Payable		$8,750
When the dividend is paid.		
Dividends Payable	$8,750	
Cash		$8,750

A prosperous corporate enterprise usually grows by retaining much of its net income and investing in additional facilities and inventory. In a very practical sense the retained income is not available for distribution. At the same time the value per

share of stock has been increasing. Under these circumstances directors may declare a substantial dividend not to be paid by the disbursement of cash but by the issuance of additional stock. Suppose a corporation balance sheet shows the following capital section:

Capital Stock		
Authorized 50,000 shares, par value $100	$5,000,000	
Less: 20,000 shares unissued	2,000,000	
Issued and outstanding		$3,000,000
Retained Income		2,500,000

Assume that the directors declare a stock dividend of 50%. The following entries are required.

When dividend is declared.		
Retained Income	$1,500,000	
Dividends Payable		$1,500,000
When the dividend is paid.		
Dividends Payable	$1,500,000	
Unissued Capital Stock or		
Capital Stock		$1,500,000

The capital section of the balance sheet will now appear as follows:

Capital Stock		
Authorized 50,000 shares, par value $100	$5,000,000	
Less: 5,000 shares unissued	500,000	
Issued and outstanding		$4,500,000
Retained Income		1,000,000

There has been transferred from the status of retained earnings to the status of capital stock $1,500,000 of the total proprietorship. By this action the directors have notified the stockholders that $1,500,000 of retained income has been permanently retained for growth and development of the enterprise. In fact the investment of this amount in plant, equipment and inventories has probably already taken place. Each stockholder now has three shares of stock for each two he formerly held. Should he desire to sell some of these shares he can do so more readily because the market price is lower as a result of the increase in the number of shares outstanding.

Corporate business enterprises may go out of existence by dissolution in several ways. Some of them involve complexities inappropriate for discussion in a first year accounting text.

One of them however should be discussed because of its relationship to the problem of valuation of assets.

Assume the following balance sheet of X Y Corporation;

Assets		$1,000,000
Liabilities	$250,000	
Capital Stock and Retained Income	750,000	$1,000,000

Now suppose that the R S Company wishes to buy the X Y Company and merge the two operations. The negotiations between representatives of the two groups of stockholders results in an agreed price of $950,000 for the entire outstanding stock of X Y Corporation. Two questions arise: (1) why is the offered price $200,000 in excess of the balance sheet figure for proprietorship, and (2) how shall it be recorded on the books of R S Company?

The possible explanations of the $200,000 difference are:

(1) some or all of the assets of the X Y Company are undervalued; (2) liabilities are overstated; (3) the net income of the enterprise justifies a larger investment. If (1) or (2) apply the action called for is an examination of the accounting records and adjustment of discovered errors in valuation. If neither (1) nor (2) apply then there exists what is known as goodwill.

The measure of goodwill is the measure of a valuation account applicable to *all* assets. It arises from the fact that the enterprise is earning a rate of return which warrants a larger investment. If 9% per annum is the rate of return which will attract investment capital to an industry and keep it there then prices will be paid for assets such that a 9% return will result. Prudent and competent management are, of course, assumed. If an enterprise in such an industry earns 14%, then a prospective investor in such an industry can afford to pay such prices for assets as will reduce the rate of return, not the absolute amount of net income, to 9%. The ensemble of specific assets well managed is worth more than the sum of the valuations assigned separately to them. This excess is called goodwill and will be set up on the books of R S Company in an account with that title.

Many interesting problems arise in connection with goodwill and are considered in more advanced works on accounting. The most common manifestation of the existence of goodwill, familiar to millions of Americans, is the excess of the selling price of a share of stock over its value as shown by the published balance sheet of the issuing corporation.

ASSIGNMENT MATERIAL

ASSIGNMENT MATERIAL FOR CHAPTER 1

Questions

Question 1–1. What are the distinguishing characteristics of the enterprise system?

Question 1–2. How many of the seven points identified with an enterprise can you identify with a one-family home?

Question 1–3. Would you expect to find the enterprise system in a totalitarian national state? Why, or why not?

Question 1–4. What have markets and the price system to do with accounting, or vice versa?

Question 1–5. Is it possible for a dictatorship to abolish the price system? Explain fully.

Question 1–6. What *is* accounting all about?

Question 1–7. What are the original sources of all primary accounting data? Why is this so?

Question 1–8. Define and illustrate the meaning of price and of value.

Question 1–9. Why are the economic characteristics of enterprises operated for profits more significant for accounting than the legal features of such enterprises?

Question 1–10. Of what significance for accounting is the consumption of services by business enterprises?

Question 1–11. What do you understand by "price system"?

Question 1–12. State the three reasons why accounting is necessary.

Question 1–13. What relationship exists between the investors in an enterprise and the management of the enterprise?

Question 1–14. Of what significance are prices in accounting?

Question 1–15. Does a business enterprise control any of the prices at which it purchases or sells?

ASSIGNMENT MATERIAL FOR CHAPTER 2

Questions

Question 2–1. Is there any connection between the fact that services yield benefits and the fact that services are valuable?

Question 2–2. Are all services valuable in any meaning of the term valuable? Why, or why not?

Question 2–3. Are all valuable services valuable in money? Why, or why not?

Question 2–4. What factor, or factors determine whether or not a given service is valuable in money to a given business enterprise?

Question 2–5. Upon what basis or bases are services classified in the discussion in the first section of this chapter?

Question 2–6. Do the words wealth and assets mean the same thing? Explain.

Question 2–7. Write the basic accounting equation and explain fully the meaning of each term in it.

Question 2–8. Write the modified basic equation and explain the meaning of each term in it.

Question 2–9. Define: asset, liability, proprietorship.

Question 2–10. How would you explain to a layman (to accounting) that the basic equation does not involve double counting?

Question 2–11. How many primary categories of data are there in accounting? Explain fully.

Question 2–12. Are there different types of transactions? If so illustrate and explain the nature of each type.

Question 2–13. List the nine equation types which cover all the possible paired changes in assets, liabilities, and proprietorship. Illustrate each type.

Question 2–14. Is the management of a business enterprise interested in knowing the amount of all types of changes in proprietorship? Explain fully.

Question 2–15. Just what *is* double-entry accounting?

Problems

Problem 2–1. For each of the following transactions write the appropriate equations to show separately the change in each asset, in each liability *and* the accompanying change in proprietorship. For each transaction sum the equations showing these separate changes to yield a final equation showing the *net* changes.

a. Henry Jones deposits $15,000 in the First National Bank to start a retail grocery business.

b. A check for $300 is drawn to pay one month's rental of the store premises.

c. Furniture and fixtures are installed at a cost of $3,200. A down payment of $800 is made, the balance to be paid at the rate of $100 a month over the next twenty-four months.

d. Merchandise costing $5,800 is purchased on account.

e. Newspaper advertising is paid for in the amount of $34.

f. Merchandise which cost $175 is sold for $340 cash.

g. Merchandise which cost $310 is sold for $585 on account.

h. The contractor who installed the furniture and fixtures requests that the unpaid balance of $2,400 due him be converted into twenty-four $100 notes payable. Mr. Jones accedes to this request.

i. A check for $2,950 is drawn as a part payment on the merchandise purchased.

j. $285 is received from customers who purchased merchandise on account.

Problem 2–2. Alexrod Parthington owns and operates an apartment house. During one month the following transactions occur.

a. $3,825 in cash is received on the first day of the month representing payment in advance by all tenants of rentals for that month.

b. The janitor is paid by check his last two weeks salary of $150.

c. The following bills are paid: fuel oil $85.72, telephone $19.50; plumbing repairs, $218.89.

d. Additional insurance on the building is taken out. The premium, not yet paid, amounts to $118.62.

e. New kitchen sinks are installed in two apartments at a cost of $289.50 each. They were purchased on account.

f. Mr. Parthington draws a check for $450 for his personal use.

g. A payment of $179.50 is made on the new kitchen sinks.

h. Mr. Parthington lends $350 to a long-time tenant to help out in an emergency.

Required:

1. Same requirements as in problem 2–1.
2. Write out the final cumulative equation showing the effects of all the transactions.

Problem 2–3. The following transactions of the Zenith Department Store took place during September, 1955:

a. Collections of accounts receivable, $10,483.72.

b. Payments on accounts payable, $4869.25.

c. Sales on account, $21,682.78.

d. Sales for cash, $19,764.33.

e. Payment of various expenses, $1,843.59.

f. Withdrawal of cash by the owner, $650.

g. Purchase of merchandise on account, $16,431.97.

h. Payment to Y National Bank of $2,500 due on promissory notes payable.

Required:

The same as in problem 2–2.

Problem 2–4. The records of Del Ray Theatre show the following transactions for June 1955.

a. Box office receipts, $12,480.40.
b. Salaries paid, $1,460.
c. Film rentals paid, $675.
d. Newspaper advertising paid, $45.
e. Invoice received for reupholstering seats, $2,760.45.
f. Electric light bill received, $95.84.
g. The owner draws $600 cash for his personal use.
h. $1,560.45 is paid on the bill for repairs to seats.

Required:

The same as in problem 2–2.

Problem 2–5. There follow certain transactions of the Ace Laundry:

(1) Collected $42.50 from customer H. Q. Jones.
(2) Purchased $143.60 of supplies on account.
(3) Paid wages of $349.50.
(4) Received telephone bill for $31.87.
(5) Paid $87.50 on the supplies in item (2), above.
(6) Billed customers for $1,864.27 for laundry work done.
(7) Borrowed $1,500 from bank to be repaid in three months.
(8) Barton Tomlinson, owner of the laundry draws $300 for his personal use.
(9) Interest of $11.25 is paid on the loan from the bank.
(10) $1,142.39 is collected from customers.

Required:

1. For each transaction write the appropriate equations to show separately the change in each asset, in each liability, *and* the accompanying change in proprietorship. For each transaction sum the equations showing these separate changes to yield one equation showing the *net* changes.
2. Write out the cumulative equation showing the effects of all the transactions.

Problem 2–6. The following transactions relate to Local Department Store.

(1) A. J. Owner invests $15,000 cash.
(2) Property is leased and $300 paid as the first month's rent. $300 is also paid as a deposit covering the rent for the last month of the lease.
(3) $3,780 of furniture and fixtures are installed. A payment of $1,780 is made, the balance to be paid in two equal installments.
(4) Merchandise of $4,950 is purchased on account.
(5) A. J. Owner draws $450 for his own use.
(6) Merchandise costing $400 is sold for $600 cash.
(7) Merchandise costing $180 is sold for $255 on account.
(8) Wages of $180 are paid in cash.
(9) $1,000 is paid on the bill for furniture and fixtures.
(10) $176 is collected from the customer to whom the sale was made on account.
(11) Merchandise costing $367 is sold for $349 on account.
(12) $1,890 is paid on the bill for the merchandise purchased on account.

Required:

1. Same requirements as in problem 2–5.

Problem 2–7. At the beginning of its second year of operations the following cumulative equation was taken from the records of Wholesale Grocers:

Cash $2,190 + Accounts Receivable $6,280 + Merchandise $25,620 + Equipment $3,795 = Accounts Payable $2,957 + Proprietorship 34,928

During the first month of the business year the following transactions take place:

(1) Sales on Account, $6,972. This merchandise cost $5,400.
(2) Sales for cash, $1,245. This merchandise cost $1,200.
(3) Purchases on account, $3,127.
(4) Wages and salaries paid, $642.
(5) Cash drawn by owner for his personal use, $250.
(6) Received bill for equipment repairs, $19.00.
(7) Collected $1,864 on accounts receivable.
(8) Paid $2,146 on accounts payable.
(9) Sold for $110 an old piece of equipment that cost $245.
(10) Miscellaneous expenses paid, $94.00.

Required:

Starting with the beginning cumulative equation complete the requirements of problem 2–5.

Problem 2–8. The records of Homelike Hotel show the following:

Cash $450 + Deposit on Lease $700 + Furniture and Fixtures $21,000 + Office Equipment $810 + Linen and Bedding $5,700 + Cleaning Equipment $783 = Accounts Payable $1,297 + Proprietorship $28,146.

The following transactions take place:

(1) Occupancy revenue $2,795 of which $105 is still unpaid.
(2) Paid to landlord, $850 for one month's rent.
(3) Paid to landlord, $150 to increase lease deposit to new monthly rental.
(4) Paid wages, $975.
(5) Received bills for expenses, $310.
(6) Paid $897 on accounts payable.
(7) Collected $75 of the $105 in (1), above. The balance of $30 is uncollectible, the occupant having skipped town.
(8) Borrowed $500 from Local Bank.
(9) Received additional occupancy revenue of $870.
(10) Paid $4.50 interest on the loan from the bank.

Required:

The same requirements as in problem 2–7.

Problem 2–9. Marvel Jewelry Store reported the following transactions for 1955:

(1) $50,000 is deposited with Y National Bank.
(2) A location is leased for ten years at $500 per month. A check for $1,000 is drawn to cover the first and last month's rental.
(3) $12,000 of fixtures are installed. One third of the amount is paid in cash, the balance due in four installments.
(4) $20,000 of merchandise is purchased on account.
(5) A bill is received for $500 for advertising.

(6) Merchandise costing $900 is sold for $1,700 on account.
(7) Merchandise costing $400 is sold for $575 cash.
(8) Salaries of $490 are paid.
(9) An installment payment on the fixtures is made.
(10) $670 is collected on accounts receivable.
(11) The owner draws $600 for his personal use.
(12) $15,000 is paid on the merchandise purchased on account in (4), above.
(13) An item of jewelry costing $50 and sold on account for $90 (part of (6), above, (1) was lost by the delivery boy. No insurance was carried to cover such losses.

Required:

The same requirements as in problem 2–5.

Problem 2–10. On July 31, 1955 the records of First Class Restaurant showed the following cumulative equation:

Cash $910 + Accounts Receivable $121 + Furniture and Fixtures $13,800 + Kitchen Equipment $16,800 + Inventory of Food $640 = Accounts Payable $1,210 + Proprietorship $31,061.

There follow the transactions for August, 1955:

(1) Sales, $8,642, all for cash.
(2) Purchases of food $4,319, on account.
(3) Collections of $97 on accounts receivable. The remaining $24 is uncollectible.
(4) Wages and salaries paid, $972.
(5) An out of town customer's check for $10 is returned by the bank as no good.
(6) $3,649 is paid on accounts payable.
(7) $219 of miscellaneous expenses are paid in cash.
(8) The restaurant owner draws $350 cash.
(9) Kitchen equipment which cost $310 is sold for $25 as junk.
(10) A bill is received for $410 for upholstering the chairs.
(11) Food on hand at the end of the month amounts to $723.

Required:

1. Same requirements as in problem 2–7.

Problem 2–11. The transactions of Ace Novelty Company for the first six months of its operations are listed below.

(1) Martin Splevin, the owner, invests $10,000 cash.
(2) Premises are rented for $150 per month the first month's rent being paid in cash.
(3) Fixtures are installed at a cost of $1,800 of which one-half is paid for.
(4) $4,000 of merchandise is purchased for cash.
(5) $1,900 of merchandise is purchased on account.
(6) Sales, all for cash, amount to $7,960.
(7) Wages and salaries paid were $2,400.
(8) Splevin drew $600 for his personal use.
(9) $1,200 is paid on the $1,900 due in (5).
(10) Other expenses, paid in cash, amounted to $1,950.

Required:

The same requirements as in problem 2–5.

Problem 2–12. Wholesale Feed Dealers, Inc. reported the following transactions for December, 1955:

(1) Sales for cash, $18,190.
(2) Sales on account, $15,680.
(3) Payment of interest on bank loan, $143.
(4) Collections from customers, $4,860.
(5) Payment of rentals, $1,840.
(6) Receipt of bill for heat and light, $29.76.
(7) Payment of salaries and wages, $1,460.
(8) Purchases on account, $12,640.
(9) Payment of other expenses, $840.
(10) Payment on purchases on account, $8,130.

Required:

The same requirements as in problem 2–5.

Problem 2–13. Daily Newspaper reported the following transactions for November, 1955:

(1) Billed advertisers, $18,650.
(2) Purchased paper on account, $10,680.
(3) Cash collected from subscribers, $4,680.
(4) Paid wages and salaries, $2,480.
(5) Received bill for electricity, $184.
(6) Received $280 from subscribers in payment of advance subscriptions.
(7) Collected $14,630 from advertisers who had been billed in (1).
(8) Paid $4,650 on the paper purchased in (2).
(9) Purchased $875 of furniture on account.

Required:

The same requirements as in problem 2–5.

Problem 2–14. Pure Dairy Products, Inc. reported the following transactions for August 1955:

(1) Purchases of milk on account, $14,865.
(2) Purchase of an additional delivery truck for $4,120, cash payment $800 the balance represented by three notes of equal amount.
(3) Purchases of eggs on account, $4,863.
(4) Sales for cash, $8,970.
(5) Sales on account, $12,950.
(6) Payment of salaries and wages, $2,973.
(7) Collections from sales on account, $8,970.
(8) Payment for purchases on account, $6,950.

Required:

The same requirements as in problem 2–5.

Problem 2–15. On August 31, 1955 the records of Automotive Parts, Inc. showed the following:

Cash $9,650 + Accounts Receivable $14,720 + Inventory $8,460 + Fixtures $3,140 = Accounts Payable $7,632 + Notes Payable $10,000 + Proprietorship $18,338.

During the month of September the following transactions took place:

(1) Payment of $3,000 on notes plus $90 interest.
(2) Collections from customers, $8,164.
(3) Cash sales, $8,976.

(4) Sales on account, $11,439.
(5) Paid on accounts payable, $5,374.
(6) Expenses paid, $1,410.
(7) A customer owing $460 is bankrupt.
(8) Purchases on account, $5,932.
(9) Salaries and wages paid, $2,273.
(10) Merchandise sold for cash cost $5,327; that sold on account cost $6,497.

Required:

Start with the cumulative equation of August 31, 1955 and complete the requirements for problem 2–5.

ASSIGNMENT MATERIAL FOR CHAPTER 3

Questions

Question 3–1. What is a ledger account?

Question 3–2. Is it possible to maintain a record of the transactions of a business enterprise by using equations only? Explain.

Question 3–3. When ledger accounts are used can we still maintain the basic equations? Explain fully.

Question 3–4. Explain the difference between statistical category, class, and sub-class?

Question 3–5. Are ledger accounts related in any way to statistical categories, classes, and sub-classes?

Question 3–6. Upon what basis or bases are accounting data classified?

Question 3–7. A department store has 45,000 charge account customers. For each one it maintains a ledger account. These individual ledger accounts are controlled by having a summary account for groups for them, e.g., a summary account for all customers whose last name begins with letters A, B and C, etc.

Are the individual accounts and the summary accounts categories, classes, or sub-classes of data? Explain.

Question 3–8. Why is it necessary to have transaction details properly summarized?

Question 3–9. How would you proceed to determine how many separate accounts should be maintained for assets? For liabilities?

Question 3–10. Upon what criteria would you determine the basis of classifying assets and liabilities?

Question 3–11. What are the shortcomings of the equation form as a device for maintaining the details of transactions?

Question 3–12. Does the equation form for recording transactions possess any advantages?

Question 3–13. Why is it necessary to show separately the total of increases and the total of decreases of each asset and of each liability?

Question 3–14. Is a ledger account related in any way to the cumulative equation?

Question 3–15. Why are the increases and decreases in the three categories of accounts located as they are as to left and right sides of the accounts?

Problems

Problem 3–1.

a. Using the data of problem 2–1 set up "T" accounts and enter the transactions, cross indexing the elements of each equation with letters in brackets.

b. Write out the resulting modified basic equation using the *gross* amount of all left and right hand totals.

c. Repeat b, above, using only the excess of increases over decreases in each ledger account.

Problem 3–2. Use the data of problem 2–2 and do the work called for in problem 3–1.

Problem 3–3. Use the data of problem 2–3 and do the work called for in problem 3–1.

Problem 3–4. Use the data of problem 2–4 and do the work called for in problem 3–1.

Problem 3–5. Use the data of problem 2–5 and do the work called for in problem 3–1.

Problem 3–6. Use the data of problem 2–6 and do the work called for in problem 3–1.

Problem 3–7. Use the data of problem 2–7 and do the work called for in problem 3–1.

Problem 3–8. Use the data of problem 2–8 and do the work called for in problem 3–1.

Problem 3–9. Use the data of problem 2–9 and do the work called for in problem 3–1.

Problem 3–10. Use the data of problem 2–10 and do the work called for in problem 3–1.

Problem 3–11. Use the data of problem 2–11 and do the work called for in problem 3–1.

Problem 3–12. Use the data of problem 2–12 and do the work called for in problem 3–1.

Problem 3–13. Use the data of problem 2–13 and do the work called for in problem 3–1.

Problem 3–14. Use the data of problem 2–14 and do the work called for in problem 3–1.

Problem 3–15. Use the data of problem 2–15 and do the work called for in problem 3–1.

ASSIGNMENT MATERIAL FOR CHAPTER 4

Questions

Question 4–1. Any transaction may be recorded as an equation or as a journal entry. Are the two methods related in any way? Explain fully.

Question 4–2. What advantages does the journal entry have over the equation as a method for recording business transactions? Explain fully.

Question 4–3. An examination of the conventional two-column journal and the conventional ledger account discloses considerable similarity between them. Is this a chance resemblance or are there reasons for it? Explain.

Question 4–4. Illustrate and explain the use of a two-column journal.

Question 4–5. Are the position of the plus and minus signs on the ledger accounts related in any way to the equation form of recording transactions? Explain fully.

Question 4–6. Why does an explanation of each transaction usually follow the journal entry recording it?

Question 4–7. Try to set up a book of original entry that would use only the equation form of transaction analysis.

Question 4–8. Is it always true that debit and left side are synonymous and that credit and right side are synonymous when referring to ledger accounts? Why?

Question 4–9. Do debit and credit always mean left and right when referring to a journal entry? Explain.

Question 4–10. Why couldn't the journal be eliminated and entries in ledger accounts made directly from the basic documents? Explain.

Question 4–11. Write out a set of instructions to be followed in sequence that should assist a bookkeeper in analyzing a transaction prior to writing out the appropriate journal entry for it.

Question 4–12. Explain why the position of plus and minus signs on subdivisions of the proprietorship account differ from their position on the primary account.

Question 4–13. Supplying your own data show algebraically why the decreases in proprietorship called expenses show increases on the left side and decreases on the right side.

Problems

Problem 4–1. Using the data of problem 2–1.

a. Prepare journal entries with appropriate explanations.

b. Post the journal entries to the ledger accounts, properly cross-indexing all entries.

c. Write the cumulative equation using the gross increases *and* decreases in each account.

d. Write the cumulative equation using only the balance in each account.

Problem 4–2. Using the data of problem 2–2 satisfy the requirements of problem 4–1.

Problem 4–3. Using the data of problem 2–3 satisfy the requirements of problem 4–1.

Problem 4–4. Using the data of problem 2–4 satisfy the requirements of problem 4–1.

Problem 4–5. The X Company pays $600 cash for one month's rent in advance.

a. By means of equations show the agebraic effect of this transaction on the primary proprietorship account and on the rent account according to the pattern demonstrated in the last section of Chapter 4.

b. Set up journal entries to record what you show in part "a", above.

c. Post the journal entries to the ledger accounts.

d. How do you explain the fact that the original asset cash ($600) is now classified as a statistical subdivision of proprietorship?

Problem 4–6. One month's returned sales of the X Company amounted to $190.

Required:

Parts a, b and c of problems 4–5.

d. How do you explain the fact that returned sales as well as the merchandise which was returned are *both* entered as left hand items in the ledger accounts?

Problem 4–7. Using the *totals only* of the increases and decreases in the accounts of The X Company as shown in Chapter 4:

a. Set out the appropriate detailed equations according to the pattern illustrated in Chapter 2.

b. Set up journal entries to record these same *totals only* of increases and decreases.

c. Post the journal entries to the ledger accounts properly cross-indexed.

d. Write the cumulative equation using the total increases and total decreases in each account.

e. Write the cumulative equation using only the balance in each account.

f. Show, algebraically, how you obtained the equation in "e" from the equation in "d".

Problem 4–8. Using the data of problem 2–5 satisfy the requirements of problem 4–1.

Problem 4–9. Using the data of problem 2–6 satisfy the requirements of problem 4–1.

Problem 4–10. Use the data of problem 2–7 and

1. Set up the data of the initial cumulative equation in ledger accounts.
2. Satisfy the requirements of problem 4–1.

Problem 4–11. Using the data of problem 2–8 satisfy the requirements of problem 4–10.

Problem 4–12. Using the data of problem 2–9 satisfy the requirements of problem 4–1.

Problem 4–13. Using the data of problem 2–10 satisfy the requirements of problem 4–10.

Problem 4–14. Using the data of problem 2–11 satisfy the requirements of problem 4–1.

Problem 4–15. Using the data of problem 2–12 satisfy the requirements of problem 4–1.

Problem 4–16. Using the data of problem 2–13 satisfy the requirements of problem 4–1.

Problem 4–17. Using the data of problem 2–14 satisfy the requirements of problem 4–1.

Problem 4–18. Using the data of problem 2–15 satisfy the requirements of problem 4–1.

ASSIGNMENT MATERIAL FOR CHAPTER 5

Questions

Question 5–1. What is the nature of gross operating income?

Question 5–2.

a. What are the two important concepts for which the word "cost" serves as a word handle?

b. For which of these concepts is the word expense a synonym?

Question 5–3. In what way, if any, are the concepts cost and asset related? Explain fully.

Question 5–4. How would you define net operating income?

Question 5–5. What is the nature of a valuation account and what purpose does it serve? Explain fully.

Question 5–6. How is gross operating income for a period measured for an enterprise which sells only for cash?

Question 5–7. How are costs for a period measured for an enterprise which buys all services for cash and uses up all of them by the end of the period?

Question 5–8. Show why returned sales and allowances on sales are neither assets nor costs.

Question 5–9. What is a statistical time series?

Question 5–10. Name the four statistical time series that are so very important in accounting and explain *very* fully how the members of each pair are related.

Question 5–11. If an enterprise sold only for cash (coin, currency, and checks) how would you proceed to measure gross operating income for a period?

Question 5–12. Is there any basic difference between returned sales and allowances on sales? Explain fully.

Question 5–13. The argument is sometimes put forward that valuation accounts such as returned sales and discount on sales are only statistical subclasses of sales. How would you counter such a statement?

Question 5–14. How would you explain to the owner of a cash basis business what he should do to determine the costs or expenses for a period.

Question 5–15. Is it true that net income is, in the final analysis, in the form of cash? Why, or why not?

Question 5–16. Do accounting data form time series because of any essential characteristic of business enterprise operations? Explain.

Problems

Problem 5–1. A business, conducted in every respect on a cash basis, and with no unconsumed services on hand at the end of any month, showed the following:

Month	Cash Receipts*	Expenses
April	$14,650	$13,679
May	15,195	14,121
June	13,867	12,957
July	13,000	11,246
August	14,129	12,875
September	14,923	13,157

a. From the foregoing data set up the four item series by related pairs.

b. Compute the net income for each month.

Problem 5–2. The R S Company which conducts its operations strictly on a cash basis, and has no unconsumed services on hand at the end of any month, showed the following:

Month	Gross Sales	Returned Sales	Cash Disbursed For Allowances On Sales	Expenses
July	$25,462	$384	$150	$23,462
August	29,381	315	175	27,151
September	30,567	375	167	27,964
October	29,445	410	154	28,121
November	33,879	427	189	30,487
December	41,462	672	211	38,163

a. From the foregoing data set up the four time series by related pairs.

b. Compute the net income for each month.

Problem 5–3. Richard Wigson, Prop. operates a strictly cash basis business in every respect and is careful not to have any unused services on hand at the end of each month. The following data have been taken from his accounting records:

Month	Purchases	Returned Purchases	Returned Sales	Allowances On Sales	Net Income	Other Expenses
January	$4310	$110	$175	$ 25	$4560	$564
February	4860	95	310	87	4384	478
March	4725	115	247	93	5175	647
April	5364	124	336	76	5110	765

a. Compute the net sales for each month setting forth the work in tabular form.

b. Set up the four time series by related pairs.

Problem 5–4. From the records of Five and Dime, a local cash basis business, the following data are drawn:

*Does not include any contributions by investors.

