

NI
655.022
B466

Att to TCAD A - 1819

PN-ABJ 159
TA/OST-AN-68-5-3

... PRODUCTION TO

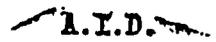
PB 21.2 034

RECORD KEEPING

IN A SMALL ENTERPRISE

R.F. Bruckart
Industrial Development Advisor
J.S. Agency for International Development

**INDUSTRIAL DEVELOPMENT CENTRE
ZARIA**


Reference Center
Room 1656 NS

154

Introduction to record keeping in a small enterprise.

NI

658.022 Industrial Development Centre, Zaria.

B888 Introduction to record keeping in a small
enterprise. R.F. Bruckart. May 1968.
131 p.

72397

1. Management - Nigeria. 2. Small business - NI.
I. Bruckart, R.F. II. Title. III. Record keeping in a
small enterprise.

PN-ABJ-159

BIBLIOGRAPHIC DATA SHEET	1. Report No. TA/OST-AN-68-5-3	2.	3. Recipient's Accession No. PB-212 034
	4. Title and Subtitle INTRODUCTION TO RECORD KEEPING IN A SMALL ENTERPRISE.		5. Report Date May 1968
7. Author(s) R. F. Bruckart	9. Performing Organization Name and Address Agency for International Development Department of State Washington, D. C. 20523		8. Performing Organization Rept. No.
12. Sponsoring Organization Name and Address Same	10. Project/Task/Work Unit No.		11. Contract/Grant No.
15. Supplementary Notes Prepared in cooperation with the Industrial Development Center, Zaria, Nigeria		13. Type of Report & Period Covered	
16. Abstracts Much experience is now available on the fundamental methods employed by those managers of small businesses in industrially developing countries who have developed profitable operations. Effective record-keeping, it has been found, is one of these methods. This document introduces basic record-keeping methods similar to those that managers of small industries throughout the world have found useful. The topics covered include: Recording daily transactions; planning and controlling production; records of material or supplies; quality control records; employee records; and how the manager uses records. The document was prepared for use by small-enterprisers in Northern Nigeria, but it should be generally applicable elsewhere.			
17. Key Words and Document Analysis. 17a. Descriptors * Records management Commerce Developing countries Manuals			
17b. Identifiers/Open-Ended Terms Nigeria			
17c. COSATI Field/Group 5A			
18. Availability Statement Release unlimited		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 154
		20. Security Class (This Page) UNCLASSIFIED	22. Price \$3.00/\$0.95

INTRODUCTION TO

**RECORD
KEEPING**

**IN A SMALL
ENTERPRISE**

R.F.Bruckart
Industrial Development Advisor
U.S. Agency for International Development

**INDUSTRIAL DEVELOPMENT CENTRE
ZARIA**

TABLE OF CONTENTS

	Page
Preface	
I An Introduction to Record Keeping in the Small Enterprise.	1
II Recording Daily Transactions.	10
III Planning and Controlling Production	35
IV Records of Material or Supplies	60
V Quality Control Records	77
VI Employee Records.	98
VII How the Manager Uses Records.	115
APPENDIXES	
Bibliography	Appendix A
Illustration of forms useful in the small business	Appendix B
Notes on Double-Entry Bookkeeping System	Appendix C

FOREWORD

The Industrial Development Centre in Zaria has been established by the joint effort of the former Government of Northern Nigeria and the United States Agency for International Development (USAID) for the development and promotion of indigenous small manufacturing industries. This is in recognition that small industries can contribute substantially to the economic growth of Nigeria.