Month	Returned Purchases	Net Sales	Returned Sales	Allowances on Sales	Net Income	Other Expenses
April	$146	$3,100	$143	$46	$310	$1,255
May	210	2,967	97	95	286	1,198
June	197	3,043	112	68	297	1,274

Required:

a. For each month compute gross sales, and purchases, setting forth the work in tabular form.
b. Set-up the four time series by related pairs.

Problem 5–5. Harvey T. Smelter operates a strictly cash basis business. From the records of this business the following data are obtained:

Month	Net Purchases	Returned Purchases	Net Sales	Returned Sales	Allowances on Sales	Net Income
July	$6,310	$ 65	$10,500	$ 85	$ 63	$ 967
August	7,100	69	10,800	97	70	1,040
September	6,900	73	10,300	101	61	1,060
October	7,300	65	11,000	125	59	1,210
November	10,200	104	14,600	160	108	1,640
December	11,100	97	15,200	310	123	1,810

Required:

a. For each month compute gross purchases, gross sales, and other expenses, setting forth the work in tabular form.
b. Set up the four time series by related pairs.

Problem 5–6. The following data were obtained from the accounting records of Local Department Store, a strictly cash basis business:

Month	Net Purchases	Sales Net of Returns	Allowances on Sales	Returned Sales	Other Expenses
April	$1,810	$3,045	$ 45	$ 90	$1,460
May	1,940	3,310	51	104	1,505
June	2,160	3,900	62	110	1,495
July	2,420	4,060	68	125	1,585
August	1,650	2,975	39	87	1,396
September	1,920	3,460	47	115	1,487

Required:

a. For each month compute gross sales, net sales, and net income, setting forth the work in tabular form.
b. Set up the four time series by related pairs.

Problem 5–7. Manual A. Zorilla operates a small retail store on a strictly cash basis. The following data were obtained from the records of his business:

Month	Net Purchases	Returned Purchases	Net Sales	Returned Sales	Allowances on Sales	Net Income
January	$6,400	$ 30	$10,500	$ 85	$ 63	$ 967
February	7,100	35	11,300	97	65	988
March	7,300	41	11,200	95	58	1,015
April	8,500	150	12,100	104	52	1,142
May	8,000	98	11,900	115	96	1,097
June	9,100	141	13,400	121	123	1,243

Required:

a. For each month compute gross purchases, gross sales, and other expenses, setting forth the results in tabular form.

b. Set up the four time series by related pairs.

c. Set up the cash account showing all changes therein each month, properly explaining each entry.

Problem 5–8. From the records of the X Y Company, a cash basis business, the following data have been obtained:

Month	Net Purchases	Sales Net of Allowances	Returned Sales	Allowances on Sales	Other Expenses
October	$ 8,600	$15,400	$145	$76	$6,410
November	11,200	19,200	187	81	7,125
December	14,500	21,600	210	97	7,915
January	8,000	13,900	142	51	6,145
February	7,900	12,460	137	47	6,010
March	8,800	14,310	129	63	5,980

Required:

a. For each month compute gross sales, net sales, and net income, setting forth the results in tabular form.

b. Set up the four time series by related pairs.

c. Set up the cash account showing all changes therein each month, properly explaining each entry.

Problem 5–9. Friendly Cash Grocery's accounting records contain the following data:

Month	Purchases	Returned Purchases	Sales	Returned Sales	Allowances on Sales	Net Income
May	$3,100	$ 60	$5,263	$ 41	$ 15	$468
June	4,200	71	6,795	53	18	517
July	3,900	64	6,842	57	21	594
August	4,100	68	6,493	49	19	581

Required:

a. For each month compute net purchases, net sales, and other expenses, setting forth the results in tabular form.

b. Set up the four time series by related pairs.

c. Set up the cash account showing all changes therein each month, properly explaining each entry.

Problem 5–10. John E. Torero operates a small, all cash basis, variety store. The following data were obtained from his accounting records.

Month	Net Purchases	Returned Purchases	Net Sales	Returned Sales	Allowances on Sales	Other Expenses
July	$ 4,200	$ 80	$ 7,000	$ 64	$31	$1,965
August	4,300	75	7,460	63	37	2,147
September	5,900	61	8,129	84	42	2,259
October	6,100	65	10,196	97	55	2,846
November	9,600	112	15,845	124	68	3,194
December	12,400	139	19,947	210	94	3,652

Required:

a. For each month compute gross purchases, gross sales, and net income, setting forth the results in tabular form.
b. Set up the four time series by related pairs.
c. Set up the cash account showing all changes therein each month, properly explaining each entry.

Problem 5–11. The following data were obtained from the records of a strictly cash basis business:

Month	Net Purchases	Net Sales	Net Income
April	$ 8,400	$13,941	$1,284
May	8,900	14,186	1,296
June	10,100	16,947	1,428
July	9,800	14,856	1,367
August	9,700	14,639	1,493
September	11,400	17,283	1,857

The records show that returned purchases average 2/10% of gross purchases, returned sales 3/20% of gross sales, and allowances on sales 1/20% of gross sales.

Required:

a. For each month compute gross purchases, returned sales, allowances on sales, gross sales and other expenses, setting forth results in tabular form.
b. Set up the four time series by related pairs.
c. Set up the cash account showing all changes therein each month, properly explaining each entry.

Problem 5–12. The R S Company, operated on a strictly cash basis, reported the following:

Month	Net Purchases	Sales Net of Returns	Allowances on Sales	Returned Sales	Net Income
August	$ 4,954	$ 8,657	$ 47	$121	$ 875
September	5,328	8,984	49	136	764
October	5,976	9,328	57	149	1,012
November	8,835	14,681	96	197	1,367
December	10,372	17,195	137	213	1,684
January	8,147	13,267	84	184	1,295

Required:

a. For each month compute gross sales, net sales, and other expenses.
b. Set up the cash account showing all changes therein each month, properly explaining each entry.
c. Set up the four time series by related pairs.

ASSIGNMENT MATERIAL FOR CHAPTER 6

Questions

Question 6–1. What is a trial balance?

Question 6–2. Does any relationship exist between a trial balance and the cumulative accounting equation? Explain fully.

Question 6–3. Write out, in the form of instructions, the steps necessary to obtain a trial balance from a general ledger.

Question 6–4. Why do we qualify and speak of a "trial" balance? Why not speak of the balances in the general ledger accounts? Explain fully.

Question 6–5. Explain the relationship which exists between the work sheet and the cumulative equation.

Question 6–6. Supplying your own data illustrate the two methods of measuring net income for a period. Explain why the two methods yield identical results.

Question 6–7. Using hypothetical data present a demonstration of the algebra of working papers.

Question 6–8. What is meant by closing the accounts? Are all accounts "closed" at the end of each accounting period? Explain fully.

Question 6–9. What is the nature of a summary account and how is it used?

Question 6–10. A trial balance proves that no errors were made in maintaining the accounting records. Discuss.

Question 6–11. Does any relationship exist between working papers and the profit and loss or income and expense summary in the general ledger? Explain.

Question 6–12. What is the single-entry principle? How does it differ from the double-entry principle? Explain.

Question 6–13. Supplying your own data show how net income for a period can be determined on the single-entry principle.

Question 6–14. Do closing journal entries have their counterparts in working papers closing books? Explain.

Question 6–15. What relationship exists between the income and expense summary and, on the one hand, the individual income and expense accounts; on the other hand, the primary proprietorship account? Discuss.

Problems

Problem 6–1. The following accounts appear in the general ledger of the Bon Ton, a retail specialty store.

Cash	
$31,770.95	$15,038.29

Salary—Bookkeeper	
$325.00	

Merchandise Purchases	
$11,941.62	

Rent	
$785.00	

Telephone	
$17.85	

Commissions—Salespeople	
$791.63	

Advertising	
$174.63	

Light and Heat	
$23.79	

Stationery	
$21.42	

H. Q. Jones, Proprietorship	
	$15,486.47

Delivery Costs	
$68.97	

H. Q. Jones, Withdrawals	
$750.00	

Sales	
	$15,942.81

Returned Sales	
$110.46	

Returned Purchases	
	$341.67

Allowances on Sales	
$27.92	

The business is conducted on the cash basis throughout. There are no unused services at the end of the period, which is August, 1955.

Required:

a. A trial balance, at August 31, 1955.
b. Working papers.
c. An algebraic statement of the working papers data.
d. Closing journal entries.
e. An income account and ledger accounts with the closing entries properly posted.
f. A trial balance *after* the closing entries have been posted.

Problem 6–2. The trial balance of Adele's Speciality Shop at June 30, 1955 was as follows:

Cash	$24,914.23	
Purchases	37,682.95	
Returned Purchases		$ 97.63
Sales		57,631.28
Returned Sales	163.90	
Allowances on Sales	41.23	
Rent	850.00	
Clerical Salaries	975.00	
Salespeople's Salaries	3,867.92	
Telephone	16.97	
Advertising	326.87	
Light and Heat	137.62	
Janitor—Salary	295.00	
Proprietorship		12,292.78
Withdrawals by Proprietor	750.00	
	$70,021.69	$70,021.69

Required:

Parts b through f of problem 6–1.

Problem 6–3. From the following data prepare:

a. Working papers.
b. An algebraic statement of the working papers data.
c. Closing journal entries.
d. An income account with the closing entries properly posted.

Local Cash Store
Trial Balance
June 30, 1955

Cash	$ 4,162.87	
Purchases	8,962.25	
Returned Purchases		$ 96.53
Sales		12,876.29
Allowances on Sales	46.87	
Returned Sales	124.93	
Advertising	461.25	
Salaries	1,842.97	
Wages	115.44	
Miscellaneous Expense	81.23	
Light and Heat	17.96	
Office Expense	134.28	
Telephone and Telegraph	15.65	
Proprietorship		3,202.88
Withdrawals by Proprietor	210.00	
	$16,175.70	$16,175.70

Problem 6–4.

X Y Company
Trial Balance
March 31, 1955

Advertising	$ 124.63	
Allowance on Sales	63.28	
Cash	3,129.57	
Delivery Expense	215.39	
Light and Heat	84.21	
Office Expense	187.63	
Purchases	6,942.87	
Returned Purchases		$ 97.84
Returned Sales	131.56	
Miscellaneous Expenses	1,942.87	
Sales		14,106.11
Proprietorship		1,764.89
Salaries	3,146.83	
	$15,968.84	$15,968.84

Required:

The same as in problem 6–3.

Problem 6–5.

Local Cinema
Trial Balance
August 31, 1955

Cash	$ 4,864.39	
Film Rental	841.67	
Advertising	134.28	
Neon Sign Rental	96.53	
Salaries	1,897.50	
Admissions Revenue		$ 7,684.97
Electricity	310.49	
Heat	46.84	
Insurance	146.95	
Taxes	84.33	
Office Supplies	65.92	
Telephone	18.53	
Proprietorship		1,762.02
Miscellaneous Expense	439.56	
Property Rental	500.00	
	$ 9,446.99	$ 9,446.99

Required:

The same as in problem 6–3.

ASSIGNMENT MATERIAL FOR CHAPTER 7

Questions

Question 7–1. Explain the nature of the balance sheet and of the income statement. Of what use are they?

Question 7–2. On what basis would you select one of the four forms of income statement if you were asked to prepare one? Explain fully.

Question 7–3. What are the good and bad features of each of the four forms of income statement? Explain fully.

Question 7–4. Is there a "best" form of income statement? Explain fully.

Question 7–5. How is the balance sheet related to the trial balance? To the working papers?

Question 7–6. Is the income statement related in any way to the trial balance? To the working papers?

Question 7–7. If you were furnished with a balance sheet and the related income statement could you prepare the working papers? Explain fully.

Question 7–8. Why is a balance sheet always referred to a point in time, that is, to a particular date? Is this necessarily so? Explain fully.

Question 7–9. Must an income statement always refer to a period of time? Why, or why not? Discuss fully.

Question 7–10. Can you suggest any criteria for arranging items in an income statement?

Question 7–11. If you were the owner of the X Company which of the four suggested forms of income statement would you prefer? Why?

Question 7–12. Try your hand at drawing up arrangements of the income statement different from the four illustrated in this chapter.

Question 7–13. Is it possible to prepare an income statement and a balance sheet directly from the ledger accounts without working papers? Explain fully.

Question 7–14. Suppose the proprietorship account were not subdivided at all. Would it be possible to prepare an income statement? Why or why not? If your answer is yes, explain how you would do it.

Problems

Problem 7–1. Using the data of problem 6–1 prepare a balance sheet and each of the four forms of income statement.

Problem 7–2. Using the data of problem 6–2 prepare a balance sheet and each of the four forms of income statement.

Problem 7–3. Using the data of problem 6–3 prepare a balance sheet and each of the four forms of income statement.

Problem 7–4. Using the data of problem 6–4 prepare a balance sheet and each of the four forms of income statement.

Problem 7–5. Using the data of problem 6–5 prepare a balance sheet and each of the four forms of income statement.

ASSIGNMENT MATERIAL FOR CHAPTER 8

Questions

Question 8–1. How do cash discount and trade discount differ? Explain fully.

Question 8–2. Illustrate each of the three methods of recording cash discount on sales setting out the journal entries, posting to the ledger accounts, and preparing the relevant section or portion of the income statement.

Question 8–3. Which of the three methods of recording cash discount on sales is the "best" method? Why?

Question 8–4. Precisely what *is* cash discount on sales?

Question 8–5. Explain fully the meaning of and the use of the various accounts, involving cash discount on sales, as used in the three methods of recording cash discount on sales.

Question 8–6. How should freight-out be handled in the accounts and in the income statement? Explain fully.

Question 8–7. What difficulties are introduced into the problem of measuring net sales (gross operating income) when sales are made on account? Explain fully.

Question 8–8. How do we resolve the difficulties referred to in question 8–7? Explain fully.

Question 8–9. In what way are time series involved in the measurement of gross operating income (net sales) when sales are made on a credit basis? Illustrate and explain fully.

Question 8–10. The following accounts appear on a general ledger:

Estimated Allowances on Sales
Accounts Receivable
Uncollectible Accounts Receivable
Returned Sales
Estimated Uncollectible Accounts Receivable
Estimated Discount on Sales
Allowances on Sales
Estimated Returned Sales
Discount on Sales
Sales.

Explain the nature of each account, how the amounts entered in each one are determined, and the nature of the relationships that exist between each account and any other account.

Question 8–11. If all sales are on a cash basis how would you show in the balance sheet the balances in Estimated Allowances on Sales and Estimated Returned Sales? Explain fully.

Question 8–12. What is the nature of rental income? How does it differ from gross operating income? Explain fully.

Question 8–13. What is the nature of a credit balance in an account titled Rentals Received In Advance? How would you show it in a balance sheet?

Question 8–14. What is deferred income? Explain fully.

Question 8–15. How would you show deferred income in a balance sheet? Explain fully.

Problems

Problem 8–1. At the end of the calendar year 1954, the following accounts showed the balances listed opposite them in the books of X Y Mfg. Co.:

	Debit	Credit
Gross Sales		$375,462
Returned Sales	$ 740	
Allowances on Sales	435	
Discount on Sales	3,830	
Uncollectible Accounts Written Off	1,415	
Accounts Receivable	25,867	

1954 was the first year of business for this company. From a trade association the controller obtained the following statistics:

	Per Cent of Gross Sales
Uncollectible Accounts Receivable	0.49
Returned Sales	0.32
Discounts on Sales	1.04
Allowances on Sales	0.13

Required:

1. Prepare journal entries to adjust the appropriate accounts to reflect gross operating income for 1954.
2. Set up ledger accounts and post the journal entries.
3. Prepare the section of the balance sheet and of the income statement appropriate for the adjusted accounts.
4. Prepare working papers showing the measurement of gross operating income of 1954 together with proof of the arithmetic accuracy of the results.
5. Assume that the additional returned sales, allowances on sales, discount on sales, and uncollectible accounts written off, entered in the accounts in 1955, arising out of 1954 sales, brought the figure in each of these accounts just up to the total estimated.
   a. Prepare appropriate journal entries.
   b. Post the entries to the ledger accounts.
   c. Close out such ledger accounts as should be closed out.

Problem 8–2. Using the data of problem 8–1 assume the following:

	Excess of Actual Over Estimate	Excess of Estimate Over Actual
Uncollectible Accounts Receivable	$ 75.63	
Returned Sales		$42.18
Discount on Sales	175.91	
Allowances on Sales		15.67

Required:

1. Prepare appropriate journal entries.
2. Post the entries to ledger accounts.
3. Close such ledger accounts as should be closed out.

Problem 8–3. There follows a partial trial balance of the Ozone Bottling Company after six months of operation as at June 30, 1955:

	Debit	Credit
Returned Sales	$ 4,280	
Discount on Sales	11,957	
Gross Sales		$765,840
Uncollectible Accounts Written Off	987	
Accounts Receivable	94,686	
Allowances on Sales	1,629	

The expected amounts for certain of the items shown above for the six months ended June 30, 1955, were as follows: Returned Sales, $4,692; Discount on Sales, $12,683; Uncollectible Accounts Written Off, $1,098; Allowances on Sales, $1,763. By September 30, 1955 there remained no collectible balances in Accounts Receivable. The final figures, to which the foregoing estimates were adjusted, follow: Returned Sales $4,756; Discount on Sales, $12,587; Uncollectible Accounts Written Off, $1,047; Allowances on Sales, $1,894.

Required:

1. Prepare journal entries to adjust the appropriate accounts to reflect gross operating income for the period ended June 30, 1955.
2. Set up ledger accounts and post the journal entries.
3. Prepare the section of the balance sheet and of the income statement appropriate for the adjusted accounts.
4. Prepare working papers showing the measurement of gross operating income for the period in question.
5. Prepare journal entries, as at September 30, 1955, to adjust the accounts.
6. Close such accounts as should be closed.

Problem 8–4. The following ledger accounts show summaries of entries made in periods I and II before closing the accounts.

Estimated Allowances on Sales

Period II	$210	Period I	$175

Estimated Discounts on Sales

Period II	$3,850	Period I	$3,946

Estimated Uncollectible Accounts

Period II	$1,760	Period I	$1,840

Estimated Returned Sales

Period II	$2,210	Period I	$2,100

Uncollectible Accounts

Period I	$3,157

Allowances on Sales

Period I	$675

Returned Sales

Period I	$5,127

Discount on Sales

Period I	$13,467

Gross Sales

		Period I	$175,000

Cash

Period II	$32,874

At the end of period II there were no outstanding collectible accounts receivable resulting from sales made in period I.

Required:

1. Set up an account for accounts receivable and enter therein the sales for the period, all of which were on account, and the amounts entered therein in period I and period II for discounts on sales, cash collected, returned sales, uncollectible accounts written off, and allowances on sales.
2. Show in tabular form the calculation of all amounts entered in the account.
3. Determine the amount of over- or under-estimate of the four deductions from gross sales.

Problem 8–5. Parsonville Novelty Company operates strictly on a cash basis. It does, however, accept returns of merchandise from dissatisfied customers and grant price adjustments to them. A partial trial balance at the end of the first three months of 1955 appeared as follows:

	Dr.	Cr.
Cash	$14,680	
Sales		$29,756
Returned Sales	142	
Allowances on Sales	97	

On the basis of the company's own record the bookkeeper estimates that total returned sales will amount to $159 and that total allowances will be $118. Actually the figures turn out to be $151 and $103, respectively.

Required:

1. Prepare adjusting entries as at March 31, 1955 and post to ledger accounts.
2. Set up the ledger account balances in the income statement and in the balance sheet.
3. Prepare appropriate entries to be made *after* March 31, 1955.
4. What was the definitive gross operating income for the three months ended March 31, 1955? Show computations.

Problem 8–6. Completely rework problem 8–5 assuming that the final figures for returned sales and allowances on sales were $174, and $132, respectively.

Problem 8–7. Seaview Apartments general ledger contains in part the following as at December 31, 1954:

	Dr.	Cr.
Rentals Received in Advance		$1,460
Rental Income		9,780

The bookkeeper states that rentals covering December, 1954 in the amount of $340 are due from three tenants and that the balance in Rentals Received in Advance includes $185 applicable to December, 1954.

Required:

1. Prepare adjusting entries and post to ledger Accounts.
2. How much cash was received in 1954 representing rental income of 1954? Show computations.
3. Prepare partial working papers showing computations of gross income.

Problem 8–8. Home Publications, Inc. accepts subscriptions in advance for its several magazines. As at December 31, 1954 the following balances appeared, among others, in its general ledger:

	Debit	Credit
Subscription Income		$175,461
Subscriptions Received in Advance		296,875

Ninety-three percent of the Subscriptions Received in Advance applies to periods after December 31, 1954. There are due and payable $4,689 of subscriptions of which $512 applies to 1954. Bills have been mailed to the subscribers but have not been entered on the accounts.

Required:

1. Prepare adjusting entries and post to ledger accounts.
2. How much of Subscription Income for 1954 is represented by cash receipts? Show computations.

Problem 8–9. The following data were obtained from the records of Local Department Store covering its first six months of business ended June 30, 1955.

	Debit	Credit
Gross Sales		$410,987
Returned Sales	$ 387	
Allowances on Sales	254	
Discount on Sales	1,683	
Uncollectible Accounts Written Off	492	
Accounts Receivable	23,879	

Approximately 65% of gross sales were on account.
Discounts are 2% ten days, net 30 days.
Industry experience for a business of this volume is as follows: discount on sales, 34% of total discounts offered; returned sales, 0.27% of gross sales; allowances on sales, 0.17% of gross sales; uncollectible receivables, 0.19% of gross sales on account.

Subsequent to June 30, 1955 the following facts develop with reference to the first six months of 1955:

	Excess of Actual Over Estimated	Estimated Over Actual
Returned Sales	$69.74	
Discount on Sales		$127.63
Uncollectible Receivables		5.74
Allowances on Sales	19.84	

Required:

1. Prepare journal entries to adjust the accounts to reflect gross operating income for the six months ended June 30, 1955.
2. Set up ledger accounts and post the journal entries.
3. Prepare partial balance sheet and partial income statement.
4. Prepare partial working papers with proof of the arithmetic accuracy of the results.
5. Prepare journal entries to adjust the accounts after June 30, 1955, post to ledger accounts, and close such accounts as should be closed.

Problem 8–10. Variety Store sells only for cash. The following data taken from its records cover the three months ended September 30, 1955.

Sales	$13,897.64
Returned Sales	134.23
Allowances on Sales	76.54

Variety's own experience shows that returned sales approximate 1.12% of sales and that allowances on sales approximate 0.78% of sales.

By the end of October it is clear that both returned sales and allowances on sales were under-estimated, the former by $18.97, the latter by $9.63.

Required:

1. As at September 30, 1955.
   a. Adjusting entries to reflect gross operating income for the period.
   b. Ledger accounts with the journal entries properly posted.
   c. Partial income statement and partial balance sheet.
   d. Partial working papers with proof of arithmetic accuracy of results.
2. As at October 31, 1955.
   a. Adjusting journal entries properly posted and accounts closed where appropriate.
3. What were the definitive measures of gross sales, returned sales, allowances on sales, net sales, and cash received and retained arising out of business done in September, 1955?

Problem 8–11. The records of X Y Company showed, in part, the following on September 30, 1955:

Gross Sales		$184,657
Returned Sales	$ 1,241	
Allowances on Sales	675	
Discount on Sales	2,389	
Uncollectible Accounts Written Off	136	
Accounts Receivable	67,842	
Allowance For Returned Sales		184
Allowance For Allowances on Sales	27	
Allowance For Discount on Sales	41	
Allowance For Uncollectible Accounts		96

All sales were credit sales. The period covered is three months. X Y Company's experience shows the following:

	Per Cent of Gross Sales
Returned Sales	0.80 per cent
Allowances on Sales	0.38 per cent
Discount on Sales	1.61 per cent
Uncollectible Accounts Receivable	0.18 per cent

The accounts receivable at September 30, 1955 do not include any balances arising from sales made prior to July 1, 1955.

Required:

1. Prepare journal entries to adjust the accounts to reflect gross operating income for the three months ended September 30, 1955.
2. Prepare journal entries to adjust retained income as at June 30, 1955.
3. Set up ledger accounts and post the journal entries.

4. Prepare partial balance sheet and partial income statement.
5. Prepare partial working papers with proof of the arithmetic accuracy of the results.

Problem 8–12. The sales of Town Store are approximately 63% on account and 37% cash. From its records the following data are obtained as at December 31, 1955.

Gross Sales		$210,780
Returned Sales	$ 1,427	
Allowances on Sales	976	
Uncollectible Accounts Written Off	297	
Accounts Receivable	43,864	
Allowance For Returned Sales	173	
Allowance For Allowances on Sales	146	
Allowance For Uncollectible Accounts		115

The period covered is the three months ended December 31, 1955. All accounts receivable resulted from sales after September 30, 1955.

Town Store's experience record shows the following:

Returned Sales	0.87% of gross sales
Allowances on Sales	0.41% of gross sales
Uncollectible Accounts	0.22% of gross credit sales

Required:

1. Prepare journal entries to adjust the accounts to reflect gross operating income for the three months ended December 31, 1955.
2. Prepare journal entries to adjust retained income as at September 30, 1955.
3. Set up ledger accounts and post the journal entries.
4. Prepare partial balance sheet and partial income statement.
5. Prepare partial working papers with proof of the arithmetic accuracy of the results.

Problem 8–13. Approximately 85% of the customers of Omega Corporation take advantage of discounts offered them. In keeping with this practice Omega Corporation records all sales net of discounts and consequently maintains an account Discounts on Sales Not Taken.

On June 30, 1955 the following account balances were taken from its general ledger and cover the six months ended on that date.

Gross Sales		$186,594
Returned Sales	$218	
Allowances on Sales	96	
Uncollectible Accounts Written Off	157	
Discounts on Sales Not Taken		318

The experience of the enterprise is as follows:

Returned Sales	0.19% of gross sales
Allowances on Sales	0.06% of gross sales
Uncollectible Accounts	0.13% of gross sales
Discounts on Sales Not Taken	0.23% of gross sales

Required:

1. Prepare journal entries to adjust the accounts to reflect gross operating income for the six months ended June 30, 1955.

2. Set up ledger accounts and post the journal entries.
3. Prepare partial balance sheet and partial income statement.
4. Prepare partial working papers with proof of the arithmetic accuracy of the results.

Problem 8–14. The following data are taken from the general ledger of a manufacturing enterprise.

Gross Sales		$310,967
Returned Sales	$ 298	
Allowances on Sales	651	
Uncollectible Accounts Written Off	347	
Discounts on Sales Not Taken		210
Accounts Receivable	75,643	
Allowance For Returned Sales		98
Allowance For Allowances on Sales	46	
Allowance For Uncollectible Accounts		141
Allowance For Discounts on Sales Not Taken		78

The period covered is the three months ended September 30, 1955. All accounts receivable resulted from sales made subsequent to June 30, 1955. All the "Allowance For" accounts contain balances relating to business done prior to July 1, 1955.

The experience record of this business is as follows:

Returned Sales	0.15% of gross sales
Allowances on Sales	0.29% of gross sales
Uncollectible Accounts	0.34% of gross sales
Discounts on Sales Not Taken	0.12% of gross sales

Required:

1. Prepare journal entries to adjust retained income as at June 30, 1955.
2. Prepare journal entries to adjust the accounts to reflect gross operating income for the three months ended September 30, 1955.
3. Set up ledger accounts and post the journal entries.
4. Prepare partial balance sheet and partial income statement.
5. Prepare partial working papers with proof of the arithmetic accuracy of the results.

Problem 8–15. The following data were taken from a general ledger trial balance.

Gross Sales		$413,957
Returned Sales	$ 657	
Allowances on Sales	419	
Uncollectible Accounts Written Off	810	
Discounts on Sales Offered	8,241	
Discounts on Sales Not Taken		796
Accounts Receivable	65,974	
Allowance For Returned Sales	143	
Allowance For Allowances on Sales		29
Allowance For Uncollectible Accounts	138	
Allowance For Discounts on Sales Not Taken	68	

The period covered is six months ended September 30, 1955. All the "Allowance For" account balances relate to business done prior to April 1, 1955. The accounts receivable balance resulted from sales made after March 31, 1955.