In my view, the needs for accelerating the development and promotion of indigenous small industries in Nigeria have become more urgent than ever before. In order to effect modern and efficient operations of the industries, the managerial and technical skills of the indigenous managers and supervisors must be up-graded, an effective financial control will need to be adopted, and adequate and informative marketing and sales advisory services provided. For some time now, this Centre has embarked on a series of programmes designed to render such assistance to the indigenous small manufacturing enterprises. Mr. R. F. Bruckart, an Industrial Development Advisor of the United States Agency for International Development, has made a contribution to this programme with this book describing modern record-keeping systems applicable to small manufacturing enterprises in Nigeria. The guidance the systems provide are pertinent and needed. They are easy to understand and administer. Paper work has been reduced to the minimum. Profit realized is easily ascertained and figures for production cost analysis are readily obtainable,

This book will serve as a useful companion to Mr. Bruckart's earlier "Handbook of Management Principles for the small shop" which we have used extensively and successfully in management training courses for the indigenous managers and supervisors of small industries throughout the industrial areas of the six States of Northern Nigeria.

I believe this publication will meet the record-keeping requirements of Nigerian entrepreneurs of small industries and therefore I do not hesitate to commend it to them.

M. O. OYELOHUNNU
DIRECTOR,
INDUSTRIAL DEVELOPMENT CENTRE,
ZARIA.

PREFACE

More than a year has passed since management development programs for small-scale industry in Northern Nigeria were begun by the Industrial Development Centre in Zaria and the United States Agency for International Development. The numerous management training programs that have been presented by the Centre in that time have provided an opportunity for extensive study of the needs of indigenous small industry.

First-hand observation has shown that striking opportunities are available to local managers of small industries for improving their management through the use of simple but effective records of their enterprise affairs.

It is understandable why this should be so, for small industry in Nigeria is typical of small enterprises in the earlier stages of development in any industrially developing country. Much experience is now available on the fundamental methods those managers have successfully employed to assure profitable operation of their businesses. Effective record-keeping, we find, is one of these fundamentals.

The basic record-keeping methods introduced in this book are, therefore, similar to those that managers of small industries throughout the world have found useful. Local managers who adopt such procedures can follow in the footsteps of their counterparts in other developing countries, who have experienced and have overcome the same types of problems that local managers now face.

A successful achievement of better management in the small industries of Nigeria should benefit not only the managers of those industries but also their communities, which depend on them for their services and employment.

It is hoped that this book will make a small contribution to that effort.

R. F. Bruckart
Zaria
May, 1968

(1)

(I)

An Introduction to Record Keeping in the
Small Enterprise

THE UNIVERSAL NATURE OF THE SMALL ENTERPRISE

Small enterprises in developing countries are all very much alike. They have characteristics that are highly similar, despite any significant cultural or ethnic differences that may otherwise exist among the countries in which they are found.

The operator of a small manufacturing business is a free-enterpriser. He enjoys the concept of having the freedom to operate his own business and to enjoy the profits therefrom-- and he is willing to face the difficulties of trying to support himself on the return from his efforts and initiative. In endeavoring to make his business a viable undertaking, the manager experiences problems that will be recognized by his counterpart in any other developing country. And these problems are many.

For example, such a small-enterpriser has problems of capital-- which is inevitably in short supply. He may have problems in securing raw materials of the quality or quantity that he requires, or can afford to buy. He experiences difficulties in selling his products or services. He has production problems. He has supervisory problems. He has problems of quality control. Furthermore his prices are frequently too high for economically-minded customers, and he sometimes finds himself in the uncomfortable position of having to bargain about the sales prices of his products.

The need to negotiate prices in order to maintain a satisfactory customer relationship is a potentially risky procedure for the small-enterpriser, for frequently he keeps few if any records and may have only a sketchy idea of how well he is doing in his management. Is he making a profit? Sometimes he is not sure. If he is making a profit, how much is he making? This he frequently does not know. Could he do better? And if so, how? For the manager of the small enterprise these questions have a universal occurrence, no matter what the nature of the industry or what types of services are being rendered.

The keeping of records in a systematic manner appears off-hand to be a logical answer to many of these questions, and is frequently proposed as a first step to solving other related problems of small business. Yet record-keeping does not invariably have as much appeal to the small-business manager as might be imagined, and frequently he does not keep records.

WHY RECORDS ARE NOT KEPT

The interested analyst finds various reasons why records are not kept in small enterprise. Some of these are rather obvious: the manager may have started his operation in such a small way that few if any records then appeared necessary. He may think that they are still unnecessary, even though his operations have expanded widely. In other cases the manager simply does not know how to set up records or how to keep them when they are established. Furthermore, in developing countries the small-enterpriser may have a limited

literacy and must depend on others to perform this service. Sometimes his son or some reliable associate will keep the accounts for him.

Aside from these easy-to-detect reasons for not keeping records, one reason is occasionally observed that is more subtle. What it amounts to is simply that the manager does not want to have the facts of his operation in a written form. The reason for this feeling is very real in his mind, but it constitutes a barrier to the adoption of modern methods of managing his enterprise. The reason he does not want to see his activities recorded is that he is uncertain about who might secure some information from these records that could be used against his best interests.

No easy or immediate solution to this obstacle to better management is in sight. But whatever his reasons for not having records may be, the manager must be convinced that benefits he realizes by having them surpass the potential dangers created when his "secrets" are revealed to public officials or other legitimately interested persons. Somehow he must be assured that the dangers of open operation are not so serious as he might imagine. Consideration of the nature of a good record-keeping procedure and what must be done to maintain it may assist in convincing him.

THE CHARACTERISTICS OF A GOOD RECORD-KEEPING PROCEDURE

One of the difficulties experienced in assuring the small-enterpriser of the value of good record-keeping is that he is unlikely to understand the procedure used. Will it require much paper work?

Will it be expensive to maintain? Does it really have any usefulness to him? Unless he is assured of its value, he is inclined to be skeptical. So an explanation of the nature of suitable records for his use is in order.

A few of the important characteristics of a good record-keeping procedure are:

1. The records are as simple in design and operation as the nature of the processes they are reporting will permit. Records in the small enterprise need not be complex, and in many cases must not be, if there is to be any hope that they will be maintained.

2. The records are inexpensive to set up and maintain. To establish any but an inexpensive record-keeping procedure in a small business would be highly unrealistic. The small-enterpriser cannot and will not support financially any complicated, expensive system. Nor should he be asked to.

3. The records provide pertinent information in a manner that is readily understandable. Clarity is a basic requirement. The need to avoid unnecessary detail, to concentrate on useful information, is another fundamental of a practical set of records.

WHAT MUST BE DONE TO SET UP SUCH RECORDS?

Now the manager may ask: How can I set up a useful record-keeping procedure? What is required?

A few of the most basic requirements are noted below: These are:

1. Records must be kept up-to-date daily and entries must be accurate and complete. Incomplete or inaccurate records are a real danger to the manager, as he may be misled into making decisions that are as wrong as the figures on which they are based. This could be a serious matter.

2. The manager must be interested in having all the critical information about his operation. He should not fear that others will learn his shop "secrets". Few shops really have secrets. Also, he must have the courage to face up to the facts that his records bring to light, no matter what their nature.

3. The manager must provide a clerk or assistant who is able and regularly available to record all shop transaction, in case he does not do it himself. This job cannot be done haphazardly.

4. The manager must be willing and able to act on any information a record-keeping system will reveal. Records can point the way towards improved productivity and efficiency, but only if the manager is in a position to do what the records show he should do will they be of much use to him.

5. The information summaries provided by the records must be compiled promptly, when they are still useful. The manager benefits little if vital information drawn from his records is several months out-of-date. It should be available soon enough so that he can act promptly on any unfavorable conditions the records reveal.

The manager who is prepared to introduce a set of records fulfilling these requirements will have taken an important step in upgrading the operating efficiency of his business. The importance of doing this should be, but is not always, understood.

WHY RECORDS ARE IMPORTANT

Although the small-enterprise manager will never experience the highly complex and numerous record-keeping requirements of the large company, his operations are sometimes more complicated than is commonly realized. His small enterprise may frequently employ 10 to 15 workers engaged in doing work on an average of eight to ten orders of varying kinds. The scheduling of his work and the maintenance of a harmonious, organized operation then becomes a more challenging task than is always apparent. So the records are a necessity if the manager is to have an organized approach to the handling of his affairs.