The experience record of the company is as follows:

Returned Sales	0.18% of gross sales
Allowances on Sales	0.12% of gross sales
Uncollectible Accounts	0.23% of gross sales
Discounts on Sales Not Taken	0.37% of gross sales

Required:

1. Prepare journal entries to adjust retained income as at March 31, 1955.
2. Prepare journal entries to adjust the accounts to reflect gross operating income for the six months ended September 30, 1955.
3. Set up ledger accounts and post the journal entries.
4. Prepare partial balance sheet and partial income statement.
5. Prepare partial working papers with proof of the arithmetic accuracy of the results.

Problem 8–16. General Wholesalers trial balance shows, in part, the following at August 31, 1955:

Gross Sales		$156,854
Returned Sales	$ 483	
Allowances on Sales	218	
Discounts on Sales	1,960	
Uncollectible Accounts	397	
Accounts Receivable	39,643	

The period covered is the three months ended August 31, 1955, the first three months of operations.

Estimates for the three months follow:

Allowance For Returned Sales	$ 647
Allowance For Allowances on Sales	329
Allowance For Discounts on Sales	2,285
Allowance For Uncollectible Accounts	419

Required:

1. Prepare journal entries to adjust the accounts to reflect gross operating income for the three months ended August 31, 1955.
2. Set up ledger accounts and post the journal entries.
3. Prepare partial balance sheet and partial income statement.
4. Prepare partial working papers with proof of the arithmetic accuracy of results.

Problem 8–17. The following data were taken from the general ledger of M N Company at September 30, 1955.

	Dr.	Cr.
Gross Sales		$483,965
Accounts Receivable	$83,762	
Allowance For Returned Sales	1,321	1,964
Allowance For Allowances on Sales	983	672
Allowance For Discounts on Sales	2,497	1,376
Allowance For Uncollectible Accounts	843	918

The foregoing data cover the six months ended September 30, 1955. The credits in each "Allowance For" account refer to the six months ended March 31, 1955. An analysis of the debits in the "Allowance For" accounts discloses the following:

Allowance for	Total	Arising Out of Sales Made Prior to April 1, 1955	Arising Out of Sales Made Subsequent to March 31,1955
Returned Sales	$1,321	$ 967	$354
Allowances on Sales	983	698	285
Discounts on Sales	2,497	1,512	985
Uncollectible Accounts	843	763	80

The accounts receivable resulted from sales made after March 31, 1955. Estimates for the six months ended September 30, 1955 are as follows:

Returned Sales	$ 418
Allowances on Sales	376
Discounts on Sales	1,249
Uncollectible Accounts Receivable	146

Required:

1. Prepare journal entries to adjust retained income as at March 31, 1955.
2. Prepare journal entries to adjust the accounts to reflect gross operating income for the six months ended September 30, 1955.
3. Set up ledger accounts and post the journal entries.
4. Prepare partial balance sheet and partial income statement.
5. Prepare partial working papers with proof of the arithmetic accuracy of the results.

Problem 8–18. The June 30, 1955 trial balance of Alpha Corporation included the following items:

	Dr.	Cr.
Gross Sales		$875,648
Accounts Receivable	$123,649	
Allowance For Returned Sales	687	598
Allowance For Allowances on Sales	1,756	874
Allowance For Discounts on Sales	9,640	7,650
Allowance For Uncollectible Accounts	1,519	1,183

The sales are for the six months ended June 30, 1955. All accounts receivable arose out of sales made since December 31, 1954. The credits in each "Allowance For" account refer to the six months ended December 31, 1954. An analysis of the debits in the "Allowance For" accounts discloses the following:

Allowance for	Total	Arising Out of Sales Made Prior to January 1, 1955	Arising Out of Sales Made Subsequent to December 31, 1954
Returned Sales	$ 687	$ 602	85
Allowances on Sales	1,756	712	1,044
Discounts on Sales	9,640	7,938	1,702
Uncollectible Accounts	1,519	984	535

Estimates for the six months ended June 30, 1955 are as follows:

Returned Sales	$ 374
Allowances on Sales	1,369
Discounts on Sales	4,138
Uncollectible Accounts Receivable	876

Required:

1. Prepare journal entries to adjust retained income as at December 31, 1954.
2. Prepare journal entries to adjust the accounts to reflect gross operating income for the six months ended June 30, 1955.
3. Set up ledger accounts and post the journal entries.
4. Prepare partial balance sheet and partial income statement.
5. Prepare partial working papers with proof of the arithmetic accuracy of the results.

ASSIGNMENT MATERIAL FOR CHAPTER 9

Questions

Question 9–1. How would you define the term "cost or expenses for a period"?

Question 9–2. What are the possible time relationships between the recognition of cost or expense and the related disbursement of cash?

Question 9–3. What are the possible time relationships between the recognition of cost or expense and the consumption of the related services?

Question 9–4. What are the possible time relationships between the consumption of services and the related disbursement of cash?

Question 9–5. Are all the sets of time relationships mentioned in questions 9–2, 9–3 and 9–4 equally important? Explain fully.

Question 9–6. From the point of view of being acquired in advance of consumption and being stored, how many kinds or classes of services are there? Of what significance are the differences in storability for the purposes of accounting? Explain fully.

Question 9–7. Illustrate the two methods of classifying storable service sources. Is there any basis for preferring one method over the other? Explain fully.

Question 9–8. Illustrate three methods of recording cash discounts on merchandise purchased for resale, setting out the journal entries, posting to the ledger accounts, and preparing the relevant section or portion of the income statement.

Question 9–9. Which of the three methods of recording cash discount on purchases of merchandise is the "best" method? Why?

Question 9–10. Precisely what *is* cash discount on purchases?

Question 9–11. Explain fully the meaning of and use of the various accounts, involving cash discount on purchases, as used in the three methods of recording cash discount on purchases.

Question 9–12. Certain kinds of services cannot be purchased in advance of use and stored. Of what significance is this fact for accounting?

Question 9–13. What is an accrued account payable?

Question 9–14. Illustrate a "mixed" account. What accounting problem arises because an account is "mixed"? Discuss.

Question 9–15. Is it possible to prevent an account from becoming a "mixed" account? Discuss.

Question 9–16. How would you explain the term depreciation?

Question 9–17. What is the nature of the account Allowance For Depreciation?

Question 9–18. Why are not the periodic estimates of depreciation recorded as credits in the account for the asset being used up?

Problems

Problem 9–1. A partial trial balance of Henry Q. Jones Manufacturing Company follows:

	Dr.	Cr.
Advertising	$ 1,450	
Plant Wages	29,800	
Clerical Salaries	8,750	
Raw Materials Inventory, Beginning	4,600	
Finished Goods. Inventory, Beginning	9.700	
Raw Materials Purchased	46,280	
Finished Goods Produced	62,976	
Supplies Expense	1,410	
Stationery	187	

The following accruals have not been recorded: advertising $183, plant wages $1,637, clerical salaries, $396, raw materials purchases $963, supplies $87, and stationery $34.

Inventories on hand at the end of the period were: raw materials $3,982, supplies, $341, and stationery $46.

Required:

1. Prepare adjusting entries and post to ledger accounts.
2. Prepare reclassifying or "reversing" entries at the beginning of the next period.
3. Prepare partial working papers showing the measurement of partial costs or expenses for a period.

Problem 9–2. (a) A general ledger account appears as follows:

Janitorial Supplies
$189

An analysis of the facts concerning this account shows that $67 of supplies are on hand at the end of a period of which $43 worth represents a shipment not yet recorded in the accounts.

Required:

1. Prepare adjusting entries and post to ledger accounts.
2. Prepare "reversing", or reclassifying entries at the beginning of the next period and post to ledger accounts.
3. Prepare partial working papers.

(b) Using the data as above assume that the account title read "Janitorial Supplies—Expense".

Required:

1, 2 and 3 as in (a), above.

4. Explain the difference in the adjustments in the two accounts, Janitorial Supplies and Janitorial Supplies—Expense.
5. Is it possible to eliminate one of the "reclassification" accounts in (a) or in (b) and thus save time? If so illustrate and explain each case.

Problem 9–3. The following accounts appear on a general ledger:

Merchandise Inventory		Merchandise Purchases	
Balance	$16,897		$43,876

At the end of the period merchandise on hand amounted to $17,943. One invoice for $867 of merchandise on hand had not yet been recorded.

Required:

1. Prepare all journal entries at the end of the period and post to ledger accounts.
2. Prepare all journal entries at the beginning of the following period and post to ledger accounts.
3. Prepare partial working papers.

Problem 9–4. An invoice is received covering a purchase of $1,486.55 of merchandise, terms 2%, 10 days, net 30 days.

Required:

1. Assume that payment is made within the discount period. Prepare journal entries and post to ledger accounts for each of the three methods of recording discount on purchases. Explain the meaning of each account you use.
2. Assume that payment is made after the expiration of the discount period and proceed as in 1.

Problem 9–5. A trial balance includes the following:

	Dr.
Salaries	$4680.00
Telephone and Telegraph	49.67
Merchandise	3810.00
Office Supplies	131.27
Advertising	867.53

At the end of the period the following facts are disclosed: Salaries due and unpaid, $431.28; unrecorded telephone bill, $14.79; merchandise on hand, $1481.27; unrecorded invoice for merchandise received, $281.67; office supplies on hand, $84.67; unrecorded invoice for office supplies received, $21.95; unrecorded invoice for advertising, $181.67.

Required:

1. Prepare all adjusting journal entries at the end of this period and at the beginning of the next period and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–6. A partial trial balance follows:

	Dr.	Cr.
Accounts Receivable	$43,286.57	
Sales		$141,984.63
Returned Sales	141.62	
Allowances on Sales	91.83	
Discount on Sales	461.27	
Uncollectible Accounts Written Off	198.45	

Accounts Payable		6,394.87
Discount on Purchases		431.28
Merchandise Inventory	4,921.53	
Purchases	69,741.28	
Salaries	8,921.63	
Supplies	431.67	

The expected amounts for the period, of the following items is based on experience.

	Per Cent of Sales
Returned Sales	0.150
Allowances on Sales	0.095
Discount on Sales	0.380
Uncollectible Accounts Written Off	0.176

Discount on purchases is estimated at two-tenths of one percent of purchases.

Unrecorded unpaid invoices were: purchases, $964.28; supplies, $43.95.

Salaries due and payable amounted to $496.27.

Merchandise on hand at the end of the period amounted to $5,267.48. Supplies on hand amounted to $387.64.

Required:

1. Prepare all adjusting entries and post to ledger accounts.
2. Prepare partial working papers.
3. Prepare partial balance sheet and partial income statement.

Problem 9–7. There follows a partial trial balance:

	Dr.	Cr.
Rental Income		$4,681.90
Rentals Received In Advance		210.50
Taxes	$381.45	
Unexpired Insurance Premiums	396.84	
Building Repairs	110.67	
Elevator Repairs and Service	95.28	
Janatorial Supplies	65.43	
Stationery	18.95	

At the end of the period there were unrecorded unpaid invoices for insurance premiums, $21.67; building repairs, $49.60; elevator repairs, $96.87; janitorial supplies, $14.63; stationery, $5.63.

On hand at the end of the period there were inventories of janitorial supplies, $31.67; stationery, $14.68.

Unexpired insurance premiums at the end of the period amounted to $321.49, while taxes applicable to subsequent periods amounted to $267.55.

Uncollected rentals due amounted to $341.50.

Rentals Received In Advance applicable to subsequent periods was $100.00.

Required:

1. Prepare adjusting and closing entries at the end of the period and post to ledger accounts.
2. Prepare "reversing" entries at the beginning of the next period and post to ledger accounts.
3. Prepare partial working papers.

Problem 9–8. For both parts of this problem use the data of problem 9–6 relating to the measurement of gross operating income.

(a) Assume that the following period showed:

	Over Estimated	Under Estimated
Return Sales	$21.42	
Allowances on Sales		$12.96
Discount on Sales	96.37	
Uncollectible Accounts Written Off	41.67	

(b) Assume that the following period showed:

	Over Estimated	Under Estimated
Returned Sales		$19.63
Allowances on Sales	$11.67	
Discount on Sales	14.21	
Uncollectible Accounts Written Off		39.87

Required: For (a) and for (b), independently:

1. Prepare journal entries and post to ledger accounts.
2. In tabular form (see page 88) show the analysis of gross operating income for the period in which the sales were made.

Problem 9–9. The Corner Store trial balance included the following items at November 30, 1955:

	Dr.	Cr.
Merchandise		$4,283
Discount on Purchases		410
Salaries	$1,845	
Supplies	210	
Advertising	438	

Unrecorded invoices have been received for $1,262 of merchandise, $46 of supplies, and $76 of advertising. Unpaid, unrecorded salaries amount to $247. Supplies on hand total $133. Merchandise inventory at November 30, 1955 was $786. Beginning inventory plus recorded purchases amounted to $5,793. All purchases and sales are entered in the account merchandise.

Required:

1. Prepare all adjusting journal entries at November 30, 1955 and at December 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–10. The May 31, 1955 trial balance of Wholesale Grocers Inc. included the following items:

	Dr.
Purchases (including beginning inventory)	$42,864
Freight and Cartage in	563
Discount on Purchase Not Taken	187
Rent	3,100
Salaries and Wages	4,967
General Supplies Expense	136
Office Supplies	98

Unrecorded, unpaid salaries and wages amount to $384. Rent has been prepaid for two months at $275 per month. Unrecorded invoices have been received for $1,967 of purchases, $39 of freight and cartage in, $27 of general

supplies, and $18 of office supplies. Inventories on hand at May 31, 1955 were: merchandise $11,467; general supplies $47; office supplies $39. It is estimated that $315 of available discounts on accounts payable will be lost.

Required:

1. Prepare all adjusting journal entries at May 31, 1955 and at June 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–11. A trial balance at March 31, 1955 includes the following:

	Dr.	Cr.
Accounts Payable		$87,645
Discounts on Purchases Available	$2,418	
Discounts on Purchases Taken		1,943

The $2,418 applies in its entirety to the three months ended March 31, 1955. Of the $1,943 discounts on purchases taken, $187 applies to the period ended December 31, 1954 and the balance to the period ended March 31, 1955. It is estimated that of the discounts still available all but $113 will be taken.

Required:

1. Prepare all adjusting journal entries at March 31, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–12. The February 28, 1955 trial balance of Omega Company includes the following items:

	Dr.	Cr.
Accounts Payable		$73,298
Purchases	$297,654	
Discounts on Purchases		4,167
Allowance For Discount on Purchases		289
Supplies Expense	398	

Purchases includes the beginning inventory. Unrecorded invoices include: purchases, $1,763; supplies, $43. The balance of $289 in Allowance For Discount on Purchases applies to the period ended December 31, 1954. Available discounts on purchases are estimated at 2% of 78% of the unpaid accounts payable at February 28, 1955. Inventory of merchandise is $29,684 and of supplies, $74, at February 28, 1955.

Required:

1. Prepare all adjusting journal entries at February 28, 1955 and at March 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–13. From the April 30, 1955 trial balance of Zeta Corporation the following items have been selected:

	Dr.	Cr.
Accounts Payable		$19,650
Discounts on Purchases Available	$ 864	
Discounts on Purchases Taken		1,954
Allowance For Discounts on Purchases	187	
Purchases	39,863	
Merchandise Inventory February 28, 1955	8,432	
Furniture and Fixtures	9,763	
Allowance For Depreciation, Furniture and Fixtures		1,385

Allowance For Discount on Purchases of $187 was set up on February 28, 1955. Of the discounts on purchases taken $213 applies to the accounts payable arising out of purchases made prior to March 1, 1955. On April 30, 1955 available discounts on purchases should equal four per cent of accounts payable.

Unrecorded invoices for merchandise purchases amounted to $3,788.

Depreciation on furniture and fixtures is 12% per year.

Required:

1. Prepare all adjusting journal entries at April 30, 1955 and at May 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–14. The following general ledger account balances were obtained from the records of R S Company as of May 31, 1955.

	Dr.	Cr.
Accounts Payable		$15,974
Purchases	$31,863	
Discounts on Purchases		410
Allowance For Discounts on Purchases		73
Salaries and Wages	3,463	
Janitorial Supplies	87	
Office Supplies Expense	136	

Purchases included beginning inventory. The balance in Allowance For Discount on Purchases arose out of purchase made prior to March 1, 1955.

The following items were unrecorded at May 31, 1955; merchandise purchases, $1,613; salaries and wages, $218; office supplies, $39; janitorial supplies, $17.

Inventories on May 31, 1955 were: merchandise, $3,796; janitorial supplies, $24; office supplies, $49.

Provision should be made for discounts on purchases to the extent of 3½% of 40% of accounts payable at May 31, 1955.

Required:

1. Prepare all adjusting journal entries at May 31, 1955 and at June 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–15. A trial balance includes, among others, the following items at August 31, 1955:

	Dr.	Cr.
Accounts Payable		$18,760
Merchandise	$ 1,418	
Purchase Discounts Available	563	
Purchase Discounts Taken		746
Advertising	487	
Rent	1,500	
Packing Supplies Expense	310	

All purchases and sales of merchandise are entered in the account, Merchandise. The inventory at June 1, 1955 was $4,687; at August 31, 1955 it was $5,638. Purchases for the three months ended August 31, 1955 were $39,768.

The balance in Purchase Discounts Available applies to accounts payable which were outstanding May 31, 1955. $137 of the balance in Purchase Dis-

counts Taken applies to purchases on account made since May 31, 1955. Discounts available at August 31, 1955 amount to $496.

Unrecorded invoices cover $763 of merchandise, $115 advertising, and $64 of packing supplies.

Rent amounts to $250 per month and has been prepaid for three months.

Required:

1. Prepare all adjusting journal entries at May 31, 1955 and at August 31, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–16. From the October 31, 1955 trial balance of Zeta Company the following items have been selected:

	Dr.	Cr.
Accounts Payable		$ 9,684
Merchandise		3,763
Purchase Discounts Lost	$ 97	
Delivery Truck Repairs	146	
Delivery Truck	4,180	
Gasoline and Oil Expense	136	
Allowance For Depreciation Delivery Truck		1,245

Unrecorded invoices at October 31, 1955 were for $817 of merchandise, $27 of gas and oil, and $46 of delivery truck repairs.

All purchases and sales are recorded in the merchandise account. The inventory September 1, 1955 was $6,984; at October 31, 1955 it was $6,311. Sales for the two months ended October 31, 1955 were $29,486.

Depreciation on the delivery truck is at the rate of 20% per year.

Gasoline and oil inventory at October 31, 1955 was $48.

It is estimated that an additional $114 of discounts will be lost.

Required:

1. Prepare all adjusting journal entries at October 31, 1955 and at November 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–17. A portion of the August 31, 1955 trial balance of Omega Corp. is reproduced below.

	Dr.	Cr.
Advertising	$ 318	
Salaries and Wages	4,119	
Salesmen's Commissions	8,427	
Advances to Salesmen	560	
Accounts Payable		$19,784
Merchandise	4,978	
Discount on Purchases		1,318
Wrapping Supplies	415	

Inventories at August 31, 1955 were: Advertising, $38; merchandise, $4,610; wrapping supplies, $76.

Unrecorded, unpaid invoices at August 31, 1955 were: merchandise, $3,187; advertising, $96; wrapping supplies. $74.

Accrued salaries and wages were $674. Accrued salesmen's commissions were $768. Marvin Holster, a salesman, has requested that $250 of commissions due him be offset against a like amount of advance made to him.

All purchases and sales are recorded in the merchandise account. The beginning inventory (July 1, 1955) was $6,794. Purchases total $29,768 for the two months ended August 31, 1955.

It is estimated that $218 of additional discounts on purchases will be taken.

Required:

1. Prepare all adjusting journal entries at August 31, 1955 and at September 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

Problem 9–18. The trial balance from which the following items were selected was dated November 30, 1955.

	Dr.	Cr.
Accounts Payable		$ 9,684
Merchandise	$ 3,765	
Purchase Discounts Available	318	
Purchase Discounts Taken		467
Office Supplies	146	
Prepaid Rent	1,800	
Packing Supplies Expense	253	

The monthly rental is $600.

Unpaid, unrecorded invoices at November 30, 1955 were: merchandise, $1,975; office supplies, $28; packing supplies, $141.

Inventories at November 30, 1955 were: merchandise, $6,418; office supplies, $39; packing supplies, $147.

The balance in Purchase Discounts Available applies to accounts payable outstanding October 31, 1955. Of the $467 credit in Purchase Discounts Taken $294 applies to accounts payable outstanding October 31, 1955. Purchase discounts available November 30, 1955 amount to $276.

All purchases and sales are recorded in the merchandise account. November 1, 1955 inventory was $8,460. Purchases for November were $18,674.

Required:

1. Prepare all adjusting journal entries at November 30, 1955 and at December 1, 1955 and post to ledger accounts.
2. Prepare partial working papers.

ASSIGNMENT MATERIAL FOR CHAPTER 10

Questions

Question 10–1. Define each of the following terms: promissory note, draft, trade acceptance, bill of exchange, check, bond.

Question 10–2. Explain fully the reason for and the nature of premium on bonds and discount on bonds.

Question 10–3. What is gross financial income and how does it differ from gross operating income? Explain fully.

Question 10–4. Is interest paid on borrowed funds a cost or expense for a period? Explain fully.

Question 10–5. Illustrate several ways of showing in a balance sheet notes payable and bonds payable together with the related premium or discount.

Question 10–6. How would you explain the nature of "legal" indebtedness and "economic" indebtedness? Are they of like amount or do they differ? Explain fully.

Question 10–7. What is the nature of a contingent liability and how does it come into existence? Explain fully.

Question 10–8. How would you show contingent liabilities in the balance sheet? Is there a "best" method? Explain fully.

Question 10–9. Write out a set of instructions for the measurement of gross financial income for a period.

Question 10–10. What is the difference between a note payable and an account payable?

Question 10–11. Just what is the nature of discount on notes receivable?

Question 10–12. What time series are involved in the measurement of gross financial income? Discuss.

Question 10–13. How would you explain the statement that "interest is paid for the use of monied funds"?

Question 10–14. Are any valuation accounts used in connection with the accounting for bonds payable? If so, what are they and how are they used?

Question 10–15. Do valuation accounts enter into the accounting for bonds owned? Why, or why not? Explain fully.

Problems

Problem 10–1. The XY Company borrowed $10,000.00 from the R S National bank on March 1, 1955. The loan is for six months and bears interest at 5% per annum. The bank credits the XY Company with $9,500.00. At maturity the note is paid in full.

Required: I

(a) Prepare journal entries and post to ledger accounts on both the borrower's and the lender's books.

(b) Assume that XY Company prepares an income statement for each month and a balance at the end of each month.

Required: II

1. Prepare appropriate journal entries for each month and post to ledger accounts on both the borrower's and the lender's books.
2. Set up the relevant portion of the balance sheet of XY Company at April 30, 1955 and at June 30, 1955.

Problem 10–2. RS Corporation owes TV Corporation $1,467.92 for merchandise purchased. The bill is now overdue and RS settles the account by giving a note payable dated April 1, 1955 due in six months with interest at 6% included in the face of the note. TV Corporation discounts the note at its bank on August 1, 1955, the bank discounting it at 5½%. At maturity the note is paid in full.

Required:

(a) 1. Prepare journal entries and post to ledger accounts on the three sets of books

2. Set up the relevant portion of the balance sheet for each of the three enterprises as at July 31, 1955, and as at August 31, 1955.

(b) Assume that the note is not paid at maturity.

Required:

1. Prepare journal entries and post to ledger accounts on the three sets of books.

Problem 10–3. On May 31, the A B Company drew a three-months draft on the HQ Corporation in favor of the M N Company for $1,467.87. H Q accepted the draft. On July 1, 1955, the MN Company transferred the draft to the Marl Corp. in partial settlement of a debt due the latter. Marl Corp. accepted the draft in partial payment after discounting it at 5%. On July 15, 1955 Marl Corp. discounted the draft at its bank, the X Y First National Bank. The bank charged 6% discount.

(a) Assume that the draft was paid at maturity.

Required:

1. Prepare journal entries and post to the ledger accounts on the books of all parties involved.
2. Set up the relevant portion of the balance sheet for all parties as at May 31, 1955, July 15, 1955, and at July 31, 1955.

(b) Assume that the draft was not paid at maturity.

Required:

1. Prepare journal entries and post to the ledger accounts on the books of all parties involved.

Problem 10–4. A D Company owes B F Corp. $4,687.93 on open account. On July 1, 1955, A D Company gives B F Corp. its promissory note of the same date for the full amount of the debt plus interest at 5% included in the face amount. The note is due and payable December 31, 1955. On September 1, 1955, B F Corp. turns the note over to the Jones Mfg. Company in partial settlement of a debt due the latter. Jones accepts it on a 6% discount

basis. On October 31, 1955, The Jones Mfg. Company discounts the note at The First National Bank on a 5½% basis.

(a) Assume that the note is paid at maturity.

Required:

1. Prepare journal entries and post to ledger accounts on the books of all parties involved.
2. Set up the relevant portion of the balance sheet of each party as at September 30, 1955 and at November 30, 1955.

(b) Assume that the note is not paid at maturity.

Required:

1. Prepare journal entries and post to the ledger accounts on the books of all parties involved.

Problem 10–5. Hazel Corp. owes Birch Company $3,687.59 on open account for merchandise purchases. On April 1, 1955 Hazel Corp. gives its promissory note of the same date in full settlement of the debt. The instrument is due and payable November 30, 1955 together with interest at 5½%. On July 31, 1955 Maple Corp. accepts the note from Birch Company, at a discount of 5%, in partial settlement of an open account. On September 30, 1955 Maple Corp. discounts the note on a 5¾% basis at The Second National Bank.

(a) Assume that the note is paid at maturity.

Required:

1. Prepare journal entries and post to ledger accounts on the books of all parties involved.
2. Set up the relevant portion of the balance sheet of each party as at August 31, 1955 and October 31, 1955.

(b) Assume that the note is not paid at maturity.

Required:

1. Prepare journal entries and post to the ledger accounts on the books of all parties involved.

Problem 10–6. All State Utilities Corporation issued, at par, on February 1, 1955, $3,000,000 of 3¾% first mortgage bonds due January 31, 1980. Interest payable on July 31st and January 31st. Investment Trust, Inc. purchases $150,000 of these bonds.

Required:

1. Prepare journal entries and post to ledger accounts on both sets of books all transactions relating to the bonds during the first two years they are outstanding.
2. Assume that a balance sheet for each company is prepared as at May 31, 1955. Prepare appropriate adjusting entries, post to the ledger accounts, and set up the relevant section of the balance sheet for each company.

Problem 10–7. Traction Street Railway issued at $101.75, per $100.00 of par, $1,500,000 of 4% bonds dated April 1, 1955, due March 31, 1975, interest payable semi-annually on September 30 and March 31. Peoples National Bank buys $35,000 face value of these bonds.

Required:

1. Prepare journal entries and post to ledger accounts on both sets of books all transactions relating to the bonds the first two years they are outstanding.

2. Assume that a balance sheet for each company is prepared as at June 30, 1956. Prepare appropriate adjusting entries, post to the ledger accounts, and set up the relevant section of the balance sheet for each company.

Problem 10–8. Empire Utilities Ltd. issued at $98.75 per $100.00 of par, $1,750,000 of 4½% bonds dated August 1, 1946, due July 31, 1961, interest payable quarterly on October 31, January 31, April 30, and July 31. Home Investments, Inc. buys $56,000 face value of these bonds.

Required:

1. Prepare journal entries and post to ledger accounts on both sets of books all transactions relating to the bonds from date of issue to and including the date of the fifth interest payment.
2. Assume that a balance sheet is prepared for each company as at December 31, 1956. Prepare appropriate adjusting entries, post to the ledger accounts, and set up the relevant section of the balance sheet for each company.

Problem 10–9. Local Telephone Co. issued at $99.25 on January 15, 1955, $3,000,000 face value of 3¾% bonds dated January 15, 1955, due January 14,1985, interest payable January 15 and July 15. X National Bank buys $50,000 face value of these bonds on April 1, 1955 at $99.75.

Required:

1. Prepare journal entries for, and post to ledger accounts on the books of Local Telephone Co. and of X National Bank, all transactions relating to the bonds from date of issue to and including the date of the fourth interest payment.
2. Assume that a balance sheet is prepared for each company as at December 31, 1957. Prepare appropriate adjusting entries, post to the ledger accounts, and set up the relevant section of the balance sheet for each company.