Sales, purchases, and all types of financial transactions are also more numerous than can conveniently be handled without some semblance of written records. In fact, details of the many things that happen daily in a small shop are commonly too numerous for the small enterprise manager to remember completely. He finds that facts too often tend to slip out of his mind, even under the best of conditions. The records the shop keeps, therefore, aid the memory of the manager. They are his tools of management, and are as important to his shop as the tools he uses to process materials or to render services to his customers.

In some cases, in fact, his records of shop operation may be more important to him than the hand tools his workers use, for if he lacks the management tools he needs to keep his business advancing properly, he may have little use for the other tools. On the other hand, if he manages well by using his records for planning and guiding his operations, his enterprise should be capable of growth and he should enjoy a prosperous business.

THE KINDS OF RECORDS THE MANAGER SHOULD KEEP

The manager of the small enterprise will need to consider what kinds of records are most appropriate for his needs. What records should be kept? The nature of these, of course, varies with the work done, although certain basic records are commonly required by all manufacturing or service enterprises that operate with efficiency and do their business in an organized manner.

The first of these is a record of the daily financial transactions that occur. No manager can afford to risk the loss of money through unrecorded financial activities. So a careful record of his sales, purchases, receipts, expenditures, payments of rent, taxes and utilities, payment of wages, and all similar transactions is required for good operation.

Monthly and annual summaries then may be prepared, to which the manager may refer in making plans for future operations.

The second required type of record is a production schedule that can be used to systematize the manufacturing operations of the enterprise. The manager uses this record to plan the work to be done by

his employees, thereby avoiding unnecessary delay, confusion and missed delivery dates.

A third form of record provides information on the quantity of materials and supplies the manager keeps on hand. In small shops in developing countries, materials are a major portion of the total cost of most fabricated products, and moreover, imported high-quality raw-materials are invariably very expensive.

If such items are lost through careless handling, pilferage, poor storage or through other means,-- and there are no records of the quantities on hand-- further waste and unnecessary expense are certain. Planning for future operations is easier when the quantities of material and supplies on hand are known, and shortages will occur less frequently. Therefore such records also are vital to the small enterpriser.

A fourth type of record is one that analyzes the quality of the product produced by the small enterprise. A consistent quality can be maintained most readily when records of quality performance are on hand. The manager should not overlook the need for keeping such records.

A fifth and final type of record is one related to the workers and their job performance. How productive are the workers? How do they use their time? Time is one of the basic resources of the small shop, and it must be put to use just as effectively as other valuable resources are, as a loss of time is an undesirable expense for the small enterprise.

Those five types of records should exist in some respect in nearly every business. Sometimes they are needed only in the most elementary form, and normally they should not be extended beyond the immediate needs of the establishment. But, however they are set up, they must be useful records. Proposed designs of such records are explained, and typical applications found in small enterprises are illustrated in the following sections of this book.

The first of these records, discussed in Section II, concerns daily financial transactions.

(II)

Recording Daily Transactions

THE IMPORTANCE OF FINANCIAL RECORDS

Every small enterprise needs an orderly means of accounting for its financial transactions. Even the smallest business should have an accounting system of some kind that will reflect the results of operations and provide some measure of the financial position of the enterprise.

If a suitable accounting of income and expenses is provided, the manager of the small business will know the financial status of his company, as well as the degree of balance or unbalance existing among his wages, prices and profits.

A surprisingly large number of financial transactions occur in a small enterprise. Goods are purchased, products are sold; raw materials are purchased and received; credit is asked for or extended; bills are paid; invoices are sent and payment is received; and many other activities occur regularly.

Thus it would appear obvious that keeping records of such daily transactions is one of the most basic requirements of a small enterprise if it is to be operated efficiently. Yet it is one that is commonly regarded as unimportant or treated with little consideration in developing countries. Many conditions lead to this attitude towards the recording of financial transactions.