Problem 10–10. Alpha Zeta Corporation on March 1, 1948 issued $5,000,000 of 3½% bonds, dated the same date, at $100.65. The bonds are due March 1, 1968 and pay interest on the first day of March, June, September, and December.

On March 1, 1955 Alpha Zeta Corporation buys $150,000 face value of these bonds for $148,750.

Required:

1. Prepare journal entries for, and post to ledger accounts, all transactions relating to the bonds from date of issue to and including June 1, 1949, and the purchase of the $150,000 face value of bonds on March 1, 1955.

Problem 10–11. Local Grocery owes Suppliers, Inc. $1,486.95 for open account purchases. Payment is overdue and Local Grocery gives its note, dated December 10, 1954, for the amount owing plus interest at 6% per annum included in the face amount, due in four months.

The note is discounted for Suppliers, Inc. by Third National Bank at 5½% on February 25, 1955.

At maturity Local Grocery fails to make payment to the bank.

Required:

1. Prepare journal entries and post to ledger accounts on the books of all parties to these transactions.
2. Prepare appropriate adjusting entries, post to ledger accounts, and set up the relevant sections of the balance sheets for each of the three parties to these transactions as at March 25, 1955.

Problem 10–12. Alpha draws on Beta in favor of Gamma, a draft for $2,750, dated March 1, 1955, due June 1, 1955 bearing interest at 5%. Beta accepts the draft. Gamma transfers the draft to Delta on April 15, 1955 at a discount of 6% per annum. On May 1, 1955 Delta discounts the draft on a 5½% basis at Omicron National Bank. At maturity Beta is unable to pay and the bank charges Delta's checking account.

Required:

1. Prepare journal entries and post to the ledger accounts on the books of all parties involved.
2. Set up the relevant portions of the balance sheet for all parties as at May 15, 1955.

Problem 10–13. Transcontinental Railroad issued on April 15, 1955, $30,000,000 face value of bonds dated the same date, bearing interest at 4½% per annum payable on the fifteenth day of January, April, July and October, due April 15, 1985. The bonds were issued at $100.85. Last Investment Trust, Inc., purchased $100,000 face value of the bonds at date of issue and an additional $50,000 at $100.60 plus accrued interest on October 1, 1955.

Required:

1. Prepare journal entries for, and post to ledger accounts on the book of Transcontinental Railroad and Last Investment Trust, Inc., all transactions relating to the bonds during the first year they are outstanding.
2. Prepare the relevant sections of the balance sheets of both enterprises as at March 31, 1956.

Problem 10–14. Jones owes Smith $1,267.84 on open account which is overdue. Jones gives Smith a note, dated February 15, 1955, whose face value is the balance due plus interest at 6% per annum, due July 15, 1955. Smith transfers the note to Brown on April 1, 1955, at a discount of 5½%, in partial settlement of a debt due the latter. On June 1, 1955 Brown discounts the note at his bank at 5½%.

Required:

1. All entries on the books of all parties to the note transaction assuming it is paid at maturity by the maker.
2. All entries on the books of all parties to the note transaction assuming that Jones fails to pay the note and that the bank collects from Smith.

Problem 10–15. Many States Utilities Co. purchased, on April 1, 1955, for $99.45 plus accrued interest, $75,000 face value of bonds which it had issued July 1, 1949 at $99.25. The bonds were dated July 1, 1949, bear interest at 4% per annum, and are due April 1, 1980. Interest is payable January 1 and July 1.

Required:

1. Prepare journal entries for, and post to ledger accounts, all transactions from date of issue of the bonds up to an including April 1, 1955.
2. Set up the relevant sections of the balance sheets of Many States Utilities Co. as at March 31, 1952 and as at October 31, 1954.

Problem 10–16. Gas and Electric Company reports the following bonds outstanding at December 31, 1955:

Title of Issue	Date of Issue	Face Amount	Issue Price	Interest Rate	Interest Payment Dates	Maturity Date
First Mortgage	3/1/48	$5,000,000	$100.85	4%	3/1 and 9/1	3/1/78
Second Mortgage	5/1/50	1,000,000	98.40	3½%	5/1 and 11/1	5/1/70
Income Series A	7/1/52	3,000,000	99.57	3¾%	1/1 and 7/1	7/1/77

Required:

1. Prepare journal entries in connection with the bonds outstanding at December 31, 1955. Post to ledger accounts.
2. Prepare the relevant sections of the balance sheet at December 31, 1955.

Problem 10–17. World Investments, Inc. lists the following investments in bonds:

Issuing Company	Face Amount	Purchase Price*	Purchase Date	Interest Rate	Interest Payment Dates	Maturity Date
Gas and Electric Co.	$50,000	$ 99.85	4/1/55	4%	3/1 and 9/1	3/1/78
A Telephone Co.	40,000	100.45	6/1/55	3½%	2/15 and 8/15	2/15/65
Local Traction Co.	25,000	98.25	5/1/50	4½%	4/1 and 10/1	10/1/60

A separate ledger account is maintained for each separate issue. One bond interest income account is maintained.

Required:

1. Set up the ledger accounts as they should appear June 30, 1955. Submit a table showing how each account balance was determined.
2. Prepare journal entries to record all changes in these ledger accounts for the six months ended December 31, 1955. Post to ledger accounts.
3. Prepare the relevant section of the balance sheet.

Problem 10–18. Hanson draws on Larsen in favor of Walton a draft for $4,500, dated February 15, 1955, due in four months, interest at 5%. Larsen accepts the draft. Walton transfers the draft to Jensen on April 1, 1955 at a discount of 5½%. On June 1, 1955 Jensen transfers the draft to Nielsen at a discount of 6%. At maturity Larsen fails to pay and Nielsen notifies all prior endorsers.

Required:

1. Prepare journal entries on the books of all parties and post to ledger accounts.

Problem 10–19. Zeta Trust Company holds among others, the following investments in bonds:

Issuing Company	Face Amount	Purchase Price*	Purchase Date	Interest Rate	Interest Payment Dates	Maturity Date
Alpha Company	$25,000	$101.10	2/1/55	4%	4/15 and 10/15	10/15/65
Beta Corporation	40,000	98.75	6/1/55	4¼%	1/15 and 7/15	7/15/60
Delta Co., Inc.	35,000	99.50	7/15/55	3½%	5/15 and 11/15	11/15/70

*Plus accrued interest.

A separate ledger account is maintained for the investment in each separate issue but only one bond interest income account is maintained.

Required:

1. Set up the ledger accounts as they should appear September 30, 1955. Submit a table showing how each account balance was determined.
2. Prepare journal entries to record all changes in these ledger accounts for the three months ended December 31, 1955.
3. Prepare the relevant section of the balance sheet.

Problem 10–20. Alpha Utilities Corp. reports the following bonds outstanding at June 30, 1955:

Title of Issue	Date of Issue	Face Amount	Issue Price	Interest Rate	Interest Payment Dates	Date Maturity
Series A	4/1/48	$ 500,000	$ 99.00	4%	4/1 and 10/1	4/1/68
First Mortgage	5/15/50	300,000	101.43	4½%	5/15 and 11/15	5/15/70
Debentures	8/1/52	1,200,000	98.55	3½%	2/1 and 8/1	8/1/82
Refunding	3/1/53	1,700,000	101.75	4¼%	3/1 and 9/1	3/1/93

Required:

1. Prepare journal entries in connection with the bonds outstanding at September 30, 1955 and post to ledger accounts.
2. Prepare the relevant sections of the balance sheet at September 30, 1955.

ASSIGNMENT MATERIAL FOR CHAPTER 11

Questions

Question 11–1. How does rental income differ from gross operating income and gross financial income? Explain fully.

Question 11–2. What is the nature of capital gains and capital losses? How do they differ from other types of gross income?

Question 11–3. Why is it necessary to consider supplementary data in measuring income and expenses for a period?

Question 11–4. Is there any difference between adjusting entries and closing entries? Explain.

Question 11–5. What is the nature of an income and expense account? What purpose does it serve?

Question 11–6. Write a set of instructions for the measurement of gross rental income for a period.

Question 11–7. Under what circumstances is income from property really gross operating income? Explain fully.

Question 11–8. Why is it customary to report only the capital gain or capital loss in an income statement rather than the selling price and the cost of the asset sold? Discuss.

Question 11–9. At this stage in your study of accounting how would you define net income for a period?

Question 11–10. Why are income and expense account balances transferred to an income and expense summary instead of to proprietorship? Explain fully.

Question 11–11. Is it possible to avoid the use of adjusting entries in measuring net income for a period? Explain fully.

Question 11–12. How would you explain the nature of and the purpose of closing entries to a novice in the field of accounting?

Problems

Problem 11–1. Using the data of the ABC Company Trial Balance at December 31, 1955: (page 124):

1. Enter the trial balance data in ledger accounts.
2. Post the adjusting and closing journal entries to the ledger accounts.
3. Close out (rule off) all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–2. The trial balance of Ace Laundry at December 31, 1954 was as follows:

Cash	$ 12,864.26	
Accounts Receivable	16,987.49	
Allowance For Uncollectible Accounts		$ 83.95
Building	60,500.00	
Allowance For Depreciation—Building		4,600.00
Machinery and Equipment	80,700.00	
Allowance For Depreciation—Machinery and Equipment		12,860.00
Delivery Trucks	25,800.00	
Allowance For Depreciation—Delivery Trucks		16,400.00
Accounts Payable		2,164.87
Income Taxes Withheld		4,641.93
Social Security Taxes Withheld		121.47
Proprietorship		135,380.68
Revenue		141,000.00
Advertising	2,150.00	
Electricity	1,895.64	
Laundry Supplies	3,971.88	
Office Supplies	240.00	
Oil and Gasoline	2,641.32	
Rent of Building Site	14,600.00	
Repairs—Laundry Equipment	1,460.95	
Repairs—Trucks	841.27	
Salaries—Administrative	15,900.00	
Salaries and Commissions—Drivers	17,381.85	
Telephone and Telegraph	675.27	
Wages—Plant Employees	58,642.97	
	$317,252.90	$317,252.90

Additional data at year end.

The period covered by the income and expense accounts is one year. Supplies on hand at December 31, 1954:

Laundry	$415.81
Office	63.29
Oil and Gasoline	181.27

Unrecorded unpaid bills:

Office Supplies	$ 31.90	Repairs Truck	$187.64
Laundry Supplies	146.23	Telephone and Telegraph	21.63
Oil and Gasoline	97.62	Advertising	110.38

Depreciation rates are as follows:

Building	3% per annum
Machinery and Equipment	10% per annum
Delivery Trucks	20% per annum

Estimated loss from uncollectible accounts should be increased by $97.63.

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to the ledger accounts.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–3. There follows the trial balance of Local Department Store at July 31, 1955.

Cash	$ 63,280.45	
Accounts Receivable	14,680.27	
Allowance For Uncollectible Accounts		$ 121.63
Merchandise Inventory, February 1, 1955	45,681.97	
Land	30,000.00	
Building	175,000.00	
Allowance For Depreciation—Building		22,500.00
Furniture and Fixtures	69,800.00	
Allowance For Depreciation—Furniture and Fixtures		6,950.00
Office Equipment	3,184.00	
Allowance For Depreciation—Office Equipment		987.50
Accounts Payable		14,650.80
Notes Payable		25,000.00
Proprietorship		293,284.31
Sales		322,911.58
Allowances on Sales	810.15	
Returned Sales	2,196.42	
Purchases	174,695.37	
Discount on Purchases		2,964.83
Returned Purchases		642.10
Advertising—Newspaper	4,684.25	
Advertising—Neon Sign Rental	1,764.30	
Delivery Expense	3,642.87	
Heat and Light	1,942.27	
Salaries—Administrative	25,650.00	
Salaries—Buyers	29,426.80	
Salaries—Clerical	15,640.00	
Salaries—Receiving Department	2,950.00	
Salaries and Commissions—Salespeople	14,875.21	
Supplies—Office	275.98	
Supplies—Window Display	1,467.84	
Supplies—Wrapping	975.63	
Taxes—Personal Property	1,581.27	
Taxes—Real Property	3,642.87	
Telephone and Telegraph	2,164.83	
	$690,012.75	$690,012.75

Additional data, as at July 31, 1955.

Inventories:

Merchandise	$48,726.93
Supplies—Office	146.37
Supplies—Window Display	1,241.97
Supplies—Wrapping	632.84

Unrecorded unpaid bills:

Advertising	$ 381.65
Delivery Expense	210.15
Heat and Light	114.93
Supplies Office	91.64
Salaries—Buyers	1,950.70
Salaries—Administrative	1,841.63
Salaries—Clerical	951.27
Telephone and Telegraph	142.87

Depreciation rates:

Building	3% per annum
Furniture and Fixtures	10% per annum
Office Equipment	6% per annum

Experience shows that provision should be made for the following:

	Per Cent of Sales
Uncollectible Accounts	one tenth of one per cent.
Returned Sales	eight tenths of one per cent.
Allowances on Sales	three tenths of one per cent.

The notes payable were dated May 31, 1955 and bear 5% interest.

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to the ledger accounts.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–4. For the year ended June 30, 1955 the trial balance of Belvedere Apartments was as follows:

Cash	$ 12,641.80	
Land	90,000.00	
Building	410,000.00	
Allowance For Depreciation—Building		$ 65,000.00
Accounts Payable		1,281.37
Notes Payable		27,000.00
Proprietorship		423,109.24
Rental Income		43,860.90
Advertising	126.38	
General Expense	4,162.85	
Heat and Light	3,642.97	
Interest on Notes Payable	625.00	
Repairs—Building	8,142.60	
Repairs and Service—Elevators	947.28	
Salaries—Office	4,200.00	
Salaries—Janitor	8,600.00	
Salaries—Doorman	6,200.00	
Supplies—Janitorial	1,400.00	
Supplies—Maintenance	840.00	
Telephone	261.40	
Taxes	8,461.23	
	$560,251.51	$560,251.51

Additional data as at June 30, 1955.

Notes payable bear 5% interest. The last payment was made March 31, 1955.

The building is being depreciated at the rate of 3% per annum.

Unrecorded unpaid bills:

Telephone	$ 12.64
Heat and Light	132.87
Supplies—Maintenance	96.43

Supplies on hand were:

Janitorial	$136.48
Maintenance	61.73

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to the ledger accounts.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–5.

Local Cinema

Trial Balance—December 31, 1954

Cash	$ 3,642.80	
Building	110,000.00	
Allowance For Depreciation—Building		$ 34,000.00
Furniture and Fixtures	65,000.00	
Allowance For Depreciation—Furniture & Fixtures		18,400.00
Projection Equipment	18,000.00	
Allowance For Depreciation—Projection Equipment		2,100.00
Accounts Payable		864.21
Notes Payable		10,000.00
Proprietorship		110,457.89
Admissions Revenue		65,681.20
Advertising	1,810.50	
Film Rentals	21,000.00	
General Expense	4,200.00	
Light and Heat	4,900.00	
Salaries	12,300.00	
Taxes	650.00	
	$241,503.30	$241,503.30

Additional data as at December 31, 1954:

Depreciation rates:

Building	3% per annum
Furniture and Fixtures	10% per annum
Projection Equipment	7% per annum

The note payable is dated October 31, 1954 and bears interest at 6%.

Unrecorded, unpaid bills:

Advertising	$110.40
Film Rentals	462.87
Light and Heat	129.30
General Expense	41.63

Taxes are for the year ending, March 31, 1955.

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to the ledger accounts.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–6.

Jewelers, Inc.
Trial Balance
September 30, 1955

Cash	$ 4,200	
Accounts Receivable	19,700	
Allowance For Uncollectible Accounts		$ 450
Merchandise Inventory, June 30, 1955	6,800	
Furniture and Fixtures	12,000	
Allowance For Depreciation—Furniture and Fixtures		1,500
Accounts Payable		6,500
Proprietorship		10,000
Retained Income		5,560
Sales		75,800
Allowances on Sales	120	
Returned Sales	480	
Purchases	48,300	
Discount on Purchases		650
Advertising	1,280	
Salesmen's Commissions	3,940	
Rent	1,900	
Selling Supplies	250	
Other Expenses	1,490	
	$100,460	$100,460

Additional data as at September 30, 1955:

Inventories:

Merchandise	$8,350
Selling Supplies	175

Unrecorded, unpaid liabilities:

Merchandise	$1,700
Advertising	210
Selling Supplies	150
Other Expenses	380

Rent is $300 per month and has been paid for October and November. Depreciation on furniture and fixtures is at 10% per year. Allowance For Uncollectible Accounts should be increased to equal one per cent of net sales.

Of the $120 balance in Allowances on Sales, $18 applies to the period prior to July 1, 1955. Of the $480 balance in Returned Sales, $136 applies to the period prior to July 1, 1955.

Returned sales are estimated at ¾% of gross sales.

Allowances on sales is estimated at two-tenths of one per cent of gross sales.

Discount on purchases is estimated at $745.

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to the ledger accounts.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–7.

Alpha Enterprises
Trial Balance
October 31, 1955

Cash	$ 4,260	
Accounts Receivable	15,800	
Merchandise Inventory, September 30, 1955	12,750	
Accounts Payable		$ 7,480
Proprietorship		52,000
Retained Income		4,800
Land	8,000	
Building	48,000	
Allowance For Depreciation—Building		12,900
Furniture and Fixtures	8,500	
Allowance For Depreciation—Furniture and Fixtures		1,580
Accounts Receivable Written Off	210	
Discount on Purchases		325
Sales		26,575
Allowances on Sales	180	
Returned Sales	340	
General Expenses	2,980	
Selling Expenses	5,640	
Purchases	14,000	
Mortgage Payable		15,000
	$120,660	$120,660

Additional data as at October 31, 1955:

Inventories:

Merchandise	$13,800
Selling Supplies	128
Office Supplies	80

Unrecorded, unpaid liabilities:

Merchandise	$ 480
General Expenses	215
Selling Expenses	381

Depreciation rates:

Building	2% per year
Furniture and Fixtures	10% per year

The management of Alpha Enterprises has never provided for loss on uncollectible accounts nor for additional returned sales or allowances on sales, but has recorded them as they occurred. Commencing October 1, 1955 it proposes to make such provision. Your analysis of the ledger accounts discloses the following:

	Total	Arising Out of Sales Prior to Oct. 1	Arising Out of Sales After Sep't. 30
Allowances on Sales	$180	$115	$ 65
Returned Sales	340	128	112
Accounts Receivable Written Off	210	149	61

Estimates are as follows:

	Arising Out of October Sales
Allowances on Sales	0.30% of gross sales
Returned Sales	0.50% of gross sales
Uncollectible Accounts Receivable	0.40% of gross sales

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to ledger account.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–8.

Local Mortgage Company
Trial Balance
June 30, 1955

Cash	$ 8,000	
Accrued Interest Receivable	1,200	
Mortgages Receivable	125,000	
Furniture and Fixtures	8,000	
Allowance For Depreciation—Furniture and Fixtures		$ 1,400
Accounts Payable		310
Proprietorship		100,000
Retained Income		35,000
Interest Income		8,590
General Expense	3,100	
	$145,300	$145,300

Additional data as at June 30, 1955:

Accrued interest receivable, $1,435.
Accrued accounts payable for expenses, $174.
Depreciation on furniture and fixtures 10% per year.
Supplies on hand, $184.

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to ledger accounts.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–9.

Wholesale Grocers
Trial Balance
December 31, 1955

Cash	$ 8,760	
Accounts Receivable	19,280	
Allowance For Uncollectible Accounts		$ 340
Land	2,500	
Building	18,000	
Allowance For Depreciation—Building		4,100
Equipment	7,000	
Allowance For Depreciation—Equipment		2,500
Merchandise Inventory, January 1, 1955	21,680	
Accounts Payable		8,410
Proprietorship		35,000
Retained Income		21,700
Purchases	75,800	
Sales		108,730
Returns and Allowances on Sales	860	
Discount on Sales	350	
Office Expenses	4,180	
Administrative Expenses	9,530	
Selling Expenses	12,840	
	$180,780	$180,780

Additional data as at December 31, 1955:

Inventories:

Merchandise	$23,780
Office Supplies	175
Selling Supplies	418

Depreciation:

Building	3% per year
Equipment	8% per year

Unrecorded, unpaid expenses:

Office Expenses	$ 378
Administrative Expenses	493
Selling Expenses	562

Uncollectible accounts resulting from 1955 sales in the sum of $410 have been charged to Allowance For Uncollectible Accounts. It is estimated that loss on uncollectibles for 1955 will approximate three-quarters of one per cent of gross sales.

Returns and allowances are estimated at one per cent of gross sales.

Additional discounts on sales will approximate $680.

Required:

1. Enter the trial balance data in ledger accounts.
2. Prepare adjusting and closing journal entries and post to ledger accounts.
3. Close out all income and expense accounts.
4. Draw off a post-closing trial balance.

Problem 11–10.

Taiwan Corporation

Trial Balance

March 31, 1955

Cash	$ 5,680	
Accounts Receivable	19,460	
Notes Receivable	8,700	
Merchandise Inventory, January 1, 1955	16,400	
Accounts Payable		$ 3,340
Notes Payable		12,000
Proprietorship		30,000
Retained Income		8,750
Sales		64,536
Returned Sales and Allowances	210	
Discounts on Sales	1,763	
Allowance For Returned Sales and Allowances		75
Allowance For Discounts on Sales	43	
Allowance for Uncollectible Accounts		110
Purchases	43,840	
Interest on Notes Receivable		375
Interest on Notes Payable	600	
Office Supplies Expense	750	
Selling Supplies	1,430	
Salaries and Wages	8,970	
Other Expenses	11,340	
	$119,186	$119,186

Additional data as at March 31, 1955:

Inventories:

Merchandise	$21,430
Office Supplies	184
Selling Supplies	98

Accrued items:

Interest on Notes Receivable	$ 115
Interest on Notes Payable	384
Purchases	975
Salaries and Wages	1,140
Other Expenses	214

The balances in all the "Allowance For" accounts refer to transactions effected prior to January 1, 1955. The balance in accounts receivable is due to sales made since January 1, 1955.

Estimates for the three months ended March 31, 1955 are:

Returned Sales and Allowances	0.40% of gross sales
Discounts on Sales	3.00% of gross sales
Uncollectible Accounts Receivable	0.50% of gross sales

Required:

1. The requirements of problem 11–9.

Problem 11–11.

Benson Company
Trial Balance
June 30, 1955

Cash	$ 12,800	
Accounts Receivable	34,900	
Allowance For Uncollectible Accounts		$ 384
Merchandise Inventory, April 1, 1955	12,700	
Equipment	14,900	
Allowance For Depreciation—Equipment		4,760
Accounts Payable		3,910
Notes Payable		8,000
Sales		65,212
Returned Sales and Allowances	481	
Allowance For Returned Sales and Allowances		67
Discounts on Sales	1,180	
Allowance For Discount on Sales	197	
Purchases	38,400	
Discounts on Purchases Lost	95	
Administrative Expenses	4,620	
Selling Expenses	9,460	
Proprietorship		35,000
Retained Income		12,400
	$129,733	$129,733

Additional data as at June 30, 1955:

Inventories:

Merchandise	$ 7,700
Selling Supplies	394
Office Supplies	119

Depreciation on equipment is at 12% per year.

Accruals:

Interest on Notes Payable	$ 125
Administrative Expenses	329
Selling Expenses	187

The balances in the "Allowance For" accounts apply to transactions effected prior to April 1, 1955, except for Allowance For Uncollectible Accounts to which has been charged $218 of uncollectible accounts resulting from sales made subsequent to March 31, 1955. All accounts receivable are current.

Estimates for the three months ended June 30, 1955 are:

Uncollectible Accounts	$ 487
Returned Sales and Allowances	598
Discounts on Sales	1,876

It is estimated that an additional $87 of discounts on purchases will be lost.

Required:

1. The requirements of problem 11–9.

Problem 11–12.

The Variety Shop
Trial Balance
March 31, 1955

Cash	$ 1,790	
Accounts Receivable	4,680	
Merchandise		$ 6,384
Furniture and Fixtures	3,600	
Accounts Payable		527
Proprietorship		3,802
Expenses	643	
	$10,713	$10,713

Additional data as at March 31, 1955:

The Variety Shop has been operating since January 1, 1955. You find that all purchases and all sales are entered in the merchandise account. Purchases were $7,463. Merchandise on hand, March 31, 1955, amounts to $4,127. No depreciation has been provided for. The rate is 10%.

The following items have been charged to expense:

Uncollectible Accounts	$ 47
Returned Sales and Allowances	123

The estimate of additional uncollectible accounts is $78.

Required:

1. The requirements of problem 11–9.

Problem 11–13.

Auto Repair Shop
Trial Balance
August 31, 1955

Cash	$ 1,840	
Accounts Receivable	2,960	
Parts Inventory, June 1, 1955	785	
Supplies Inventory, June 1, 1955	362	
Equipment	4,175	
Allowance For Depreciation—Equipment		$ 1,368
Accounts Payable		947
Note Payable		750
Proprietorship		8,165
Sales		7,434
Purchases—Parts	2,164	
Purchases—Supplies	587	
Office Expenses	948	
Shop Labor	3,140	
Administrative Expenses	410	
General Expenses	1,293	
	$18,664	$18,664

Additional data as at August 31, 1955:

Inventories:

Parts	$ 1,024
Supplies	538
Office Supplies	73

Unrecorded, unpaid items:

Parts	$ 146
Supplies	94
Office Supplies	27
Interest on Note	36
Shop Labor	318
Administrative Expenses	87
General Expenses	55

Depreciation on equipment is at 15% per year.
Estimated loss on uncollectible accounts is $63.

Required:

1. The requirements of problem 11–9.

Problem 11–14.

M. A. F. Todd
Trial Balance
December 31, 1955

Cash	$ 1,947	
Accounts Receivable	3,468	
Merchandise		$ 7,668
Furniture and Fixtures	4,680	
Accounts Payable		1,467
Note Payable		500
Proprietorship		17,500
Rent	3,600	
Salaries and Wages	9,460	
General Expenses	3,980	
	$27,135	$27,135

Additional data as at December 31, 1955:

Mr. Todd started his business January 1, 1955. All merchandise transactions were charged to the account Merchandise. An analysis of it shows the following.

Sales	$26,840
Returns and Allowances	310
Accounts Receivable Uncollectible	218

Unrecorded, unpaid items:

Salaries and Wages	$ 480
Merchandise	317
General Expenses	79
Interest on Note Payable	10

The estimate of additional uncollectible accounts is $158.
Inventory on hand $3,645.
The depreciation rate for furniture and fixtures is 8½%.

Required:

1. The requirements of problem 11–9.

Problem 11–15.

Bartlett Company
Trial Balance
September 30, 1955

Cash	$ 9,640	
Accounts Receivable	28,732	
Allowance For Uncollectible Accounts		$ 387
Bonds Owned	9,763	
Merchandise Inventory, July 1, 1955	21,478	
Equipment	30,500	
Allowance For Depreciation—Equipment		12,746
Accounts Payable		8,874
Notes Payable		6,000
Proprietorship		50,000
Retained Income		19,463
Sales		92,833
Returned Sales and Allowances	1,310	
Discount on Sales	764	
Purchases	76,840	
Discount on Purchases		298
Allowance For Returned Sales and Allowances	64	
Allowance For Discount on Sales	37	
Allowance For Discount on Purchases		46
Administrative Expenses	4,360	
General Expenses	7,159	
	$190,647	$190,647

Additional data as at September 30, 1955.

Inventories:

Merchandise	$25,600
Office Supplies	218
General Supplies	1,460

The bonds are of a par value of $9,800, pay 4% per annum on March 1 and September 1, and were purchased on August 15, 1955 at a price which included the accrued interest.

Depreciation on equipment is at 8% per year.

Unrecorded, unpaid bills:

Merchandise	$ 1,847
Administrative Expenses	297
General Expenses	418
Interest on Note Payable	75

The balances in accounts receivable and in accounts payable are current.

All the "Allowance For" account balances refer to business done prior to July 1, 1955. The following estimates apply to the three months ended September 30, 1955:

Allowance For	
Uncollectible Accounts	$ 175
Returned Sales and Allowances	1,480
Discount on Sales	1,295
Discount on Purchases	516

Required:

1. The requirements of problem 11–9.

ASSIGNMENT MATERIAL FOR CHAPTER 12

Questions

Question 12–1. Why are working papers used in the process of preparing formal statements? Explain fully.

Question 12–2. Present a demonstration of the algebra of working papers.

Question 12–3. What is an adjusted trial balance? How does it differ from an unadjusted trial balance?

Question 12–4. Which of the three forms of income statement is the "best"? Upon what criteria do you make your selection?

Question 12–5. What is the nature of the items grouped as prepaid expenses? As deferred charges? Why are they so classified?

Question 12–6. What is the "best" form of balance sheet? Why?

Question 12–7. Are the entries in the adjustments columns of the working papers related in any way to adjusting journal entries?

Question 12–8. The profit and loss summary in the general ledger and the income and expense columns of the work sheet are but two modes of telling the same story. Discuss.

Question 12–9. What are the significant differences between forms 1 and 2 of the balance sheet of The A B C Company as illustrated in Chapter 12?

Question 12–10. If you were the treasurer of The A B C Company which form of balance sheet illustrated in Chapter 12 would you want prepared for your own use? Why?

Question 12–11. In preparing a balance sheet would you always show current items first among assets and liabilities? Why, or why not?

Question 12–12. All assets, except cash and money-claim assets, are really deferred items. Discuss.

Question 12–13. At bottom there is no essential difference between prepaid items and deferred items. Discuss.

Question 12–14. What is the meaning of the balance sheet figure titled total assets? Explain fully.

Question 12–15. What purpose is served by a statement of retained income? Discuss.

Problems

Problem 12–1. Use the data of problem 11–2 for this problem.

Required:

1. Prepare working papers.
2. Prepare balance sheets Forms 1 and 2.
3. Prepare income statements Forms 1 and 3.

Problem 12–2. Use the data of problem 11–3 and do the work called for in problem 12–1.

Problem 12–3. Use the data of problem 11–4 and do the work called for in problem 12–1.

Problem 12–4. Use the data of problem 11–5 and do the work called for in problem 12–1.

Problem 12–5. Use the data of problem 11–6 and do the work called for in problem 12–1.

Problem 12–6. Use the data of problem 11–7 and do the work called for in problem 12–1.

Problem 12–7. Use the data of problem 11–8 and do the work called for in problem 12–1.

Problem 12–8. Use the data of problem 11–9 and do the work called for in problem 12–1.

Problem 12–9. Use the data of problem 11–10 and do the work called for in problem 12–1.

Problem 12–10. Use the data of problem 11–11 and do the work called for in problem 12–1.

Problem 12–11. Use the data of problem 11–12 and do the work called for in problem 12–1.

Problem 12–12. Use the data of problem 11–13 and do the work called for in problem 12–1.

Problem 12–13. Use the data of problem 11–14 and do the work called for in problem 12–1.

Problem 12–14. Use the data of problem 11–15 and do the work called for in problem 12–1.

ASSIGNMENT MATERIAL FOR CHAPTER 13

Questions

Question 13–1. How do errors of statistical classification differ from errors of time distribution?

Question 13–2. Explain the statistical significance of each class of error of time distribution.

Question 13–3. What is meant by a compensating error? A non-compensating error?

Question 13–4. What are reciprocal accounts?

Question 13–5. What is a bank reconcilement? Why is it prepared?

Question 13–6. Does an error of statistical classification always result in an error of measurement of net income for a period? Explain how and why.

Question 13–7. Are errors of statistical classification and errors of time distribution mutually exclusive? Discuss.

Question 13–8. Is the compensating element in a compensating error always found in the accounting period immediately following the period in which the error occurred? Discuss.

Question 13–9. Do all errors of time distribution result in errors of measurement of net income? Explain fully.

Question 13–10. Is every money-claim asset a member of a pair of reciprocal accounts? Explain fully.

Question 13–11. Are there any circumstances under which an account receivable of Co. A would be reconciled with the offsetting account payable of Co. B? Discuss.

Question 13–12. Can you write out a general rule of procedure, which, if followed, will greatly reduce errors resulting from the improper handling of inventory items?

Problems

Problem 13–1. An examination of the accounts of Local Retailers for the quarter year ended June 30, 1955 disclosed the following:

1. Repairs to furniture and fixtures, $64.83, was charged to furniture and fixtures.

2. The cost of a new typewriter, $156.47, was entered in the account, repairs to office equipment.

3. Accrued interest payable of $37.50 was erroneously credited to interest income.

4. A credit of $642.75 representing income from a leased department was entered in the accounts showing the amount due the tenant on sales made and collected.

Required:

1. Correcting entries on the assumption that the errors were discovered before the accounts were closed for the quarter.
2. Correcting entries on the assumption that the errors were not discovered until after the accounts were closed for the quarter.

Problem 13–2. In the process of preparing an income statement and a balance sheet for Omega Company you discover the following:

1. A sale of $55.47 made to H. Q. Jones in Department A was entered as a sale of Department B and charged to H. H. Jones.
2. Office supplies amounting to $46.39 were charged to general supplies.
3. The renewal of a note for $3,500, due X National Bank, was credited to acceptances payable.
4. Depreciation of $149.55 on machinery and equipment was credited to Allowance For Depreciation—Trucks.

Required:

1. Correcting entries on the assumption that the errors were discovered in the period in which they were made.
2. Correcting entries on the assumption that the errors were discovered in the period immediately following that in which they were made.

Problem 13–3. You have been asked to assist the bookkeeper of Wholesalers, Inc., in correcting the accounts prior to the preparation of an income statement and a balance sheet. Among other items you discover the following:

1. Repairs to building, $387.62, were charged to the building account.
2. Income from bonds owned, $89.75, was credited to bonds payable.
3. An invoice for $467.87 of merchandise was entered as a credit to the sales account.
4. An invoice for $124.53 of office supplies was entered in the office expense account.

Required:

1. Correcting entries on the assumption that the errors were discovered in the period in which they were made.
2. Correcting entries on the assumption that the errors were discovered in the period immediately following that in which they were made and that the account for the period in which the errors were made had been closed.

Problem 13–4. A new bookkeeper has recently taken charge of the accounts of Bartlett and Company. In the process of familiarizing himself with the records he discovers the following:

1. An invoice for $27.49 for office equipment repairs entered in the office equipment account.
2. A sale of $47.95, Department D, made to W. M. Thomas charged to W. E. Thomas and entered as a sale in Department E.
3. A check for $463.87 payable to Harliss Mfg. Co. entered in the account payable account of Harris Mfg. Co.
4. Interest paid of $141.93 charged to interest income.
5. A check for $381.22 received from Brown and Co., a customer, credited to Brown and Son, a supplier.
6. Rental income of $1,455.00 received from Black and Black credited to Blackey Co., a supplier.

7. A purchase of $415.00 of office supplies charged to general expense.

8. Dividends of $218.50 on stock of Regional Telephone Company credited to account payable, Regional Telephone Company.

Required:

1. Correcting entries on the assumption that all the errors were made in the period for which the new bookkeeper is preparing financial statements.

Problem 13–5. The following errors were discovered in the accounts of Jones and Jones, Inc.:

1. Cash receipts from sales of Department C entered as sales of Department A, $184.89.

2. An invoice for building repairs charged to building account, $489.73.

3. A check for $123.56 payable to X Y Company charged to X and Company.

4. A check for $1,500.000 representing rental income from Howard March Co. credited to rent expense.

5. The purchase of a second hand calculating machine for $183.27 charged to office expense.

6. Rental income of $375.00 received from Smith and Son, a tenant, credited to Smith and Son, Inc., a supplier.

7. Interest of $125.00 paid on notes payable charged to notes payable.

8. A year's supply of sales invoices costing $1,840.57 charged to office expense.

9. Depreciation on office equipment of $141.27 credited to allowance for depreciation delivery equipment.

10. Dividends of $480.70 on stock of R S Corp. was credited to the investment in stock of R S Corp.

Required:

1. Correcting entries on the assumption that all the errors were made in one period and discovered in the next following period.

Problem 13–6. Prepare entries to correct the following errors all of which were made prior to the beginning of the period in which they were discovered.

1. Delivery truck repairs of $94.64 charged to delivery trucks account.

2. A check for $327.54 received from A. R. Todd credited to A. T. Todd.

3. Returned sales of Department A, $421.53 charged to Sales—Department B.

4. Rental income of $1,480.75 from leased departments credited to Rental Income—Outside Properties.

5. Interest paid on notes payable, $124.50, charged to Notes Payable—Banks.

6. A check for $150.00 interest on bonds owned credited to Bond Investments.

7. A dividend check for $81.00 credited to Interest Income.

8. Returned purchases of $147.25, Department A, credited to Sales—Department A.

9. A showcase costing $276.48 was charged to Repairs—Fixtures.

10. Window display fixtures costing $465.87 charged to advertising.

Problem 13–7. The following errors were discovered while preparing financial statements for the quarter year ended December 31, 1955:

1. Depreciation of machinery and equipment amounting to $278.63 for the quarter ended June 30, 1955, entered as $287.36.
2. A purchase invoice dated September 28 entered on October 4.
3. Merchandise of $386.29 received September 25 included in the inventory September 30 but the invoice not recorded until October.
4. A sale of $131.96, made in July, entered as $31.96.
5. Accrued salaries and wages of $341.67 at September 30 not entered.
6. A purchase invoice for $1,461.27 dated September 19 not recorded until October. The merchandise was in transit but was counted in the September 30 inventory.

Required:

1. Prepare a table showing the effect of each of these errors on the income statements for all quarter years affected and on all balance sheets affected.
2. Prepare correcting entries as at December 31, 1955.

Problem 13–8. An analysis of the records of Davis and Co. discloses the following:

1. Expired insurance premium on policy #184678 of Aetna Company overstated by $97.63 for 1954.
2. Accrued interest receivable of $121.75 for 1954 not recorded until received in 1955.
3. Merchandise purchased of $386.47 received in December 1954 not recorded and not included in the ending inventory.
4. A sale of $1,461.35 made in 1954 entered at $1,614.35 in 1955.
5. Depreciation on equipment of $561.73 for 1953 entered as $615.73 in 1953.
6. Interest on notes payable of $75.68 for 1953 not entered until 1954.
7. Merchandise of $439.76 received in December, 1954 was included in the ending inventory but not recorded in the accounts.

Required:

1. Prepare a table showing the effect of each of these errors on reported net income for 1953 and 1954 and on the balance sheet at the end of each of these years.
2. Prepare correcting entries as at December 31, 1955.

Problem 13–9. An analysis of the records of Mathiesen Company disclosed the following:

	1953	1954	1955
Understatement of unexpired insurance	$1,800	$ 950	$ 840
Invoices received but not recorded:			
The merchandise included in the ending inventory	450		680
Accrued salaries omitted	1,200	850	1,800
Merchandise received and not included in the inventory; the invoices were properly booked	1,140	575	384
Merchandise and invoices received but invoices not booked and merchandise not included in inventory	460	980	563

Required:

1. Prepare a table showing the effect of each of the errors on reported net income for 1953, 1954 and 1955, and on the balance sheet at the end of each year.

2. Prepare correcting entries as at December 31, 1955 on the assumption that the accounts for 1953 and 1954 have been closed.

Problem 13–10. The following errors in the handling of merchandise and the related invoices have been discovered:

	1953	1954	1955
Received, unsold, but not counted	$760	$435	$810
Received, sold, entered in the accounts and counted as on hand	475	287	194
In transit, not recorded, and not counted	165	562	287
Received, on hand, counted but not recorded	310	987	653
In transit, recorded, but not counted	491	287	565

Required:

1. Prepare a table showing the effect of each of the errors on reported net income for 1953, 1954 and 1955 and on the December 31 balance sheet for each year.
2. Prepare correcting entries as at December 31, 1955 on the assumption that the income accounts for 1953 and 1954 are to be reopened, and that the accounts for 1955 have not been closed.

Problem 13–11. An examination of the records of Burton and Son discloses the following:

	1954	1955
Understatement of depreciation on equipment	$ 480	$1,260
Overstatement of unexpired insurance premiums	210	380
Accrued payroll omitted	1,760	1,984
Bonus due on 1953 operations understated and entered in 1954	5,600	
Interest on bonds owned understated	185	310
Merchandise on hand not counted in inventory; the invoice had been recorded	461	378

Required:

1. Prepare a table showing the effect of each error on reported net income for 1954 and 1955, and on the balance sheet at the end of each year.
2. Prepare correcting entries as at December 31, 1955 on the assumption that the income account for 1954 is closed.

Problem 13–12. During the course of an examination of the records of Zeta Delta Corporation the following errors were uncovered:

	1951	1952	1953
Accrued payroll understated	$1,871	$ 176	$ 314
Unexpired insurance premiums understated	461		976
Accrued advertising bill omitted	110	218	
Merchandise on hand, booked, but not included in Inventory		1,018	964
Merchandise in transit included in inventory but not recorded	475	112	
Depreciation on furniture and fixtures omitted	410		415

Required:

1. Prepare a table showing the effect of each error on reported net income for each year and on the balance sheet at the end of each year.
2. Prepare correcting entries as at December 31, 1953 on the assumption that the income accounts for 1951 and 1952 are closed.

Problem 13–13.

	1953	1954	1955
Understatement of accrued interest income	$ 410		$ 485
Invoice for expenses omitted	218	361	195
Depreciation on equipment understated	95		318
Sales on account omitted		81	246
Merchandise sold, not recorded as a purchase	186	410	385
Merchandise in transit, booked, but not counted in inventory	484		673
Merchandise counted twice in inventory		395	568

Required:

1. Prepare a table showing the effect of each error on reported net income for each year and on the balance sheet at the end of each year.
2. Prepare correcting entries on the assumption that the income accounts for 1953 and 1954 are to be reopened and that the accounts for 1955 have not been closed.

Problem 13–14. The X Y Company's new bookkeeper has been examining some of the ledger accounts and has discovered the following:

	1949	1950	1951
Depreciation on delivery equipment omitted	$ 410	$ 410	$ 820
Merchandise on hand, booked but not included in inventory	967		467
Prepaid taxes written off to expense	467	643	498
Overstatement of unexpired insurance premiums	310	415	290
Merchandise sold, on hand, and included in inventory	561	387	
Overstatement of inventory due to a mistake in arithmetic		215	318

Required:

1. Prepare a table showing the effect of each error on reported net income for each year and on the balance sheet at the end of each year.
2. Prepare correcting entries in the assumption that the income accounts for 1949 and 1950 are to be reopened and that the accounts for 1951 have not been closed.

Problem 13–15. Alpha Corporation maintains a commercial account with First National Bank. On June 30, 1955 the following data were available:

Balance per bank statement	$18,621.47
Balance per books of Alpha Corporation	17,275.60
Collection charges by bank not yet recorded by Alpha Corporation	6.23
Check No. 1481 for $186.47 recorded by Alpha as $168.47	

Draft for $871.63 collected by bank from Brown and Co. not recorded

Deposit of June 30th not yet recorded by bank..... 1,146.27

Outstanding checks:

No. 1491	$418.69	No. 1499	$831.47
No. 1493	91.23	No. 1501	19.63
No. 1494	138.45	No. 1503	145.29

Required:

1. Prepare reconcilement of bank account.

Problem 13–16. From the following information prepare a bank reconcilement at December 31, 1955.

Balance per bank statement $11,641.77

Balance per books 11,729.13

Deposit of $467.91 recorded on the books as..... 647.19

Bank service charges not recorded 4.18

Check No. 4467 for $110.87 not recorded but cashed

Collection charges by bank not recorded 7.57

Draft on Miller Company for $967.84

Deposit of December 10th of $1,761.27 recorded on the books as $1,761.72

Deposit of December 31, of $1,461.29 not yet recorded by the bank

Outstanding checks:

No. 4521	$191.67	No. 4530	$ 81.42
No. 4523	14.21	No. 4535	76.35
No. 4524	98.36	No. 4538	58.43
No. 4529	41.29	No. 4540	146.71

Problem 13–17. Prepare a bank reconcilement from the following data as at October 31, 1955.

Balance per bank statement ..... $ 8,421.94

Balance per books 6,378.39

Check No. 1,967 for $321.76 entered as $312.76

Deposit of $987.63 recorded as $986.73

Check No. 1947 for $87.45 not recorded but paid by the bank

Check of H. Q. Jones for $49.75 charged back by the bank for insufficient funds

Deposit of October 31, of $1,011.28 not recorded by bank in October

Draft on Harliss Company for $961.38 collected by bank, not recorded

Bank service charges not recorded 4.29

Bank charge for note of $1,500.00 due October 15 plus interest $14.75, not recorded

Outstanding checks:

No. 1988	$146.55	No. 2001	$1,421.98
No. 1989	89.47	No. 2207	761.43
No. 1995	68.21	No. 2208	529.64
No. 1997	321.76	No. 2010	418.75

Problem 13–18. From the following information prepare a bank reconcilement as at August 31, 1955.

Balance per bank statement	$13,641.87
Balance per books	9,515.38
Deposit of $1,871.63 recorded as $1,817.63	
Check of Moulton and Co. for $179.63 charged back by bank for insufficient funds	
Bank service charges not recorded	11.37
Trade acceptance of Martin and Son, Inc. for $1,461.28 collected by bank, not recorded	
Collection charges on the above acceptance, not recorded	27.63
Interest on note deducted by bank, not recorded	75.83

Outstanding checks:

No. 3164	$421.10	No. 3180	$127.63
No. 3165	961.87	No. 3183	95.47
No. 3169	211.56	No. 3187	381.55
No. 3171	137.84	No. 3188	46.67
No. 3178	521.98		

ASSIGNMENT MATERIAL FOR CHAPTER 14

Questions

Question 14–1. Is the length of the credit period in any way related to the degree of accuracy to which gross operating income can be measured? Explain fully.

Question 14–2. What are the three elements involved in the problem of measuring gross operating income?

Question 14–3. Why is the measurement of expenses for a period so much more difficult than the measurement of gross income for a period? Explain in considerable detail.

Question 14–4. How are product costs and period costs distinguished?

Question 14–5. How is the conventional conservatism of accountants related to uncertainty?

Question 14–6. Explain three concepts of conservatism.

Question 14–7. What procedures are involved in the measurement of gross financial income?

Question 14–8. Of what significance are estimates in the measurement of gross financial income?

Question 14–9. What two conditions should be satisfied in measuring expenses for a period? Discuss.

Question 14–10. What are the chief obstacles that make it difficult to satisfy the conditions referred to in question 14–9?

Question 14–11. Instead of attempting to measure expenses for a period why do we not attempt to measure expenses relating to specific sales? Discuss.

Question 14–12. Is the distinction between product costs and period costs influenced at all by the length of the period? Discuss.

Question 14–13. Do the conservative practices of accountants influence the net income reported for a period? If so, how?

Question 14–14. In your judgment are the three concepts of conservatism equally useful in practical affairs? Give reasons for your answer.

Problems

Problem 14–1. Local Specialty Shop never granted credit. The management is considering the advisability of granting credit and is undecided whether the terms should be 30 days or 60 days. Sales for the last fiscal year were $150,000 distributed as follows:

January	$ 8,000	May	$12,000	September	$12,000
February	9,000	June	16,000	October	14,000
March	11,000	July	12,000	November	15,000
April	15,000	August	11,000	December	15,000

The following estimates have been made:

	30 Day Credit	60 Day Credit
Annual sales	10% increase	15% increase
Loss on uncollectible accounts	0.34% of sales	0.51% of sales

The estimated increase in sales is over the figures for the last fiscal year and applies to each month's sales.

Required:

1. Prepare a statement showing the estimated gross operating income for a calendar year (this enterprise's fiscal year) on each proposed credit plan compared with the last fiscal year.
2. Prepare a statement showing the amount of the gross income which will have been collected in cash in the first year under each proposed credit plan compared with the last fiscal year. Assume that sales are made rateably throughout November and December and that these months contain 25 and 26 business days respectively.

Problem 14–2. The R S Company extends 30 day credit and is seriously considering extending the terms to 90 days.

No sales are made for cash.

Reports are prepared for a fiscal year ending August 31.

Annual sales have averaged $985,000 for the past three years. Sales of June, July, and August have averaged 8%, 11% and 12%, respectively, of annual sales. Sales under the proposed credit terms should show an increase of 10% over the three year average.

Loss from uncollectible accounts have been 0.19% of sales. Under the proposed credit terms this figure is expected to increase to 0.27% of sales.

Required:

1. Prepare a statement comparing the estimated gross operating income under the present and the proposed credit terms.
2. Prepare a statement showing the amount of the gross income which will have been collected in cash in the first year under the proposed plan compared with the last fiscal year. Assume that June, July, and August contain 26, 28, and 28 business days, respectively, and that sales are made ratably throughout each of these months.

Problem 14–3. Make the following adjustments in the given data of problem 14–2:

a. A cash discount of 2%—10 days—net 30 days is offered.

b. Discounts are taken by customers to the extent of 80% of sales.

c. Loss from uncollectible accounts is 0.07% of gross sales (the $985,000 is gross sales).

d. Under the proposed 90 day terms, a 1% cash discount will be available if payment is made within 60 days. It is estimated that the discount will be taken to the extent of 65% of gross sales.

e. The loss from uncollectible accounts under the proposed plan is expected to increase to 0.12% of gross sales.

f. The estimated increase in gross sales is 13%.

Required:

1. The requirements of problem 14–2.

Problem 14–4. Rework problem 14–2 on the assumption that 30% of sales are for cash. The percentages of losses on uncollectible accounts will apply to credit sales only.

Problem 14–5. Rework problem 14–3 on the assumption that 15% of the sales have been for cash and that under the proposed credit terms only 12% of the sales will be for cash. The percentages of losses on uncollectible accounts will apply to credit sales. The 80% in (b) and the 65% in (d) of problem 14–3 will apply to credit sales only.

Problem 14–6. Basic Products Corporation started operations May 1, 1955. During May it produced 300 units at a cost of $350 per unit. No sales were made in May. Non-manufacturing costs for May were the following:

Salesmen's Salaries	$800
Office Salaries	650
Office Expenses	180
Other Expenses	720

Required:

1. What items and amount would you include in the income statement for May and in the balance sheet May 31 on the assumption:
   a. Of extreme conservatism?
   b. Of most probable estimates?
   Give complete explanations for your treatment of each item.

Problem 14–7. Assume that you were asked to prepare the income statement for May and for June and the balance sheet at May 31 and June 30 for, the Basic Products Corporation. In addition to the data presented in problem 14–6 you find the following:

Production for June was 425 units at an average cost of $325 per unit. Non-manufacturing costs were:

Salesmen's Salaries	$ 800
Salesmen's Commissions	1,117
Office Expenses	240
Other Expenses	860

In May the salesmen took orders for the delivery of 200 units in June and 300 units in July. In June they took orders for 75 units to be delivered in June, 150 in July, and 375 in August. The units of product first produced are first sold. Sales are at $575 per unit of product. All of the salesmen's commissions resulted from June deliveries:

Required:

1. The requirements of problem 14–6 with reference to both May and June.

Problem 14–8. Local Department Store maintains a warehouse from which it replenishes its selling floor stocks and makes deliveries of household equipment and furnishings to customers. A well thought-out and carefully maintained set of expenses accounts covers the warehouse activities.

Required:

1. State how you would proceed to determine the proper time distribution of the costs of operating the warehouse.

Problem 14–9. State, and give reasons for, the time distribution you would make of the following items shown in the year-end (December 31) trial balance of Theta Mu Corporation.

Advertising	$76,000
Office Supplies	13,100
Telephone	3,400
Telegraph	960
Traveling Expense	4,280

Of the advertising expense $10,000 was incurred in connection with closing out the inventory of Model X 4 B which will no longer be produced. $26,000 was spent on a new product to be available next year. The balance was spent on advertising the company's products but without quoting prices, etc.

$347 of the telephone cost was for long distance conversations with attorneys handling a prior year's income tax problem with Internal Revenue Service.

About $45 of telegraph expense was for the same purpose. An estimated $1,460 of travel expense was in connection with this same tax problem. About $155 of the telephone cost was with reference to the new product.

Problem 14–10. Specialty Shop, Inc. has an income statement prepared each month. The bookkeeper includes the following items in the amounts computed as indicated:

Rent: 1/12 of the annual amount.

Insurance Premiums on:

Building Coverage	Total premium divided by months covered
Inventory Coverage	Total premium divided by months covered
Public Liability	Total premium divided by months covered

You have been asked to recommend alternative procedures which will yield more realistic and meaningful results.

Required:

1. Prepare, in good form, a report setting forth your recommendations.

ASSIGNMENT MATERIAL FOR CHAPTER 15

Questions

Question 15–1. Explain how the problem of revaluation comes to be involved in the problem of measuring costs or expenses for a period.

Question 15–2. What is meant by the "lower of cost or market" as applied to inventory valuations?

Question 15–3. Under what conditions is it appropriate to use the lower of cost or market method?

Question 15–4. Do the words "cost of goods sold" as commonly used in an income statement really mean what they seem to mean? Explain fully.

Question 15–5. Try to draw up a list of the strong points and the weak points of the lower of cost or market method of inventory valuation.

Question 15–6. Present the case for the first-in-first-out method of inventory valuation.

Question 15–7. Under what conditions is FIFO an appropriate method of inventory valuation?

Question 15–8. If market prices (replacement prices) were constant which method of inventory valuation would be the best method to use?

Question 15–9. Present the case for the last-in-last-out method of inventory valuation.

Question 15–10. Explain the averaging method of inventory valuation. Under what conditions is it a proper method to use?

Question 15–11. Is it possible to separate the problem of valuation of inventory for balance sheet purposes from the problem of valuation for income measurement purposes? Explain fully.

Question 15–12. What objective is sought to be achieved by the use of the lower of cost or market method of inventory valuation?

Question 15–13. How is each of the methods of inventory valuation discussed in this chapter influenced by rising replacement prices? By falling replacement prices?

Question 15–14. How would you proceed to select a basis for inventory valuation?

Question 15–15. Is the appropriateness of a method of inventory valuation influenced at all by the actual physical operations carried on by an enterprise?

Problems

Problem 15–1. The following data apply to Hobson Mfg. Co.:

	Period			
	I	II	III	IV
Opening Inventory	$18,400	$17,600	$19,700	$21,300
Purchases	61,000	67,000	69,000	72,000
Closing Inventory	17,600	19,700	21,300	24,700

Inventories are valued on the basis of COMWIL.

A comparison of the closing inventories at COMWIL and at histroical cost follows:

	Period			
	I	II	III	IV
At COMWIL	$17,600	$19,700	$21,300	$24,700
At historical cost	17,950	19,700	21,300	25,200

Required:

1. Prepare a statement showing for each period cost of goods sold as conventionally determined and as proposed in this book.

Problem 15–2. Bartlett Corporation maintains detailed records of each item of finished parts as follows:

Date	Receipts Quantity	Unit Cost	Amount
September 1 (Inventory)	400	$1.15	
8	600	1.17	
12	1,100	1.21	
19	800	1.24	

	Issued from Stores	Date Quantity	Unit Issue Price Amount
September 2	200		
7	100		
9	350		
10	150		
13	400		
17	500		
21	300		
22	400		

Required:

1. Complete the "Issued from Stores" section of the above detailed inventory record under each of the following methods of inventory valuation (methods of determining cost of services consumed):
   (a) Average
   (b) LIFO
   (c) FIFO

Problem 15–3. Satisfy the requirements of problem 15–2 changing only the unit cost of receipts to read as follows:

September 1 (Inventory)	$1.35
8	1.31
12	1.27
19	1.21

Problem 15–4. Many States Copper Company uses the base stock method of inventory valuation. The first 300,000 pounds of copper are valued at a base price of 19 cents per pound. All in excess of 300,000 pounds is valued at COMWIL. Data for several successive periods are set out below.

Period	Ending Inventory Pounds	Average Cost Per Pound* (cents)	Market Price Per Pound* (cents)
I	450,000	21.0	20.8
II	435,000	22.5	22.7
III	430,000	22.0	21.4
IV	410,000	21.9	21.3

*Applicable only to quantity in excess of 300,000 pounds.

Required:

1. Prepare a statement showing the valuation of the ending inventory for each period.
2. How would you explain the meaning of the balance sheet inventory figure to a person unfamiliar with accounting?