In some instances the financial sums involved are small, and the manager regards them as too unimportant to bother with. In other cases, a fixed routine has not been established for recording the transactions,

and they are overlooked or forgotten. Sometimes the manager merely writes on a scrap of paper how much money changed hands in the transaction and consolidates this with other notes of the same kind when the occasion arises and time is available. Unfortunately, too often these notes are incomplete and sometimes are lost before they have been recorded, thus defeating the manager's efforts to keep up with his operations. Of course, many small enterprises do keep records, but too frequently they keep them in a way that does not permit important aspects of business activity to be summarized. So the question arises: how may useful records be kept of daily activities? And what are the requirements of such a record-keeping system? These questions are very pertinent, because many small enterprises are critically in need of such information.

THE REQUIREMENTS OF DAILY TRANSACTION RECORDS

A few fundamental record-keeping requirements have been noted in the previous section of this book, in which simplicity of the system was cited as a basic need. The necessity for keeping complete records was also stressed, as was the limitation of a modest financial investment to set up and maintain the records. In addition to these, other requirements also arise in respect to record-keeping of daily financial transactions. Several of these requirements are:

1. The record keeping system used for recording daily financial transactions should provide three kinds of information: a) daily records of all transactions of a financial nature; b) monthly summaries of all activities occurring during the month; and c) annual reports of the same data.

2. The record keeping system used should be fitted to the kind of financial transactions that occur in the particular enterprise. The most critical aspect of this requirement is the question of whether business is done entirely through cash transactions, or whether some form of credit is involved. In small businesses in developing countries, purely cash transactions are very common. In some instances, unfortunately, the manager finds himself in a position in which he is required to pay cash for all his purchases but is at the same time expected to offer credit terms to his customers. This undesirable condition tends to strain his financial resources, and is one of the many difficulties of doing business in a developing country, where fully established credit negotiations are uncommon. Whatever the circumstances, however, the records must be designed for prevailing conditions.

3. The records should consolidate all items of information and prevent their being lost or misplaced. Small enterprises generally cannot be expected to have filing cabinets or other formally established means by which notes on scraps of paper or business forms may be protected. Companies in industrially advanced countries have generally moved away from the practice of recording financial activities in large ledgers or other books designed for permanent storage. Yet the small enterprise in the developing country commonly finds it desirable to keep his records in such account books or ledgers, because doing so consolidates all items in a single book, and there is less likelihood that such a book will be lost or misplaced than that loose forms or notes will be. For the sake of

simplicity and safety, therefore, the use of ledgers or account books is recommended.

Of course, there are other requirements in record keeping, such as the necessity of having a reliable clerk for making the notations, and the need for devotedly accounting for all financial activities that occur.

The small enterprise that meets these requirements in setting up its accounting procedures should be able to enjoy many benefits that will come from such good management.

What are suitable ways in which such records may be kept?

RECORD KEEPING SYSTEMS FOR THE SMALL ENTERPRISE

In an earlier, related publication,¹ explanation was provided of the "Minimum Record System", which is a simple but effective means of recording financial transactions in a small enterprise.

This record-keeping procedure may be applied in two different forms:

- a) as a method of recording transactions where only cash activities occur, and
- b) for those enterprises that do business on credit, as well as for cash. For purposes of identification, these are referred to here as:
 - a) the Minimum Record System (Cash); and
 - b) the Minimum Record System (Credit and Cash).

The first of these, the Minimum Record System (Cash) has been applied widely in Northern Nigeria to the food-milling industry, including rice mills, cassava mills, corn mills, and in similar food processing establish-

¹. "Handbook of Management Principles for the small shop", H. F. Bruckart, Industrial Development Centre, 1967, p. 51ff.

ments.

Adoption of these procedures has been stimulated by a training program for entrepreneurs entering the field of food processing, who received technical and managerial training at the Industrial Development Centre in Zaria in the operation of their newly purchased milling equipment. The following example illustrates an application of the Minimum Record System (Cash) to a Grain Mill, for which only the simplest type of accounting is required.