Problem 15–5. The following data relate to Glaucus Manufacturing Company:

Item	Number of Units	Unit Cost	Unit Market Price	COMWIL
A	150	$1.00	$1.05	$1.00
B	70	1.54	1.52	1.52
C	100	2.10	1.94	1.94
D	90	1.97	1.99	1.97

Required:

1. Prepare a statement showing the inventory valuation on the basis of each of the three possible bases.
2. Would the lower of the valuations yielded by Unit Cost and Unit Market Price be in any sense a lower of cost or market figure? Discuss.
3. Which of the three valuations most closely approximates the net cash left after sale and payment of costs? Why?

Problem 15–6. The inventory records of a business show the following:

	Purchases			
Date	Quantity	Unit Cost	Unit Sales	Unit Replacement Price
September	3,000	$2.00	2,900	$2.04
October	3,100	2.05	3,300	2.05
November	3,200	2.05	3,400	2.05
December	3,400	2.07	3,600	2.08
January	3,100	2.08	3,200	2.11

The September 1 inventory was 3,600 units valued at $1.98 per unit.

Required:

1. Prepare a schedule of cost of goods sold for each month and the ending inventory of each month on each of the following methods of valuation:
   a. FIFO
   b. LIFO
   c. COMWIL
   d. Average

Show the number of units valued at each price for cost of goods sold for each month and for each monthly inventory.

Problem 15–7. Satisfy the requirements of problem 15–6 changing only the following:

Date	Unit Cost of Purchases	Unit Replacement Price
September	$2.00	$1.99
October	1.98	1.99
November	1.93	1.95
December	1.87	1.85
January	1.81	1.77

Problem 15–8. A business adopted the LIFO basis of inventory valuation when unit replacement price was $1.50 and historical unit cost was $1.45. The quantity at that time was 3,000 units. During the next five periods unit replacement prices rose at a constant rate of 7% per period. Inventory quantity grew at the rate of 5% per period.

Required:

1. Prepare a schedule showing a comparison of inventory valuation on the LIFO and COMWIL bases.
2. Which method shows the greater variation in cost of goods sold from period to period?
3. Which method yields the greater difference between its results and the better estimate of future net receipts from sales? Why?

Problem 15–9. The XY Company has consistently valued its inventory on the basis of FIFO. For the past five periods the record is as follows:

	Purchases		Sales	Replacement
Period	Quantity	Unit Cost	Quantity	Cost Per Unit
I	1,200	$2.03	1,500	$2.05
II	1,400	2.07	1,600	2.08
III	1,500	2.10	1,650	2.13
IV	1,600	2.15	1,800	2.17
V	1,800	2.19	1,900	2.22

The inventory at the beginning of period I was 2,500 units, valued at $2.00 per unit.

Required:

1. Prepare a schedule showing, for each period, the cost of goods sold and the ending inventory.

Problem 15–10. Using the data of problem 15–9 prepare a schedule showing the cost of goods sold and the ending inventories if X Y Company adopted the LIFO method of inventory valuation beginning with the opening inventory of period I. Present a comparison of cost of goods sold and ending inventories on the two bases.

Problem 15–11. A business has consistently valued its inventory on the basis of COMWIL. The management is now considering the adoption of the LIFO basis. You are asked to prepare a report showing the effect on reported net income and on the balance sheet of the proposed change.

Required:

1. Prepare the requested report.

Problem 15–12. The bookkeeper of Stannard and Co. is of the opinion that the LIFO method of inventory valuation yields results materially different from FIFO. He has been told that the time distribution of reported net incomes is materially different under the two methods and that LIFO always results in understatements of inventory valuation.

Required:

1. Prepare a report which will clarify the issues for the bookkeeper.

Problem 15–13. The following data were taken from the records of Stannard and Company. The inventory at the beginning of period I was $14,600. COMWIL is used.

Period	Ending Inventory At Cost	Ending Inventory At Market	Purchases	Sales
I	$14,500	$14,200	$45,000	$75,000
II	14,800	14,600	47,000	76,000
III	15,000	14,800	46,000	74,000
IV	14,900	14,700	47,000	77,000
V	16,000	15,600	50,000	80,000

Required:

1. Prepare a statement showing the shift of cost of goods sold between periods on the assumption that all of the ending inventory of each period was out of purchases of that period.
2. Prepare a statement showing gross margin per period.

Problem 15–14. Using the basic data of problem 15–13 prepare a statement showing the shift of cost of goods sold between periods on the assumption that 10% of each ending inventory consisted of goods on hand at the beginning of the period.

Also prepare a statement showing gross margin per period.

Problem 15–15. The Bartram Corporation has consistently valued its inventory on the LIFO basis. You have been asked to prepare a statement showing the extent to which the use of the LIFO method has reduced reported income as compared with FIFO.

Required:

1. List the various types or kinds of information you would need to answer the question, state where you would expect to find it, and exactly how you would use it.

Problem 15–16. Assume the following data:

Period	Unit Cost	Unit Market	Units In Inventory
I	$1.00	$1.03	4,000
II	1.05	1.07	4,000
III	1.10	1.12	4,000
IV	1.20	1.23	4,000
V	1.28	1.32	4,000
VI	1.37	1.40	4,000

Sales per period have been constant.

Required:

1. Prepare a table showing the computation of inventory valuation on the basis of LIFO and COMWIL.
2. Comment on the results.

Problem 15–17. Assume the following data:

Period	Unit Cost	Unit Market	Units In Inventory
I	$2.08	$2.06	3,000
II	1.98	1.95	3,000
III	1.90	1.86	3,000
IV	1.83	1.79	3,000
V	1.76	1.72	3,000
VI	1.69	1.66	3,000

Sales per period have been constant.

Required:

1. Prepare a table showing the computation of inventory valuation on the basis of LIFO and COMWIL.
2. Comment on the results.

Problem 15–18. Use the basic data problem 15–16 and prepare a table showing the computation of inventory valuation on the basis of LIFO and FIFO. Comment on the results.

Problem 15–19. Use the basic data of problem 15–17 and prepare a table showing the computation of inventory valuation on the basis of FIFO and LIFO. Comment on the results.

ASSIGNMENT MATERIAL FOR CHAPTER 16

Questions

Question 16–1. What is the basic idea underlying the retail method of inventory valuation?

Question 16–2. Does the retail method yield valuations similar in any respect to the methods discussed in Chapter 15? Explain fully.

Question 16–3. List and define each of the technical terms used in connection with the retail method.

Question 16–4. What is the effect of treating a mark-up cancellation as a mark-down?

Question 16–5. Why is it necessary to separate mark-down cancellations from mark-ups? Explain fully.

Question 16–6. Illustrate and explain the effect of a mark-up upon the complement of mark-up per cent.

Question 16–7. Illustrate and explain the effect of a mark-down upon the mark-up per cent.

Question 16–8. What conditions should exist in order that the retail method yield the results appropriate to it? Explain fully.

Question 16–9. How may the sale of odd or broken lots of merchandise at distress prices be handled through the retail method? Explain fully.

Question 16–10. What is the meaning of negative mark-ups, net; or mark-downs, net? Explain fully.

Question 16–11. What is meant by shrinkage? How is it allowed for in the retail method? Explain fully.

Question 16–12. How may shrinkage be reduced to a minimum?

Problems

Problem 16–1. Assume the following inventory data:

Item	Start Of Period	Bought	Sold	End of Period	Per Unit Cost	Per Unit Selling Price
A	50	150	98	102	$ 25.00	$ 38.25
B	75	190	65	200	42.00	64.50
C	83	95	98	80	67.50	98.50
D	121	150	135	136	94.25	130.00
E	97	200	180	117	110.00	155.00

Required:

1. Set up tables after the pattern 1 and 2 in this chapter.
2. Explain fully why the results are almost identical. (Any difference should be less than 50 cents.)

Problem 16–2. The following data were obtained from the records of Local Department Store and refer to Department A:

	Cost	Retail
Beginning Inventory	$30,000	$52,000
Purchases	45,000	76,000
Mark-ups		3,100
Mark-up cancellations		2,900
Sales		73,000

Required:

1. Prepare a statement showing both the correct and incorrect methods of determining the ending inventory by the retail method.
2. Explain why one method is correct and the other is not.

Problem 16–3. The records of Ladies Apparel Shop disclose the following:

	Cost	Retail
Beginning Inventory	$12,000	$19,500
Purchases	18,000	29,000
Mark-downs		2,100
Mark-down Cancellations		1,600
Sales		27,800

Required:

1. Satisfy the requirements of problem 16–2.

Problem 16–4. A portion of the inventory record of a business is reproduced below.

	Cost	Retail
Beginning Inventory	$ 8,000	$12,500
Purchases	10,000	15,700
Mark-ups—Net		— 800
Sales		16,000

An examination discloses that mark-up totaled $900 and mark-up cancellations totaled $1,700.

Required:

1. Satisfy the requirements of problem 16–2.

Problem 16–5. From the inventory records of La Mode Dress Shop the following data have been obtained:

	Cost	Retail
Beginning Inventory	$ 6,000	$10,000
Purchases	4,500	7,800
Mark-downs—Net		— 200
Sales		9,500

Inquiry discloses that gross mark-downs were $750 and that mark-down cancellations were $950.

Required:

1. Satisfy the requirements of problem 16–2.

Problem 16–6. Transactions of Department D of a business were as follows:

	May		June		July	
	Cost	Retail	Cost	Retail	Cost	Retail
Beginning Inventory..	$12,000	$20,000				
Purchases	15,000	27,000	$18,000	$29,000	$16,000	$26,800
Mark-ups—Net		2,900				
Mark-downs—Net ...		1,700				
Mark-up Cancellations						900
Mark-down Cancellations						700
Sales		39,800		34,000		29,000

Required:

1. Prepare a detailed department inventory according to the pattern illustrated in Chapter 16.

Problem 16–7. The merchandising transactions of X Y Co., Department 14, are summarized below.

	February		March		April	
	Cost	Retail	Cost	Retail	Cost	Retail
Beginning Inventory..	$15,000	$23,000				
Purchases	32,000	48,500	$40,000	$61,000	$35,000	$54,000
Mark-ups—Net		1,900				
Mark-downs—Net		1,400				
Mark-up Cancellations				400		1,500
Mark-down Cancellations				650		750
Sales		50,000		59,000		56,000

Required:

1. Satisfy the requirements of problem 16–6.

Problem 16–8. The records of Department R showed the following:

	July		August		September	
	Cost	Retail	Cost	Retail	Cost	Retail
Beginning Inventory..	$ 8,500	$12,800				
Purchases	12,000	15,900	$14,000	$21,600	$15,000	$23,000
Mark-ups—Net		600				
Mark-downs—Net ...		450				
Mark-up Cancellations				310		
Mark-down Cancellations						280
Sales		16,500		22,000		21,000

Required:

1. Satisfy the requirements of problem 16–6.

Problem 16–9. Department 18 merchandising operations may be summarized as follows:

	March		April		May	
	Cost	Retail	Cost	Retail	Cost	Retail
Beginning Inventory..	$15,000	$26,000				
Purchases	21,000	32,500	$23,000	$34,800	$25,000	$38,400
Mark-ups		650		900		875
Mark-downs		210		460		385
Mark-up Cancellations				840		680
Mark-down Cancellations				175		650
Sales		33,000		37,000		35,000

Required:

1. Satisfy the requirements of problem 16–6.

Problem 16–10. Department D merchandising transactions are summarized below:

	January		February		March	
	Cost	Retail	Cost	Retail	Cost	Retail
Beginning Inventory..	$20,000	$31,000				
Purchases	31,000	48,000	$26,000	$41,200	$34,000	$52,000
Mark-ups		1,600		1,100		850
Mark-downs		900		400		450
Mark-up Cancellations		1,700		800		910
Mark-down Cancellations		700		650		760
Sales		52,000		47,000		54,000

Required:

1. Satisfy the requirements of problem 16–6.

ASSIGNMENT MATERIAL FOR CHAPTER 17

Questions

Question 17–1. What is the meaning of the term depreciation as it is used in accounting?

Question 17–2. Is the problem of depreciation related in any way to the problem of repairs? Explain fully.

Question 17–3. Illustrate and explain the straight line method of depreciation.

Question 17–4. Under what conditions is the straight line method of depreciation the most appropriate one to use?

Question 17–5. Is the sum-of-the-year's digits method superior in any way to the straight line method?

Question 17–6. Illustrate and explain the service unit method of depreciation.

Question 17–7. Why are the periodic measures of depreciation not credited to the account for the asset which is depreciating?

Question 17–8. Under what conditions would you recommend the use of the service unit method of depreciation?

Question 17–9. Under what conditions would you recommend the use of the sum-of-the-year's digits method of depreciation.

Question 17–10. Why does a gain or a loss appear in the accounts when a depreciating asset is disposed of?

Problems

Problem 17–1. The X Y Company depreciates the following listed assets at the rates indicated.

	Cost	Depreciation to Jan. 1, 1950	Depreciation Rate
Building	$ 400,000	$175,800	2% per year
Machinery	1,800,000	964,700	8% per year
Delivery Trucks	40,000	17,200	16⅔% per year
Office Equipment	3,600	1,700	10% per year

Required:

1. Set up ledger accounts for the assets and the related allowance for depreciation. Enter the given data.
2. Prepare all journal entries for depreciation for 1950, 1951 and 1952, and post to the ledger accounts.
3. Prepare the relevant section of the balance sheet as at December 31, 1949 and 1952

Problem 17–2. A certain machine costs $8,700. It is to be depreciated on the sum-of-the-year's digits basis. The estimated life is 7 years.

Required:

1. Prepare a table showing the amount of depreciation for each year of the life of the machine.
2. Prepare journal entries at the end of each of the first three years and post to the appropriate ledger accounts.
3. Prepare the relevant section of the balance sheet as at the end of the first and fourth year.

Problem 17–3. A highway transport truck is to be depreciated on the basis of the service unit formula. The estimated units of service for the useful life of the asset is 60,000 ton-miles. Assume that the record discloses the following:

Year	Ton-Miles	Year	Ton-Miles
1	5,600	5	8,400
2	6,100	6	9,500
3	7,500	7	10,000
4	6,300	8	6,600

The truck cost $18,000.

Required:

1. Prepare a schedule showing the yearly depreciation charge.
2. Prepare journal entries for the first three years and post to the appropriate ledger accounts.
3. Prepare the relevant section of the balance sheet at the end of the first and third years.

Problem 17–4. In connection with the machinery in problem 17–1 assume the following time distribution of repairs outlays:

	Repairs		
Year	A	B	C
1950	$16,800	—	$18,000
1951	17,500	$ 6,000	17,000
1952	16,900	8,000	15,400
1953	17,200	11,000	14,600
1954	17,300	15,000	13,900
1955	17,100	19,000	13,200

Required:

1. Prepare a tabular statement showing the cost of services yielded by the machinery each year where total cost equals depreciation plus repairs. Show depreciation, repairs, and total for each repair schedule.
2. Comment upon the significance of the variations in annual costs.

Problem 17–5. Assume the following time series of repairs for the machine of problem 17–2:

	Repairs		
Year	A	B	C
1	$100	$ 5	$45
2	108	25	40
3	109	60	30
4	107	85	20
5	106	90	15
6	107	105	10
7	106	115	5

Required:

1. Satisfy the requirements of problem 17–4.

Problem 17–6. For the highway transport truck of problem 17–3 assume the following time series of repairs:

Year	Repairs A	Repairs B	Repairs C
1	$150	$150	$200
2	155	175	175
3	149	200	150
4	153	240	140
5	157	295	130
6	149	360	120
7	151	440	110
8	157	610	90

Required:

1. Prepare a tabular statement showing for each year depreciation, repairs, the sum of depreciation and repairs, and the cost per unit of service based on the latter sum.
2. Comment upon the significance of the variations in annual cost (depreciation plus repairs) and in unit of service cost from year to year.
3. Recompute the data for part one of this problem using patterns B and C on the assumption that they represent the best estimates of repairs calculated before the truck was in operation.
4. Compare the results of 3 with the relevant parts of 2 and comment upon the observed variations.

Problem 17–7. Assume that the machinery in problem 17–4 was expensive equipment used uniformly in the production of one product. Assume further that the number of units produced each year was as follows:

Year	Production In Units	Year	Production In Units
1950	40,000	1953	39,950
1951	40,600	1954	39,980
1952	40,500	1955	40,010

Required:

1. Prepare a tabular statement showing for each year and for each repair series given in problem 17–4, depreciation, repairs, depreciation plus repairs, units produced, and cost per unit produced, so far as depreciation and repairs are involved.
2. Comment upon observed variations in cost per unit of product.

Problem 17–8. Assume the following production data:

Year	Production In Units	Year	Production In Units
1950	30,000	1953	41,000
1951	35,000	1954	53,000
1952	40,000	1955	61,000

Required:

1. Satisfy the requirements of problem 17–7.

Problem 17–9. The following production record applies to the machinery in problem 17–4.

Year	Production In Units	Year	Production In Units
1950	45,000	1953	31,000
1951	40,000	1954	25,000
1952	37,000	1955	20,000

Required:

1. Satisfy the requirements of problem 17–7.

Problem 17–10. The machine of problem 17–2 was used in the making of many products. In each case the same operation was performed on the part being manufactured. The record of operations performed follows:

Year	Number of Operations	Year	Number of Operations
1	5,000	5	4,990
2	5,100	6	4,985
3	5,040	7	5,010
4	5,020		

Required:

1. Using the repair schedules of problem 17–5, which are applicable to the machine of problem 17–2, prepare a tabular statement showing for each year and for each repair series, depreciation, repairs, depreciation plus repairs, number of operations, and cost per operation, so far as depreciation and repairs are involved.
2. Comment upon observed variations in cost per operation.

Problem 17–11. Assume the following record of number of operations per year for the machine in the preceding problem:

Year	Number of Operations	Year	Number of Operations
1	7,000	5	5,400
2	6,500	6	4,900
3	6,000	7	4,300
4	5,700		

Required:

1. Satisfy the requirements of problem 17–10.

Problem 17–12. The following performance record applies to the machine in problem 17–9.

Year	Number of Operations	Year	Number of Operations
1	4,400	5	7,000
2	4,900	6	7,500
3	6,100	7	8,300
4	6,400		

Required:

1. Satisfy the requirements of problem 17–10.

Problem 17–13. A desk was purchased March 1, 1952 for $240. Depreciation has been estimated on the straight line basis with an estimated life of 15 years.

On July 15, 1954 the desk was irreparably damaged while an office safe was being moved.

Required:

1. Ignoring insurance problems set up ledger accounts to show the status of the investment in the desk on the date of the accident.
2. Assuming no insurance coverage how and where would you show the loss in the income statement? Why?

Problem 17–14. A delivery truck was purchased on July 1, 1950 for $6,600. Depreciation was calculated at 16⅔% per annum on a straight line basis. On August 10, 1955 the truck was traded in for a new one. The allowance on the old truck for trade-in purposes was $1,400.

Repuired:

1. Prepare all journal entries necessary to record the given data and post to ledger accounts.
2. What is the nature of the difference between book-value of the truck and the trade-in allowance? How and where in the income statement would you show this difference? Why?

Problem 17–15. The following accounts appeared in the trial balance of X Y Company on December 31, 1954:

Machinery—Cost	$10,000	
Allowance For Depreciation—Machinery ...		$ 4,000

The machinery account contains the cost of Machine A, $3,500 and that of Machine B, $6,500. The former was purchased September 15, 1951 and has been depreciated at the rate of 12% per year.

On March 1, 1955 Machine A is traded in for a new one, the allowance being $875.

Required:

1. Satisfy the requirements of problem 17–14, with reference to the data of this problem.

Problem 17–16. Assume that in problems 17–14 and 17–15 it was proposed to record the new asset at a figure which was the sum of the undepreciated cost of the old asset plus the cash paid on the new asset.

Appraise this proposal for the situation in problem 17–14 and in problem 17–15.

ASSIGNMENT MATERIAL FOR CHAPTER 18

Questions

Question 18–1. Why is a separate journal ordinarily established for cash receipts?

Question 18–2. Upon what basis would you decide upon the classes of data for which columns should be established in a cash receipts journal?

Question 18–3. Explain how a controlling account for accounts receivable is used?

Question 18–4. The money column headings in a cash receipts journal are as follows: cash on hand, cash in bank, accounts receivable, discount on sales, cash sales, interest on investments, general ledger.

Indicate which columns are for debit and for credit entries and explain in detail how postings are made to the ledger accounts. A subsidiary ledger is maintained for accounts receivable.

Question 18–5. A sales journal contains a money column for accounts receivable, total sales, and one for each of four department sales. A subsidiary ledger is maintained for accounts receivable.

Explain in detail how postings should be made from this sales journal to the ledger account.

Question 18–6. Explain in detail how a returned sales journal is used.

Question 18–7. Describe some short-cuts that may be adopted to reduce the work involved in recording sales, returned sales, and cash receipts, presenting separately the procedure for each of the three classes of transactions.

Question 18–8. Outline a system of internal control for cash receipts.

Question 18–9. List the steps that should be taken to maintain adequate internal control over returned sales.

Question 18–10. What procedure might be followed to maintain adequate internal control over sales?

Problems

Problem 18–1. A cash receipts book has the following columns from left to right: Date; Explanation; Reference; Dr., Cash on Hand; Cr., Cash on Hand; Dr., Cash in Bank; Cr., Accounts Receivable; Cr., Cash Sales; Cr., General Ledger. Record in such a cash receipts book the following transactions:

January 2—Cash sales, $460. Receipts on account, $867.
3—Deposit in bank, $460. Cash sales $375.
4—Borrowed $750 from Second National Bank.
Cash sales $415. Collections on account, $410.
5—Cash sales, $514. Collections on account, $285.
6—Deposit in bank, $1,624. Cash sales, $315.

7—A bond carried on the books at $985 is sold for $1010 cash. Commissions deducted by brokers, $3.75. Cash sales $392. Collections on account, $278.

8—Deposit in bank, $1,676.25. Cash sales, $346.

9—Dividends of $142.65 received on stocks owned. Cash sales, $396. Collections on Account, $462.

10—Deposit in bank, $1,000.65. Received $46.75 cash for sale of discarded office equipment. Cash sales, $439. Collections on account, $141.

11—Additional investment by owner, $5,000. Cash sales, $192. Deposit in bank $626.75.

12—Deposit in bank, $5,192.

13—Received $140 rent for leased space. Cash sales, $314.

14—Deposit in bank, $454. Cash sales, $361.

Assume that the cash receipts book is totaled and posted at the close of business on the 15th and last day of each month. Determine column totals, rule off and prove the arithmetic accuracy of the cumulative equation maintained in this book of original entry. Explain in detail how postings are made to the ledger accounts assuming that an accounts receivable subsidiary ledger is maintained and that the copy of the receipt voucher is the posting medium.

Problem 18–2. Local Department Store maintains a cash receipts journal with the following money columns:

Dr., Cash on Hand; Cr., Cash on Hand; Dr., Cash in Bank; Cr., Accounts Receivable; Cr., Sales—A; Cr., Sales—B; Cr., Sales—C; Cr., General Ledger. A subsidiary ledger is maintained for accounts receivable to which postings are made from the cash receipts voucher. Enter the following transactions in this journal, summarize, and explain in detail how postings should be made from it to the ledgers.

March 16—Cash sales: A, $142; B, $96; C, $410. Collections on account, $315.

17—Deposit in bank, $963. Received $81.95 from X Y Co. for overpayment of their invoice. Collections on account, $155. Cash sales; A, $110; B, $86; C, $311.

18—Deposit in bank, $588.95. Borrowed $2,000 from bank on note, the checking account credited directly. Cash sales; A, $87; B, $115; C, $295.

19—Deposit in bank, $497. Collections on account, $463. Cash sales; A, $69; B, $110; C, $276. Received check for interest on bonds owned, $150.

20—Deposit in bank, $1,068. Cash sales; A, $614; B, $197; C, $64. Collections on account, $218.

21—Deposit in bank, $1,093. Received check for dividends on stocks owned, $215. Collections on Account, $146. Cash sales: A, $135; B, $97; C, $247.

23—Deposit in bank, $840. Sold for $1,815, stock which cost $1,514. Cash sales: A, $97; B, $126; C, $153. Collections on account, $439.

24—Deposit in bank, $2,630. Received $39 on sale of old typewriter. Received $500 on note due from W. W. Walton. Cash sales: A, $49; B, $61; C, $152.
25—Deposit in bank, $801. Cash sales: A, $151; B, $218; C, $98.
26—Deposit in bank, $467. Received $1,800 on note due from H. H. Harbin plus $75 interest thereon. Collections on account, $119. Cash sales: A, $84; B, $124; C, $137.
27—Deposit in bank, $2,339. Cash sales: A, $410; B, $396; C, $284.
28—Deposit in bank, $1,090. Collections on account, $317. Cash sales: A, $186; B, $219; C, $374.
30—Deposit in bank, $1,096. Cash sales: A, $319; B, $247; C, $184. Collections on account, $317. Received $125 rent from tenant for April.
31—Deposit in bank, $1,159. Cash sales: A, $347; B, $463; C, $510.

Problem 18–3. Specialty Shop, Inc. maintains two departments, A and B. All sales are subject to a 2% state sales tax and a 1% city sales tax. The sales of department B are subject to a federal luxury tax of 10%.

The cash receipts journal contains the following money columns: Dr., Cash on Hand; Cr., Cash on Hand; Dr., Cash in Bank; Cr., Accounts Receivable. Cr., Sales—A; Cr., Sales—B; Cr., State Sales Tax; Cr., City Sales Tax; Cr., Federal Luxury Tax; Cr., General Ledger. A subsidiary ledger is maintained for accounts receivable to which postings are made from the cash receipts voucher. Enter the following transactions in this journal, summarize, and explain in detail how postings should be made to the ledgers.

All sales amounts are *before* the calculation of any sales tax or luxury tax.

The total of the cash receipts of each day is deposited the next business day.

The following column totals as at June 18 should be entered on the first line of the cash receipts journal before recording the transactions for the balance of the month: Dr., Cash on Hand, $27,960.41; Cr., Cash on Hand, $26,142.78; Dr., Cash in Bank, $26,142.78; Cr., Accounts Receivable, $14,921.56; Cr., Sales—A, $8,640.21; Cr., Sales—B, $2,326.94; Cr., State Sales Tax, $219.34; Cr., City Sales Tax, $109.67; Cr., Federal Luxury Tax, $232.69; Cr., General Ledger, $1,510.00.

June 19—Cash sales: A, $156; B, $97. Collections on account, $247.
20—Refund from supplier of $18.60 overpayment on purchase invoice. Collection on account, $276. Cash sales: A, $178; B, $121.
21—Collections on account, $197. Cash sales: A, $146; B, $274.
22—Collections on account, $416. Cash sales: A, $164; B, $237.
23—Cash sales: A, $146; B, $187. Collections on account, $187. Borrowed $500 from bank on a note payable.
24—Received check for $84 dividends on stock owned. Cash sales: A, $196; B, $87.
26—Collections on account, $314. Cash sales: A, $146; B, $184.
27—An additional investment of $2,500 was made. Cash sales: A, $214; B, $141. Collections on account, $374.
28—Cash sales: A, $141; B, $87. Collections on account, $143.
29—Cash sales: A, $243; B, $197. Collections on account, $163. Received $46.50 interest on bonds owned.
30—Collections on account, $416. Cash sales: A, $187; B, $142.

Problem 18–4. Johnson Mercantile Company maintains a cash receipts book with the following columns: Dr., Cash on Hand; Cr., Cash on Hand; Dr., Cash in Bank; Cr., Accounts Receivable; Dr., Discount on Sales; Cr., Sales; Cr., General Ledger. A subsidiary ledger is maintained for accounts receivable to which postings are made from the cash receipts voucher. The cash receipts of each day are deposited intact the following business day. The transactions recorded for March 1 to 24 brought the several columns to the following totals: Dr., Cash on Hand, $14,621.56; Cr., Cash on Hand, $13,942.87; Dr., Cash in Bank, $13,942.87; Cr., Accounts Receivable, $7,641.20; Dr., Discount on Sales, $421.00; Cr., Sales, $5,441.46; Cr., General Ledger, $1,960.00.

Enter the foregoing figures and the following transactions in the cash receipts journal, summarize, and explain in detail how postings should be made to the ledger accounts.

March 25—Cash sales, $187; Collections on account, $187 less $1.45 discount.

26—Collections on account, $218 less $3.41 discount. Cash sales, $247. Refund on overpayment of purchase invoice, $16.80.

27—Cash sales, $416. Collections on account $241 less discount of $3.96. Borrowed $1,500 from the bank.

28—Collections on account $418 less discount of $7.46. Cash sales, $371. An additional investment of $2,000 was made.

29—Cash sales, $296. Collections on account, $491 less discount of $7.58. Received $149.75 interest on bonds owned.

30—Received dividends of $87.50 on stock owned. Cash sales, $418. Collections on account, $594 less discount of $10.04. Received $125.00 rent from tenant for April.

ASSIGNMENT MATERIAL FOR CHAPTER 19

Questions

Question 19–1. Explain how the columnized cash disbursements journal was developed from the two-column general journal.

Question 19–2. How is the purchases journal used? The returned purchases journal?

Question 19–3. Describe some short-cuts that reduce the work required to maintain the purchases journal and the returned purchases journal.

Question 19–4. Explain in detail how a petty cash fund is operated.

Question 19–5. Outline a procedure for the internal control of petty cash disbursements.

Question 19–6. Outline a procedure for the internal control of cash disbursements other than petty cash.

Problems

Problem 19–1. Standby Garage uses a cash disbursements journal containing the following money columns: Cr., Cash in Bank; Dr., Wages; Dr., Repairs Supplies; Dr., Shop Expenses; Dr., Other Expenses; Dr., General Ledger. The totals in these columns on February 16 were as follows: Cash in Bank, $1,761.42; Wages, $894.00; Repair Supplies, $421.60; Shop Expense, $84.73; Other Expense, $29,47; General Ledger, $331.62. The last entry was for check number 1,410.

Enter the foregoing totals and the following transactions in the cash disbursements journal, total all columns, prove its algebraic correctness, and explain in detail how postings should be made to the general ledger.

Each amount paid out is on a separate check except the item on February 20. The student should supply names of payee where appropriate in entering the disbursements.

February 18—Paid other expenses of $14.61.
19—Paid shop expenses of $41.73.
20—Paid $400 on note due bank plus interest of $8.00.
21—Paid $61.84 for repair supplies.
22—Paid $410.00 for new shop equipment.
23—Paid wages, $340.00; other expenses, $19.43.
25—Paid $44.56 for repair supplies and $13.91 for shop expense.
26—Paid $27.94 for other expense and $125.00 on note due bank.
27—Advanced $25.00 to W. Harmon, an employee. Paid $19.63 for other expenses, $41.74 for shop supplies, and $37.87 for other supplies.
28—Paid $61.93 for repair supplies, $19.64 for shop expense, $14.29 for other expense, and $48.00 for a second hand adding machine.

Problem 19–2. X Y Company maintains a columnized cash disbursements record in which the following data appeared on March 19, 1955: Cr., Cash in Bank, $2,681.42; Dr., Purchases, $1,492.73; Cr., Discount on Purchases, $31.63; Dr., Wages, $491.76; Dr., Salaries, $310.00; Dr., Office Expense, $43.97; Dr., General Expense, $64.59; Dr., General Ledger, $310.00.

Enter the foregoing totals and the following transactions in the cash disbursements journal of X Y Company, total all columns, prove its algebraic correctness, and explain in detail how postings should be made to the general ledger. Each amount paid out is on a separate check. The student should supply names of payees where appropriate. The last entry on March 19 was check number 1873.

March 21—Paid $63.72 for purchases after deducting discount of $1.43. Paid $39.73 for purchases. Paid $61.24 for general expense.

22—Paid $175.00 for a new typewriter. Paid purchase invoice of $137.10 on which 2% discount is available.

23—Paid First National Bank $415.75 of which $15.75 is interest, the balance on a note. Paid $16.39 general expense and $19.34 office expense.

24—Paid wages, $471.23 and salaries, $155. Paid purchase invoice of $217.63 on which 3% discount is available.

25—Paid $161.78 for purchases, $19.73 for office expense, and $29.44 for general expense. Advanced $50.00 to K. R. Catton, an employee.

28—Paid purchase invoice for $319.64 on which 2% discount is available. Paid $175.00 for desk for office.

29—Paid $150.00 on note due bank. Paid $18.74 office expense and $31.29 general expense. Paid $418.00 for purchases.

30—Paid purchase invoice of $319.64 on which 3% discount is available. Paid general expense, $41.63.

31—Paid salaries, $155 and wages, $396.42. Paid bank $14.64 interest on note. Paid purchases, $161.75. Paid purchase invoice of $219.64 on which 2% discount is available.

Problem 19–3. A. H. Bartlett Co. maintains a purchases register in which all invoices are recorded net of discounts. A subsidiary ledger is maintained for accounts payable. Its cash disbursements journal showed the following column totals on July 15, 1955; Cr., Cash in Bank, $4,086.43; Dr., Discounts on Purchases Lost, $141.15; Dr., Accounts Payable, $2,461.28; Dr., Office Supplies, $175.63; Dr., Office Expense, $97.42; Dr., General Expense, $340.95; Dr., General Ledger, $870.00.

Enter the foregoing totals and the following transactions in the cash disbursements journal of A. H. Bartlett Co., total all columns, prove its algebraic correctness, and explain in detail how postings should be made to the ledgers. Each amount paid out is on a separate check. Supply names of payee where appropriate. The last entry on July 15 was check number 2,147.

July 18—Paid account payable, $86.94. Paid $46.74 for office supplies.

19—Paid account payable, $49.73 plus $1.37 discount lost. Paid $29.47 office expense.

20—Paid $140.00 for new showcase. Paid $61.93 account payable plus $1.36 discount lost. Paid $19.74 general expenses.

21—Paid accounts payable, $41.63 and $129.76.

22—Paid bank $500 on note plus $17.65 interest.

25—Paid account payable $69.78 plus discount lost of $1.36. Paid $41.26 general expense and $15.97 office supplies.
26—Paid office expense, $21.80, office supplies, $14.67, general expense, $142.90, and account payable, $276.41.
27—Paid $141.60 on note due on purchase of fixtures. The amount paid includes $13.97 interest. Paid account payable, $127.63.
28—Paid $41.27 for office supplies, $37.63 for general expense, and $29.57 for office expense.
29—Paid $250 on note due bank. Paid $191.73 account payable plus discount lost of $1.87.

Problem 19–4. An automobile finance company makes loans which are repaid in monthly installments. Its staff consists of the manager, a bookkeeper, and two clerks. Its quarters are rented. It owns an automobile which is used by one of the clerks who frequently makes collection calls. All payments are made by check. Salaries are paid weekly but most of the other expenses not more frequently than twice a month.

Devise a cash disbursements journal for this enterprise and write out complete instructions for its use.

Problem 19–5. The Hoard Company proposes to divide its merchandising activities into four departments. It regularly takes advantage of discounts offered to the extent of approximately 94% of the purchases to which they apply. Nearly 85% of the discounts offered apply about evenly to two of the four departments the company proposes to establish. The purchases of these two departments are estimated to account for 65% of all purchases.

You are requested by the management to recommend a method of recording the purchases and the payments therefore which will minimize the work to be done and yield a maximum of useful information to the management.

Approximately 250 purchase invoices are received each month from 110 suppliers. The amounts on the invoices vary over a very narrow range.

Problem 19–6. Jones and Jones, Inc. maintains a columnized cash disbursements journal. On September 16, 1955 the totals of the entries in the several columns were as follows: Cr., Cash in Bank, $3,232.60; Dr., Accounts Payable, $1,971.63; Cr., Discounts on Purchases, $49.73; Dr., Wages, $427.49; Dr., Salaries, $350.00; Dr., Office Supplies, $41.63; Dr., Office Expense, $29.72; Dr., General Expense, $51.86; Dr., General Ledger, $410.00.

Enter the foregoing totals and the following transactions in the cash disbursements journal of Jones and Jones, Inc., total all columns, prove its algebraic correctness, and explain in detail how postings should be made to the ledgers. A subsidiary ledger is maintained for accounts payable. The last entry on September 16 was check number 3,864. Supply names of payees where appropriate. Each amount paid is a separate check.

September 19—Paid account payable of $464.28 on which 2% discount was taken. Paid $29.73 for office supplies.
20—Paid $19.47 for office expense, $31.84 for general expense, and an account payable of $86.74.
21—Paid $175.00 on bank loan. Paid $387.50 for showcase and $148.74 for a new typewriter.
22—Paid R. S. Volpee, a customer, $17.64 for overpayment on his account. Paid an account payable of $197.56 less 3% discount.

23—Paid wages, $228.97 and salaries, $175.00. Paid an account payable of $187.43 less 2% discount. Paid general expense of $121.80 and office expense of $37.63.

26—Paid account payable of $327.96; paid another of $218.67 on which 2% discount was taken. Paid $16.43 interest on note payable.

27—Paid $300.00 on note due bank. Paid $18.67 for office supplies, $21.84 for office expense, and $47.68 for general expense.

28—Paid $60.00 as an advance to R. W. Holm, a salesman. Paid account payable of $187.47 less 2% discount.

29—Paid $14.63 as refund to W. H. Ward, a customer who had purchased for cash. Paid an account payable of $408.74 less 3% discount. Paid general expense, $31.63, office expense, $17.45, and office supplies, $10.84.

30—Paid $8.87 interest on bank loan. Paid wages, $250.47 and salaries, $175.00. Paid account payable, $141.23. Paid account payable, $219.76 less 2% discount.

Problem 19–7. Study the transactions of the X Company presented in Chapter 4 and draw up a columnized cash receipts journal and a columnized cash disbursements journal. Explain in detail how each one is used including directions for posting. Also explain why you made the particular selection you did make of column headings.

Problem 19–8. Motor Car Dealers, Inc. rents cars, and sells both new and used cars. Fifteen salesmen are employed, five in the used car department and ten in the new car department. Two clerks and a helper handle the car rental business. Rentals are for cash or on account to credit card holders. Charges to car rental customers are made from sales tickets. A subsidiary ledger of these accounts is maintained. Credits to this ledger are posted from the cash receipts journal.

Sales of both new and used cars are made only on installment notes for which a subsidiary ledger is maintained. Charges to it come from a sales register; credits are posted from the cash receipts journal.

All purchases are set up as accounts payable. The most frequent purchases are new cars, used cars, automotive parts, gasoline, oil and shop supplies.

In addition to the staff mentioned above there are the president of the company, a general manager, a bookkeeper, two clerks and four shop or garage employees. All wages and salaries are recorded in the cash disbursements journal. Employees are paid weekly by check, after deductions for social security taxes and withheld income taxes. A few disbursements are made from cash on hand.

Required:

1. Indicate column headings for a receipts journal, a disbursements journal, a sales journal, and a purchases journal.
2. State the criteria upon the basis of which you planned each special journal.
3. Write out complete instructions for using each book of original entry.

ASSIGNMENT MATERIAL FOR CHAPTER 20

Questions

Question 20–1. How does the invoice register differ from the purchases journal?

Question 20–2. How does the voucher register differ from the invoice register? The purchases journal?

Question 20–3. Explain in detail the operation of a voucher system.

Question 20–4. What purpose is served by the document known as a voucher?

Question 20–5. Is the voucher register related in any way to the cash disbursements journal? Explain.

Problems

Problem 20–1. Alpha Corporation uses a voucher register containing the following columns from left to right: Voucher No., Date, Payee, Explanation, Date Paid, Check No., Vouchers Payable, Purchases, Salaries, Wages, Office Expense and General Expense. Three additional columns have a broad heading, General Ledger, under which from left to right are Name of Account, Ref., and Amount.

Explain in detail what would be entered in each column and how postings would be made from each column to the general ledger.

Problem 20–2. Beta Zeta Corporation uses a voucher register. Money columns are provided for vouchers payable, purchases, supplies, salaries, office expense, and general ledger. Assume voucher, check, and page numbers, and enter the following transactions or proper notation thereof in the voucher register.

1955

September 1—Received merchandise from H. Arliss on account, $1,650, 2% ten, net 30 days. The invoice is dated August 30.

2—Purchased supplies on account from Local Stationers, $27.50.

6—Salaries of $600 are paid.

8—Returned $210 of merchandise received on September 1 from H. Arliss.

9—Paid balance owing H. Arliss.

13—A new cash register is purchased for $750. A down payment of $250 is made, the balance due in 30 days.

14—An invoice for $27.50 for repairs to typewriters is received from Brown and Son.

15—Merchandise received from Green and Co. on account $500. Terms, 2/10; n/30.

19—Paid $300 on principal of note due First National Bank plus $16.00 interest.

21—Merchandise received from Mott & Co. on account $750. Terms, net 30 days.
23—Paid $27.50 to A. R. Rose, a customer, who overpaid his account.
24—Paid Green and Co. for the purchase of September 15.
27—Received an invoice for $18.60 from Arnet and Co. for repairs to adding machine.
30—Paid $400 on principal and $12.50 interest on note to R. H. Harrow.

Problem 20–3. The following transactions of Trevethan and Son are selected from those that occurred during August, 1955. A voucher system is in use. Record these transactions in the voucher register. Assume appropriate check and voucher numbers.

1955
August 3—Merchandise received from Barr Co. on account, $1,800. Terms, n/10.
5—A delivery truck costing $3,000 is purchased from Barron Co. $1,000 cash is paid, the balance to be paid in four monthly installments of $500 each.
8—Merchandise received from A. H. Harmes, on account, $875. Terms, 2/10; n/30.
11—Merchandise costing $150 is returned to Barr Co.
15—Paid $1,500 principal and $15.50 interest on note to First National Bank.
16—Merchandise costing $175 is returned to A. H. Harnes.
18—A. H. Harnes is paid the amount due less 2% discount.
22—Refunded $17.50 to B. Bliss for over payment on his account.
23—Paid $250, principal and $13.75, interest on balance due on purchase of equipment. The $250 pays in full a note due this date.
26—Merchandise costing $1,450 is received, on account, from P. Kerch & Co. Terms, n/30.
30—Paid salaries, $350 and wages, $491.27.
31—Merchandise costing $250 is returned to P. Kerch & Co.

Problem 20–4. The management of Cuisine Francais, one of the best restaurants in a large city, requests you to set up a voucher record system for them together with detailed instructions for its use. The volume of business is approximately $275,000 per year. The staff numbers twenty-five.

Set up an appropriate voucher record, enter assumed transaction data to illustrate its use, and present detailed instructions for its use.

Problem 20–5. Set up a voucher record system for a newspaper which has a daily circulation of 150,000. Illustrate its use and present detailed instructions for the bookkeeping staff.

Problem 20–6. You are requested to establish a voucher record system for a manufacturing jeweler. The system should be illustrated and accompanied by complete detailed instructions for the bookkeeping staff.

Problem 20–7. The manager of Rent-A-Car, Inc. asks you to set up a voucher system for their operations. The system should be illustrated and complete and detailed instructions for the bookkeeping should be prepared.

Prepare a report which will include all the necessary information.

ASSIGNMENT MATERIAL FOR CHAPTER 21

Questions

Question 21–1. Why is merchandise handled as a consignment rather than being purchased?

Question 21–2. What is the relationship between consignor and consignee?

Question 21–3. What information is entered in a "consignment out" account?

Question 21–4. What is a "consignment in" account and how is it used?

Question 21–5. What is an "account sales", who prepares it, and how is it used?

Question 21–6. There are six separately identifiable procedures that may be adopted in recording the results of consignment business on the books of the consignor. Describe each of them and appraise them on the criterion of the usefulness to management of the data accumulated under each procedure.

Problems

Problem 21–1. On August 10, 1955, Ajax Corporation consigned twelve washing machines costing $210 each to Household Appliance Distributors, Inc. Shipping cost of $80 was paid by Ajax Corporation.

On November 3, 1955, Ajax Corporation received an account sales reporting that all the machines had been sold for $375 each. The balance due was remitted by the consignee who was allowed a 10% commission on the selling price and recovery of the following expenses: Advertising $40, Delivery $65, Installation $35.

Prepare appropriate journal entries to summarize these transactions on the books of the consignor.

Problem 21–2. Use the data of problem 21–1 and prepare journal entries on the books of consignor and consignee under each of the following assumptions:

1. The consignor uses the periodical inventory basis, does not separate consignment profits from profits on regular sales, and records the net proceeds of consignment sales.
2. The consignor uses the periodical inventory basis, does not separate consignment profits from profits on regular sales, and records gross proceeds of consignment sales.

Problem 21–3. Use the data of problem 21–1 and prepare journal entries on the books of consignor and consignee under each of the following assumptions:

1. The consignor uses the perpetual inventory basis, separates consignment profits from profits on regular sales, and records the net proceeds of consignment sales.

2. The consignor uses the perpetual inventory basis, separates consignment profit from profits on regular sales, and records the gross proceeds of consignment sales.

Problem 21–4. Marlin Sales Corporation received on March 10, 1955, eight television sets from Regal Manufacturing Company. Drayage charges of $18 were paid by the consignee. Two of the sets were damaged and repairs charges amounted to $32. Five of the sets were sold for $420 each. Salesmen's commissions were $210. Installation charges amounted to $65.

Under the consignment agreement the consignee is allowed a 15% commission on all sales, any credit granted to be at his risk. An account sales is to be rendered at the end of alternate months, the first one on April 30, 1955. Remittance of proceeds is to accompany the account sales.

Required:

1. Record the foregoing facts on the books of the consignee.
2. Prepare the account sales which should be rendered by the consignee on April 30, 1955.

Problem 21–5. Fairfield Corporation's balance sheet of April 30, 1955 included the following items:

Inventory:	
On Hand	$43,600
On Consignment	8,700

The $8,700 represents the balance in the controlling account, Consignment Out, the details of which are presented below.

Consignment Out—Harlow & Co.

1955			1955		
Jan. 4	Merchandise	1,900	Apr. 30	Cash Received	458
	Packing and Shipping	60			

Consignment Out—Bartell Corporation

1955			Apr. 30	Cash Received	800
Jan. 15	Merchandise	3,100			
	Packing and Shipping	170			

Consignment Out—Jamieson-Bridger, Inc.

1955			Mar. 1	Advance	500
Feb. 20	Merchandise	2,100			
	Packing and Shipping	140			

Consignment Out—Madison, Inc.

1955		
Mar. 18	Merchandise	2,900
	Packing and Shipping	88

The following account sales were received from consignees as of April 30, 1955:

		Harlow & Co.		Bartell Corporation
Selling price of goods sold		$600		$1,200
Less:				
Advertising	$34		$ 80	
Delivery	23		65	
Installation	25		75	
Commission	60	142	180	400
Net Proceeds		$458		$ 800
Part of consignment sold		1/6		1/5

An account sales was not received from the other two consignees.

Required:

1. Prepare and post the adjusting journal entries necessary to correct the accounts of Fairfield Corporation on the assumption that a perpetual inventory is maintained and that consignment profits are separately reported.
2. Show the corrected balance sheet as regards the consignment operations.

Problem 21–6. Use the data of problem 21–5 and satisfy the requirements of it on the assumption that Fairfield Corporation does not maintain a perpetual inventory and that consignment profits are not separately reported.

Problem 21–7. On May 25, 1955, Distributors, Inc. received a shipment of $7,400 of merchandise from Alpha Manufacturing Company. The selling price of the merchandise was $10,000. The consignee may sell on credit terms of 2/10, net/30. All cash discounts are chargeable to the consignors. The consignee is allowed a 10% commission.

Upon receipt of the shipment the consignee advanced $1,500 to the consignor and paid $125 of shipping and delivery charges. By July 31, 85% of of the shipment had been sold, 75% of the resulting accounts receivable had been collected, two-thirds of them within the discount period. The consignee had paid $70 for advertising, $67 for repairs to the merchandise, $175 for delivery charges, and $150 for installation costs.

Required:

1. Journal entries to record all the transactions on the books of consignor and consignee assuming that Alpha Manufacturing Company reports separately consignment profits and does not maintain a perpetual inventory.
2. The account sales prepared by Distributors, Inc., as at July 31, 1955.
3. Present the relevant sections of the balance sheet of both consignor and consignee, as at July 31, 1955.

Problem 21–8. Use the data of problem 21–7 and prepare the journal entries on the books of the consignor on the assumption that:

1. A perpetual inventory is maintained and consignment profits are not separately reported.

2. A perpetual inventory is maintained and consignment profits are separately reported.

Problem 21–9. Ace Sales Company reported the following transactions in consignments during August, 1955:

August 2—Received on consignment the following: from X Y Corp., 25 radios to be sold at $190 each. From Theta Company, 45 television sets to be sold at $300 each. From Electric Products Company, 30 refrigerators to be sold at $240 each. Ace Sales Company will receive 10% commission from X Y Corp. and Theta Company and 15% from Electric Products Company. Ace Sales is to be reimbursed for all expenses incurred in connection with the consigned merchandise. The consignor of the refrigerators has allowed Ace Sales to sell on the terms 2/10, net 30. All cash discounts are chargeable to consignor.

5—Advanced $1,500 to X Y Corp. and $4,000 to Theta Company. Paid freight as follows: on radio shipment, $25; on television shipment, $140; on refrigerator shipment, $75.

8—Paid advertising as follows: on refrigerators, $18; on radios, $35; on television sets, $42.

31—Sales were as follows:

	For Cash	On Account
Radios	10	
Television Sets	21	
Refrigerators	7	15

Five of the customers who bought the refrigerators paid in full within the discount period. No cash has been collected on the sale of the other ten refrigerators sold on account.

Required:

1. Prepare an account sales as at August 31 to be submitted to each consignor.
2. Prepare and post journal entries to the individual consignment in accounts and to the consignment in controlling account.
3. Prepare the relevant section of the balance sheet of Ace Sales Company as at August 31, 1955.

Problem 21–10. In problem 21–9 assume that X Y Corp. paid $40 packing costs and $15 cartage costs and that Electric Products Company paid $125 packing costs and $28 cartage costs.

Required:

1. Prepare journal entries on the books of X Y Corp. on the assumption that a perpetual inventory is not maintained and that consignment profits are not separately recorded.
2. Prepare journal entries on the books of Electric Products Company on the assumption that a perpetual inventory is maintained and that consignment profits are separately recorded.

Problem 21–11. Marquis Company records disclose the following details of the open Consignment Out accounts as at June 30, 1955:

	Cost of Goods Shipped	Shipping Cost	Total	Cash Received	Balance
Jones and Co.	$ 1,800	$ 54	$ 1,854	$1,435	$ 419
Distributors, Inc.	2,100	60	2,160	470	1,690
Harvey Sales Co.	1,900	48	1,948	1,200	748
Ace Sales Co.	4,000	115	4,115	1,255	2,860
Bowley Corp.	2,700	71	2,771	1,000	1,771
	$12,500	$348	$12,848	$5,360	$7,488

Account sales data for the six months ended June 30, 1955 are summarized below:

Consignee	Sales	Commissions 15%	Selling Expenses	Balance	Cash Remitted	Portion of Consignment Sold
Jones and Co.	$1,800	$270	$ 95	$1,435	$1,435	1/2
Distributors, Inc.	600	90	40	470	470	1/7
Harvey Sales Co.	1,900	285	115	1,500	1,200	1/2
Ace Sales Corp.	1,600	240	105	1,255	1,255	1/5
Bowley Corp.	1,800	270	160	1,370	1,000	1/3

On its June 30, 1955 balance sheet Marquis Company showed finished goods on consignment at $7,488.

Required:

1. Adjusting journal entries on the books of Marquis Company as at June 30, 1955.
2. A restatement of the relevant portions of the June 30, 1955 balance sheet.

Problem 21–12. On the basis of the data in problem 21–11 prepare journal entries on the books of Marquis Company on the assumption that a perpetual inventory is maintained and that consignment profits are not kept separate from profits on other business.

Post the journal entries to both the subsidiary and controlling consignment out accounts.

Problem 21–13. Satisfy the requirements of problem 21–12 on the assumption that a perpetual inventory is not maintained and that consignment profits are separately recorded.

Problem 21–14. Newsome Manufacturing Company sells part of its output through three consignees. All shipments to them are billed at 200% of cost, credited to sales and charged to the consignee. The accounts with the consignee are included in the accounts receivable. The agreement with the consignees permits them to take a 15% commission on the sales price which is the billed price. Any related expenses are also deducted.

The 1954 transactions with the consignees are summarized below:

	Brown and Co.	Furnishers Inc.	Household Wares Co.
Shipments billed	$15,700	$29,000	$19,800
Expenses paid by Newsome:			
Packing	250	740	310
Cartage	90	215	105

Expenses paid by consignee:			
Freight—In	315	580	350
Advertising	80	190	125
Advances by consignee	3,500	8,000	....
Cash remitted	6,113.25	3,555	12,989
Portion of shipment unsold	1/4	1/2	1/5

Required:

1. A statement showing the total profit on consignments and separately for each consignee.
2. The relevant section, or sections, of the December 31, 1954 balance sheet of Newsome Manufacturing Company.

Problem 21–15. On the basis of the data in problem 21–14 prepare journal entries on the books of Newsome Manufacturing Company on the assumption that a perpetual inventory is maintained and that consignment profits are separately recorded.

Problem 21–16. Satisfy the requirements of problem 21–15 on the assumption that a perpetual inventory is not maintained and that consignment profits are not separately recorded.

ASSIGNMENT MATERIAL FOR CHAPTER 22

Questions

Question 22–1. What are the distinctive characteristics of the installment sale?

Question 22–2. What purpose, or purposes, are served by the installment method of measuring income?

Question 22–3. It is sometimes alleged that the conventional installment method is in fact a cash basis method of measuring gross operating income. Discuss.

Question 22–4. Upon what basis should repossessions be valued? Why?

Question 22–5. How does the installment method of measuring periodic income differ from the realized income method?

Question 22–6. Does the use of the installment method pose any problems with respect to the form and content of the income statement and the balance sheet? Discuss.

Question 22–7. Do any special problems of matching costs and revenues arise out of the use of the installment method of measuring and reporting income? Discuss.

Problems

Problem 22–1. Addison Sales Company, on March 16, 1955, sold Harlow Bostnick an automobile for $3,200, $800 in cash, the balance payable in twelve equal monthly installments. Any unpaid balance bears interest at 6% per annum and is payable each month. Addison Sales Company maintains a perpetual inventory record. All payments were made when due.

Required:

1. Prepare journal entries to record all transactions on the books of Addison Sales Company to and including September 30, 1955, the end of its fiscal year, using the installment method.
2. Set up the relevant section, or sections, of the balance sheet at September 30, 1955.

Problem 22–2. Use the data of problem 22–1 and prepare a chart, on the pattern of the one presented in Chapter 22, comparing the realized income basis and the installment basis of reporting income. Comment upon the significant differences in the time distribution of significant items.

Problem 22–3. Local Department Store sells a refrigerator for $350 on August 15, 1955. A down payment of $70 is made. The balance is to be paid in seven equal monthly installments plus interest at 6% on all unpaid balances. A perpetual inventory of refrigerators is maintained. All payments were made when due.

Required:

1. Set up in parallel columns all journal entries to record the transactions through December 31, 1955, on the installment method and on the realized income method.
2. Prepare the relevant section, or sections, of the balance sheet, December 31, 1955, on each method.

Problem 22–4. Martin Sales Company sells only on the installment basis. The following data were obtained from its records:

	1953	1954	1955
Sales	$240,000	$275,000	$310,000
Cost of Goods Sold	151,200	165,000	201,500
Gross Margin	$ 88,800	$110,000	$108,500

An analysis of installment notes receivable disclosed the following balances:

	1955	
From sales made in:	January 1	December 31
1953	$ 21,000	$ .....
1954	140,000	36,000
1955	.....	104,000

No merchandise was repossessed in 1955. Selling and administrative expenses for 1955 were $131,420.

Required:

1. Journal entries necessary to adjust the accounts at December 31, 1955, assuming that perpetual inventory records are maintained.
2. An income statement for 1955.

Problem 22–5. An automobile was sold to Walter F. Marvin for $3,000 on March 1, 1955. The down payment was $600. The balance, plus interest at 6% per annum, was payable in eighteen equal monthly installments. The twelfth installment was the last one paid by Marvin. The merchandise was then repossessed and appraised at $1,400. It had cost $1,800.