AN EXAMPLE OF THE MINIMUM RECORD SYSTEM (CASH)

The manner in which business is done in such a Mill establishes the way the records are kept. Every day dozens of village women come to the Mill with small quantities of grain to be ground (generally several pounds). The Mill operator grinds each lot of grain separately, and returns it to the customer in the same container in which it was brought to him. Commonly a wooden or metal box is kept in the shop, and the mill operator gathers the coins earned during the day in this box. At the end of the day, the operator of the Mill will have accumulated coins from several dozen customers, all of whose payments are individually very small.

Obviously, it would be impractical to record each and every transaction that occurs. Instead, a single notation at the end of the day indicates the total money received for all milling operations of that day. Record-keeping is simplified in this way, so that unnecessarily detailed accounts are avoided.

The Minimum Record System (Cash) is most appropriate for such Mills, as it permits all entries to be made on a single page of a record book, and the design of the form minimizes the probability of incorrect classification. An example of notations made during a one-month operation of a typical Mill doing business for cash only is shown in Figure 2-1 (Page 16).

The form used is largely self-explanatory. Columns 1, 2 and 3 provide space for recording the date, nature of the item involved in the transaction, and name of the person or company with whom business is done. Columns 4, 5 and 6 provide spaces for noting the amount of money received or spent in the transaction.

In the column headed MATERIAL OR SUPPLIES is listed all expenditures other than wages. In operating a Mill, these may include such things as purchases of lubricating oils or grease; the cost of grinding or boring mill-plates; the cost of spare parts of any kind; and materials used for repair of the building. WAGES include all payment for work done by regular or part-time employees. SALES include all income received from milling services.

The notations made in the DAILY RECORD FORM illustrated in Figure 2-1 are readily understood. For example, on February 1, the total of all coins collected during the day for grinding grain was ₦ 1.10.4. This amount is entered for the date of February 1 under the SALES column. Every working day of the month has a similar entry of income from that day's activities.

Throughout the month various other financial transactions occur in this mill. On the Third of February and on the Tenth, diesel oil was

DAILY RECORD FORM					
Alhaji Saadu Chibado Mill					
DATE	ITEM	PERSON or COMPANY	MATERIAL or SUPPLIES £ s d	WAGES £ s d	SALES £ s d
1	2	3	4	5	6
February 1	Daily Grinding				1.10.4
" 2	" "				2. 1.0
" 3	" "				1.15.4
" 3	Bought Diesel Oil	Malam A.	0. 8.0.		
" 4	Daily Grinding				2. 1.0
" 4	Repairs to Building	Malam B.	0.10.0	1. 0.0.	
" 5	Daily Grinding				2.10.1
" 5	Wages	Operator		0.18.0	
" 5	Wages	Small Boy		0.10.0	
" 5	Chop Money	Small Boy		0. 3.0	
" 5	Chop Money	Operator		0. 3.0	
" 6	Daily Grinding				2. 4.6
" 7	Daily Grinding				1.15.9
" 8	Daily Grinding				2. 3.8
" 8	Bored Plates	Malam C.	0.10.0		
" 9	Daily Grinding				2.10.5
" 10	Daily Grinding				1.15.9
" 10	Bought Diesel Oil	Malam A.	0. 8.0		
" 10	Bought Paddy	Malam D.	4. 0.0		
" 11	Daily Grinding				2. 0.0
" 12	Sold Hulled Rice	Malam E.			6. 0.0
" 20	Daily Grinding				2. 6.4
" 20	Mechanic Checked Machine	Malam F.		1. 0.0	
" 21	Daily Grinding				2.13.4
" 21	Spare parts for mill	Local Store	0.15.0		
" 22	Daily Grinding				1. 5.6
" 23	Daily Grinding				2. 3.4
" 24	Daily Grinding				1. 1.4
" 25	Daily Grinding				1. 5.2
" 26	Daily Grinding				1. 9.3
" 26	Wages	Operator		0.18.0	
" 26	Wages	Small Boy		0.10.0	
" 26	Chop Money	Small Boy		0. 3.0	
" 26	Chop Money	Operator		0. 2.0	
" 27	Daily Grinding				1. 2.5
" 28	Daily Grinding				2. 4.3
TOTALS			£ 10.4.0	£ 6.16.0	£ 62.4.3