Required:

1. Compute the income on this transaction to be reported for 1955.
2. Prepare the relevant section or sections of the balance sheet at December 31, 1955.
3. Prepare journal entries to record all dealings with Marvin in 1956.

Problem 22–6. Dodsworth Company sells on the installment plan and on thirty day credit terms. The company's records contain the following data:

	1953		1954	
	Installment	30-day Credit	Installment	30-day Credit
Sales	$85,000	$131,000	$105,000	$150,000
Cost of Goods Sold	49,250	76,000	70,000	102,000
Gross Margin	$35,750	$ 55,000	$ 35,000	$ 48,000

Sales were first made on the installment basis in 1953. No repossessions were made in 1953. During 1954 repossessions data were as follows:

Unpaid installments	$1,800
Appraised value of repossessed merchandise	1,280
Cost of repossessed merchandise	1,200

Installment notes receivable at December 31, 1954 are summarized below:

Arising from sales made in:	January 1	December 31
1953	$31,000	$ 2,200
1954	.....	43,000

All repossessions related to 1954 sales.

Required:

1. Prepare journal entries to adjust the accounts at December 31, 1954.
2. Prepare income statements in the form of Exhibits B and C of Chapter 22.
3. Prepare the relevant section, or sections, of the balance sheet at December 31, 1954.

Problem 22–7. Motor Car Distributors, Ltd., on February 1, 1955, sold a $3,400 automobile to Varlaam Rubowinsky for $800 cash and an allowance of $600 on his old car. The balance was payable in sixteen monthly installments of $125 plus interest at 6% per annum on the unpaid balance. The estimated selling price of the old car was $475. The new automobile cost the seller $2,100.

Rubowinsky made nine payments. On December 15, 1955 the new car was repossessed by the seller. Its value for inventory purposes was $1,450.

Required:

1. All journal entries to record these transactions.
2. The relevant section or sections of the balance sheet of Motor Car Distributors, Ltd. at September 30, 1955, the end of its fiscal year.

Problem 22–8. Framingham Distributors, Inc. sells only on the installment plan. The following data were taken from its records:

Year	Sales	Cost of Goods Sold	Gross Margin
1952	$180,000	$107,500	$72,500
1953	205,000	125,000	80,000
1954	215,000	133,000	82,000
1955	240,000	149,000	91,000

The installment notes receivable record showed the following:

Arising from sales made in:	1955 January 1	December 31
1952	$ 4,300	.....
1953	61,000	$ 1,800
1954	98,000	43,000
1955	.....	140,000

An analysis of repossessions in 1955 discloses the following:

	Arising From Sales Made In 1953	1954	1955
Unpaid installments	$600	$1,200	$1,000
Cost of repossessed merchandise	370	735	625
Appraised value of repossessed merchandise	385	620	410

Required:

1. Prepare journal entries to adjust the accounts at December 31, 1955.
2. Prepare the relevant section, or sections, of the income statement for 1955 and the balance sheet at December 31, 1955.

Problem 22–9. Blairsden Company sells only on the installment plan. Its trial balance on December 31, 1954 was as follows:

Blairsden Company
Trial Balance
December 31, 1954

Cash	$ 75,000	
Installment Notes Receivable, 1952	6,500	
Installment Notes Receivable, 1953	18,900	
Installment Notes Receivable, 1954	31,400	
Deferred Gross Profit, 1952		$ 2,350
Deferred Gross Profit, 1953		7,200
Repossessed Property	2,150	
Loss on Repossessions	960	
Sales		85,000
Purchases	53,000	
Inventory, January 1, 1954	12,500	
Accounts Payable		21,000
Expenses	6,400	
Proprietorship		70,000
Retained Income		21,210
	$206,760	$206,760

The inventory of new merchandise at December 31, 1954 was $14,500; that of repossessed property, $2,150.

All accounts affected by repossessions have been properly cleared.

Required:

1. Working papers closing books at December 31, 1954.
2. Journal entries to adjust and close the accounts at December 31, 1954.
3. Income statement for 1954 and balance sheet at December 31, 1954.

Problem 22–10. Mather Sales Company sells on 30 day credit and on the installment plan. No installment sales were made prior to July 1, 1953. Its records disclose the following:

	1953	1954	1955
30 day credit basis:			
Sales	$120,000	$128,000	$142,000
Cost of Goods Sold	69,000	74,000	81,000
Gross Margin	51,000	54,000	61,000
Installment basis:			
Sales	40,000	90,000	125,000
Cost of Goods Sold	22,500	53,000	71,000
Gross Margin	17,500	37,000	54,000

The following data relate to merchandise which was repossessed in 1955:

	Arising from sales made in		
	1953	1954	1955
Unpaid installments	$650	$1,100	$1,400
Cost of repossessed merchandise	340	640	790
Inventory value of repossessions	295	580	610

An analysis of installment notes receivable disclosed the following:

	1955	
Arising from sales made in:	January 1	December 31
1953	$ 2,400	$ .....
1954	41,000	18,000
1955	.....	74,000

Required:

1. Prepare journal entries to adjust the accounts at December 31, 1955.
2. Prepare income statements in the form of Exhibits B and C of Chapter 22.
3. Prepare the relevant section, or sections, of the balance sheet at December 31, 1955.

Problem 22–11. Arliss Company commenced business March 1, 1955. Records were maintained to report income on the realization basis. Before the accounts were closed on February 29, 1956 the management decided to report income from installment sales on the installment basis.

An analysis of the accounts disclosed the following information:

Sales:	
Cash and open account	$96,000
Installment	83,000
Cost of goods sold:	
Cash and open account	53,000
Installment	42,000
Accounts receivable—February 28, 1956:	
Open account	9,600
Installment	7,300
Selling expenses	4,500
General and Administrative expense	6,200
Loss on repossessions	1,440

The following data relate to repossessions:

Unpaid installments	$480
Cost of repossessed merchandise	732
Inventory value of repossessions	585

The unpaid installments on repossessed merchandise were charged to the account Loss on Repossessions. The repossessed merchandise was not entered on the books. Two-thirds of it was sold for cash in February, 1956 and the balance was on hand February 29, 1956.

Required:

1. Journal entries, on February 29, 1956, to convert the installment business data to the installment method of reporting income.
2. Income statements in the form of Exhibits B and C of Chapter 22.

Problem 22–12. Barnes Sales Company sells on 30-day terms and on the installment plan. Its trial balance at December 31, 1955 was as follows:

Barnes Sales Company
Trial Balance
December 31, 1955

Cash	$ 45,000	
Accounts Receivable	59,000	
Allowance for Uncollectible Accounts		$ 610
Installment Notes Receivable, 1954	18,700	
Installment Notes Receivable, 1955	65,800	
Deferred Gross Profit, 1954		7,650
Sales		250,000
Purchases	148,400	
Inventory, January 1, 1955	32,000	
Accounts Payable		27,000
Expenses	13,800	
Proprietorship		80,000
Retained Income		17,440
	$382,700	$382,700

Of the December 31, 1955 inventory of $34,500, $650 was the appraised value of repossessed goods. All repossessions related to sales made in 1954. The details follow:

Unpaid installments	$1,840
Cost of repossessed merchandise	910
Appraised value of repossessions	840

When goods were repossessed no entry was made in the accounts for their appraised value. Of the $840 of repossessed goods $190 was sold for cash.

Upon repossession any unpaid installments were charged to Expenses. Of the total sales 38% were on the installment basis, the balance for cash and on account. All classes of sales show the same gross margin.

Required:

1. Working papers closing books at December 31, 1955.
2. Journal entries to adjust and close the accounts at December 31, 1955.
3. Income statement for 1955 and balance sheet December 31, 1955.

ASSIGNMENT MATERIAL FOR CHAPTER 23

Questions

Question 23–1. What is meant by functional classification of data?

Question 23–2. May the concept of functional classification be applied to any and all accounting data?

Question 23–3. Is there any basis for determining the kind of data that can be classified on a functional basis?

Question 23–4. Of what practical significance is the concept "area of decision"? Is it useful to the accountant?

Question 23–5. From whose point of view should data be classified?

Question 23–6. What is meant by "identification of costs".

Question 23–7. What factors determine the extent of refinement of detail in classifying accounting data?

Question 23–8. Upon what criteria are the bases for classifying data selected?

Question 23–9. To what problems of management is the problem of classification of data relevant?

Question 23–10. Data may be classified on many bases, a few of which are listed below: origin, date, time interval, destination, activity reported upon, person responsible.

Indicate the kind of accounting data that might properly be classified on one or more of these bases. In each case explain why you believe that the basis you select is better than any alternatives.

Question 23–11. In an actual situation just how would you proceed to select a basis or bases for classifying accounting data?

Question 23–12. Does the nature of accounting data determine in any way the basis or bases of classification?

Question 23–13. Do the economic events whose money measures are data to be classified influence in any way the selection of a basis or bases of classification?

Question 23–14. What determines the extent of an area of decision?

Question 23–15. Suppose you were the owner and manager of a first class restaurant in a metropolitan area. A staff of 35 people serve about 500 persons a day.

What kind of information would you want your bookkeeper to furnish and how would you use it?

Question 23–16. Of what importance is timeliness of accounting reports? Why?

Question 23–17. Is it possible to classify a given datum on more than one basis without multiplying records and record keeping costs? Illustrate and explain.

Problems

Problem 23–1. Local Shoe Store, Inc. operates one retail outlet for men's, women's and children's shoes. It carries dress shoes, sports shoes, rubbers and findings (shoe laces, cleaning fluids, etc.). The staff consists of an owner-manager and seven employees.

Required:

1. List the kinds of information you believe would be helpful to the manager stating for each kind how you believe the manager could use it.
2. Prepare any income and expense or other statements of operations which you believe would be helpful to him.
3. Write a memorandum to the manager explaining the use of the statements which you have recommended.

Problem 23–2. Farnham Bros., Inc. operates a local trucking service with a one-ton, a two-ton, and a five-ton truck. The bookkeeper has been furnishing the management with a monthly statement, a sample of which follows:

Farnham Bros., Inc.
Income Statement
May, 1955

Net Hauling Charges		$9,400
Expenses:		
Gasoline and oil	$ 860	
Truck repairs	420	
Depreciation	350	
Truck drivers' salaries	2,110	
Taxes and licenses	480	
Other expenses	3,740	7,960
Net Income		$1,440

The manager requests that you study the enterprise's operations and recommend some other form of report since the foregoing type is unsatisfactory.

Required:

1. Outline the main features of the investigation you would conduct.
2. Draft an alternative form of report (or reports) and an explanation of its advantages over the current form of report.

Problem 23–3. Ladies Apparel, Inc., sells ready-to-wear suits and dresses. The bookkeeper prepares the following type of report each month:

Ladies Apparel, Inc.
Income Statement
October, 1955

Sales		$16,500
Expenses:		
Advertising	$ 284	
Bad Debts	310	
Cost of merchandise sold	10,140	
Delivery expense	85	
Depreciation	176	
Expenses—all other	3,481	
Rent	550	15,026
Net Income		$ 1,474

The manager is dissatisfied with the report form and has solicited your help.

Required:

1. Submit a report which you believe will be useful to management.
2. Prepare a memorandum explaining in detail how the proposed report can be useful to management.

Problem 23–4. The bookkeeper of Ace Laundry, Inc. requests your assistance in establishing ledger accounts and drafting a form of monthly income account. You learn that the enterprise owns all of its equipment including seven trucks which are used to call for and deliver laundry.

Required:

1. List the questions you would ask the bookkeeper in order to obtain the information you needed.
2. Draw up a list of the ledger accounts you believe should be set up.
3. Draft an income statement and explain how management could use it effectively.

Problem 23–5. Arnold Robbins plans to open and operate a wholesale lumber yard catering to builders of one-family dwellings. Proper lengths of white pine, sugar pine, redwood, and oak will be carried. A small planing mill will be operated to make window sash, etc.

Required:

1. Outline the manner in which you would classify the accounting data.
2. Prepare a sample of the income statement you believe would be helpful to management.
3. Draft a report to Mr. Robbins explaining your proposal.

Problem 23–6. The bookkeeper of Madison Company and his assistant request you to settle a friendly discussion in which they have been engaged, off and on, over some weeks. The assistant bookkeeper believes it is a waste of time and money to maintain a ledger account for each kind of expense for each of the two variety stores that Madison Company operates. The bookkeeper argues that such information is valuable and helpful to management. The assistant takes the opposite position and points to the fact that the monthly income statement is always presented for the two stores combined.

How would you clarify the issue or issues involved in this difference of opinion?

Problem 23–7. Package Foods, Inc. packs fruits and vegetables. Total output is 450,000 cases per year. The pack is limited to cling peaches, pears, apricots, spinach, beans, and peas.

The management is dissatisfied with the reports submitted by the chief accountant and requests you to propose recommendations.

Required:

1. Write a report setting forth your proposal including a statement of what you would look for in your investigation and reasons to support your proposal.

Problem 23–8. Apartments, Inc. owns and operates three apartment buildings containing from twenty to thirty apartments each. The general manager is very conscious of the need for reports that will reflect the consequences of decisions he has made and be of assistance in correcting the results of erroneous decisions. The apartments rent for $120 to $175 per month, unfurnished.

Required:

1. Write a report addressed to the general manager in which you present the problems as you see them and draft reports which you believe will be helpful to the general manager.

Problem 23–9. The general manager of a car rental enterprise engages you to propose reports that will help him do a better job. He is particularly concerned with the fact that he is in a quandry about proper bases for classifying data.

Required:

1. Prepare a memorandum for the general manager which will help him solve his problems.

Problem 23–10. Henry P. Quirk is a self-made man. His business has prospered despite the fact that only meager accounting records have been maintained. He laughs at the idea that more detailed information can be used effectively in the management of the enterprise.

His son, a graduate from a school of business administration, is unable to persuade his father to let him experiment with more detailed records and reports. As a last resort he appeals to you to prepare a report or memorandum in which you so cogently argue the case for him that his father acquieses.

Required:

1. Prepare the report.

ASSIGNMENT MATERIAL FOR CHAPTER 24

Questions

Question 24–1. Why are activities of an enterprise departmentalized for accounting purposes?

Question 24–2. Upon what criteria is departmentalization resolved?

Question 24–3. How are direct costs distinguished from indirect costs?

Question 24–4. If a cost is said to be direct with respect to what is it direct?

Question 24–5. What is meant by allocation of costs?

Question 24–6. What advantages are alleged to result from allocation of costs?

Question 24–7. Upon what criteria may costs be allocated?

Question 24–8. Do all methods or bases for allocating a given cost yield equally useful and realistic results? Discuss fully.

Question 24–9. Is net sales a useful and realistic basis upon which to allocate administrative costs? Discuss fully.

Question 24–10. How can some of the inherent weaknesses of methods of allocation be overcome? Discuss.

Question 24–11. Why is the excess of net sales over cost of merchandise sold often a significant and useful datum in the hands of management?

Problems

Problem 24–1. Wholesale Grain Dealers, Inc. deals in five kinds of grain. Annual sales total more than $1,000,000. Net income averages 7% of sales. The monthly statement prepared by the bookkeeper shows total sales and expenses by kind of service consumed.

The management is dissatisfied with the form of report and requests you to propose an alternative report which will be of more value to them.

Required:

1. Explain in detail what you would do in carrying out this assignment.

Problem 24–2. The manager of a small department store asks you to appraise the propriety of the bases used in allocating costs to selling departments. He furnishes you the following data:

Kind of Expense	Basis of Allocation
Rent	Square feet of floor space
Electric current	Square feet of floor space
Advertising	Space utilized
Window display	Space utilized

Required:

1. Prepare a report addressed to the manager.

Problem 24–3. The superintendent of one of the plants of Partridge Corporation has complained that the monthly report is not helpful to him because he cannot identify on it the costs which he can control. He argues that he is not at all helped by knowing how much the top management spent on costs about which he is never consulted and over which he has no control.

The plant in question turns out a variety of paper and cardboard cartons sold principally to food processors.

Required:

1. Prepare two lists of costs of the kinds the plant superintendent has talked about and explain why you classify each cost as you do.

Problem 24–4. The chief accountant of a department store has proposed that all costs of his department be allocated to the selling departments in preparing operating reports. He proposes to allocate or assign the costs on the basis of net sales

You are requested to prepare a report in which you:

1. Appraise, critically, the proposal.
2. Offer any alternatives which you believe are superior to the proposed scheme.

In your answer indicate why you take whatever position you do take.

Problem 24–5. The manager of a small town bank is concerned with the rising cost of handling checking accounts. He is considering the advisability of establishing a schedule of service charges. Before doing so, however, he wishes to know how much it costs to service a checking account.

Every checking account involves the receipt and recording of deposits, the recording of checks paid, and the rendering of a monthly statement. All of the bookkeeping work is done on machines. Most of the depositors are business enterprises which have blank checks printed to specifications. A few of them use blank checks furnished by the bank.

Required:

1. How would you proceed to determine the cost of servicing a checking account?
2. Draw up a statement of the details which you believe should be included in a statement of such costs.

Problem 24–6. It is proposed to allocate the following expenses on the basis indicated:

Kind of Expense	Basis of Allocation
Interest on bank loans	Purchases
Insurance on inventories	Average inventories
Uncollectible accounts receivable	Net sales
Depreciation of delivery equipment	Gross sales
Office salaries	Net sales
Officers' salaries	Net sales

Required:

1. For each item of expense state why you approve or disapprove the proposed basis of allocation.
2. For each case in which you disapprove offer an alternative proposal with reasons to support it.

Problem 24–7. Explain in detail exactly how you would determine the reduction in cost that would result from the elimination of a selling department in a department store.

List all the cost items involved and for each one explain how you would determine the amount.

ASSIGNMENT MATERIAL FOR CHAPTER 25

Questions

Question 25–1. What is the double-entry principle?

Question 25–2. Does double-entry involve double counting? Explain.

Question 25–3. Is it possible for services to be valuable although they yield no benefits? Explain.

Question 25–4. Does the double-entry principle rest on any basic relationship observable in the real world or is it the product of man's intellectual operations? Explain.

Question 25–5. What is meant by the statement that the accounting equations (basic and modified basic) are statements of an identity? Explain.

Question 25–6. How do you distinguish gross proprietorship from net proprietorship?

Question 25–7. What is the meaning of an equation in which liabilities exceed assets?

Question 25–8. Is the debit and credit mechanism related in any way to the double-entry principle? Explain.

Question 25–9. Upon what criteria would you determine to accumulate in the accounting records gross rather than net changes in proprietorship? Explain.

Question 25–10. Is the conventional position of the plus and minus signs the only possible arrangement? Explain and illustrate.

Problems

Any of the problems included in assignment material for Chapters 2 and 3 are suitable, with or without modification, to demonstrate the ideas set out in Chapter 25.

ASSIGNMENT MATERIAL FOR CHAPTER 26

Questions

Question 26–1. What are the criteria for selecting the legal form of organization and what is the significance of each one?

Question 26–2. Name and discuss the strong and weak points of the chief characteristics of the sole proprietorship.

Question 26–3. How does the general partnership differ from the sole proprietorship? From the corporation?

Question 26–4. What are the accounting problems that arise as a consequence of each of the three legal forms of enterprise?

Question 26–5. Why do partners allow interest on capital account balances and charge interest on drawings? Discuss fully.

Question 26–6. What is a share of stock?

Question 26–7. How does par value stock differ from no-par value stock?

Question 26–8. How does a stock dividend differ from a cash dividend?

Question 26–9. Explain the nature of goodwill.

Question 26–10. Is goodwill an asset? Discuss fully.

Question 26–11. From the viewpoint of the stockholder is a stock dividend superior to a cash dividend? Why?

Question 26–12. If you were the director of a corporation how would you choose between voting for a stock dividend or voting for a cash dividend? Explain fully.

Problems

Problem 26–1. Brown and Green agree to form a partnership, Brown to invest $10,000 cash, Green to invest $15,000 cash. Profits are $2,900 for the first year.

Required:

1. Journal entries to record the initial investment posted to ledger accounts.
2. Journal entries to record distribution of profits assuming they are divided equally.
3. Journal entries to record distribution of profit assuming they are divided in the ratio of the original investment.

Problem 26–2. On March 31, 1955 the capital accounts of two partners appear as follows:

Carson	$25,000
Middleton	40,000

It is agreed that Thompson be admitted to partnership on March 31, 1955 with a capital account balance of $20,833. Thompson is to pay $15,000 to Carson and a like sum to Middleton.

Required:

1. Journal entries on the books of the partnership properly posted to the ledger accounts.

Problem 26–3. The capital accounts of Holmes and Reid show the following balances August 31, 1955:

Holmes	$12,000
Reid	14,000

On August 31, 1955 Devlin is admitted to partnership with a capital account balance of $12,000. Devlin pays $10,000 into the partnership. Holmes and Reid share profits and losses equally.

Required:

1. Journal entries on the books of the partnership properly posted to the ledger accounts.

Problem 26–4. Tompkins is to be admitted to the firm of Evans and Roswell as of June 30, 1955. On this date their capital accounts appeared as follows:

Evans	$25,000
Roswell	20,000

Evans and Roswell share profits in the ratio of Evans, 1/3, Roswell, 2/3. Tompkins pays into the firm $24,000 for a one-third interest in the capital of the new partnership.

Required:

1. Journal entries on the books of the partnership properly posted to the ledger accounts.

Problem 26–5. Grimes and Walton share profits and losses equally after charging each partner at 6% per annum on any drawings in excess of $350 per month from date of drawing to the end of the calendar year. Net profits for 1954, before considering the foregoing agreement, were $17,500. Partners' capital accounts showed the following:

Grimes, Capital

1954				1954			
Feb.	1	Cash	400	Jan.	1	Balance	$16,000
May	1	Cash	600				
July	1	Cash	350				
Sept.	1	Cash	450				
Nov.	1	Cash	700				

Walton, Capital

1954				1954			
March	1	Cash	350	Jan.	1	Balance	$15,000
June	1	Cash	400				
Aug.	1	Cash	650				
Oct.	1	Cash	375				
Dec.	1	Cash	480				

Required:

1. A schedule showing the computation of interest charged on excess drawings.
2. Journal entries to distribute the profits for the year properly posted to ledger accounts.

Problem 26–6. Wilkinson and Starr, copartners, share profits in the ratio of Wilkinson, 3/8, Starr, 5/8, after allowing interest at 6% per annum on the average capital invested during the year. Before allowing for interest net profits were $24,000 for 1955. The partners' capital accounts are reproduced below:

Wilkinson, Capital

1955				1955			
March	1	Cash	2,000	Jan.	1	Balance	$29,000
July	1	Cash	3,000	Feb.	1	Cash	1,500
Sept.	1	Cash	3,500	June	1	Cash	1,500
Nov.	1	Cash	1,000	Oct.	1	Cash	2,000
				Dec.	1	Cash	3,500

Starr, Capital

1955				1955			
Feb.	1	Cash	2,700	Jan.	1	Balance	$31,000
April	1	Cash	4,000	Mar.	1	Cash	2,000
July	1	Cash	2,500	May	1	Cash	3,500
				Sept.	1	Cash	1,500
				Nov.	1	Cash	4,000

Required:

1. A schedule showing the computation of interest allowed on average capital.
2. Journal entries to distribute the profits for the year properly posted to ledger accounts.

Problem 26–7. Larkin and Dodson share in the ratio of the average of their capital accounts for the year. The net income for 1954 was $14,800. The capital of the partners were as follows:

Larkin, Capital

1954				1954			
April	1	Cash	2,000	Jan.	1	Balance	$20,000
Aug.	1	Cash	1,800	May	1	Cash	1,000
Nov.	1	Cash	700	Oct.	1	Cash	2,500
				Dec.	15	Cash	3,000

Dodson, Capital

1954				1954			
Feb.	15	Cash	$3,000	Jan.	1	Balance	$24,000
Oct.	1	Cash	1,800	Mar.	1	Cash	1,500
Nov.	1	Cash	200	Oct.	1	Cash	500
				Dec.	1	Cash	800

Required:

1. A schedule showing the computation of the average capital for the year.

2. Journal entries to distribute the profits for the year properly posted to the ledger accounts.

Problem 26–8. Ingraham and Marlowe share profits and losses equally. On May 31, 1955 the balance sheet of the partnership appears as follows:

Ingraham and Marlowe
Balance Sheet
May 31, 1955

Cash	$1,400	Accounts Payable		$14,000
Accounts Receivable	8,700	Capital Accounts:		
Inventory	21,000	Ingraham	$16,100	
Equipment	8,000	Marlowe	9,000	25,100
	$39,100			$39,100

During June and July the business is dissolved with the following results:

	Book Balances	Cash Realized	Loss
Accounts Receivable	$ 8,700	$ 8,400	$ 300
Inventory	21,000	16,000	5,000
Equipment	8,000	1,600	6,400
	$37,700	$26,000	$11,700

Expenses of dissolution amounted to $875 and were paid in cash. All the accounts payable were paid. The balance of the cash was distributed to the partners.

Required:

1. Set up ledger accounts as shown by the May 31, 1955, balance sheet.
2. Journal entries to record the dissolution of the business properly posted to the ledger accounts.

Problem 26–9. Norris and Wyndham, copartners, share profits and losses in the ratio: Norris 40%, Wyndham 60%. On August 31, 1954 their balance sheet showed the following:

Norris and Wyndham
Balance Sheet
August 31, 1954

Cash	$ 600	Accounts Payable		$18,000
Accounts Receivable	18,000	Note Payable		6,000
Inventory	25,000	Capital Accounts:		
Equipment	6,400	Norris	$14,000	
		Wyndham	12,000	26,000
	$50,000			$50,000

The business is wound up during September and distribution of the remaining cash made on September 30th. Expenses of dissolution, paid in cash,

were $1,460. The note payable and all accounts payable were paid. The non-cash assets were disposed of as shown below:

	Book Balances	Cash Realized	Loss
Accounts Receivable	$18,000	$14,800	$ 3,200
Inventory	25,000	10,000	15,000
Equipment	6,400	400	6,000
	$49,400	$25,200	$24,200

Required:

1. Set up ledger accounts as shown by the August 31, 1954 balance sheet.
2. Journal entries to record the dissolution of the business properly posted to the ledger accounts.
3. What is the meaning and what is the significance of the balance in the partner's capital account?

Problem 26–10. The R S Corporation is organized with an authorized capital stock of $300,000 represented by 3,000 shares of $100 par value. The following transactions take place:

1955

September 6—Issued 400 shares at par for cash.
8—Received subscriptions for 800 shares at par.
12—Received $12,000 cash as partial payment on the subscriptions.
26—Received $15,000 cash as partial payment on subscriptions.
30—Issued 200 shares at par for cash.

Required:

1. Journal entries to record the foregoing transactions properly posted to ledger accounts.
2. Balance sheet of the R S Corporation as at September 30, 1955.

Problem 26–11. Somerset Company was organized with an authorized capital stock consisting of 5,000 shares of common stock, par value $50 and 1,000 shares of preferred stock, par value $50. During April, 1954, the following transactions in capital stock were reported:

1954

April 5—Issued for cash, at par, 300 shares of common stock.
Issued for cash, at $55 per share, 500 shares of preferred stock.
8—Received subscriptions for 650 shares of common at par and for 250 shares of preferred at $55.
15—Received cash from subscriptions on common, $14,000; from subscriptions on preferred, $6,300.
22—Issued 600 shares of common for land and building appraised at $30,000.
30—Received cash from subscriptions on common, $8,500; from subscriptions on preferred, $4,000.

Required:

1. Journal entries to record the foregoing transactions properly posted to ledger accounts.
2. Balance sheet of Somerset Company as at April 30, 1954.

Problem 26–12. Warburton Corporation has the following stock outstanding July 15, 1955:

Common Stock	10,500 shares
Preferred Stock:	
Class A	8,000 shares
Class B	12,000 shares

The directors declare a dividend on June 15, 1955, payable on August 1, 1955 to stockholders of record July 15, 1955. The dividend is at the following rates:

Common Stock	62.5 cents per share
Preferred Stock:	
Class A	$1.00 per share
Class B	$1.25 per share

Required:

1. Journal entries to record the foregoing facts on the books of Warburton Corporation.
2. The relevant section, or sections, of the balance sheet as at July 31, 1955.

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