Figure 2-1
Illustration of the Daily Record Form used for
Corn Mill Transactions

bought for ₦0.8.0 from Malam A. and this item was entered under the column headed MATERIAL OR SUPPLIES. Entries also were made in this column on the 8th of February, when the manager paid Malam C. ₦0.10.0 for boring his mill-plates; on the 10th when he bought some paddy for ₦4.0.0; and on the 21st for the purchase of spare parts.

On the Fifth of the month, and weekly thereafter, the payment of wages is recorded. These include wages paid to the Operator and "Small Boy", as well as a three-Shilling allowance to each of them for "Chop Money". All entries of labor payment appear under the column headed WAGES.

Totals made of each of these three columns at the end of the month provide a complete record of the financial transactions for the period.

Daily transactions, therefore, when recorded on a simple form of this kind, provide the basis for deriving monthly and annual summaries of the profitability of the mill.

MONTHLY AND ANNUAL SUMMARIES

The mill owner is encouraged to make monthly summaries of his financial condition, in order that a continuing record of how well he is doing is readily available. The practical measure of how well he is doing is the level of profits he has earned during the month. In the training program at the Industrial Development Centre, the mill owner receives the following instructions for calculating his monthly profits:

At the end of the month: (Reference is to Figure 2-1)

1. Total all items in Column 4 headed MATERIAL OR SUPPLIES
2. Total all items in Column 5 headed WAGES
3. Total all items in Column 6 headed SALES
4. Add the totals of Columns 4 and 5. The sum of MATERIAL OR SUPPLIES and WAGES is the total cost of running the mill for the month.
5. Subtract the total in Item 4 (which is the total cost of running the mill for the month) from the total of Item 3 (which is the total income for the month.)
6. The difference between these two items is the profit for the month.

Calculations for the Mill operation shown in Figure 2-1 are as follows:

1. The sum of the items in Column 4 MATERIAL OR SUPPLIES is: ₦10.4.0
2. The sum of the items in Column 5 WAGES is: ₦6.16.0
3. The sum of the items in Column 6 SALES is ₦62.4.3
4. The sum of Columns 4 and 5 is: ₦17.0.0
5. The difference between the total of Column 6 SALES and the total of Item 4 TOTAL EXPENSES is: ₦45.4.3. This is the operating profit for the month.

An Annual Summary is readily established by keeping systematic accounts of monthly totals, as well as a cumulative total of the profit earned to date for the year. Figure 2-2 (Page 19) illustrates the method.

Alhaji Saadu Chibado Mill						
MONTHLY AND ANNUAL SUMMARY						
MONTH	MATERIAL OR SUPPLIES	WAGES	TOTAL COST (Col 2 + Col 3)	TOTAL SALES	MONTHLY PROFITS (Col 5 - Col 4)	ANNUAL PROFITS (Total of Col 6)
1	2	3	4	5	6	7
JANUARY	₦ 8.0.0	₦6.16.0	₦14.16.0	₦52.5.9	₦37.9.9	₦37.9.9
FEBRUARY	10.4.0	6.16.0	17.0.0	62.4.3	45.4.3	82.14.0

Figure 2-2
Monthly and Annual Summary for a Food-Processing Mill

The items entered in Column 2 through Column 6 in Figure 2-2 are the sums calculated in the manner just described. The February totals on the form are those just determined, and Column 7 is a cumulative total of all profits earned to date during the year. Thus, through the month of February, a total of ₦82.14.0 has been earned by this Mill.

A FURTHER SIMPLIFICATION

The question is sometimes raised as to why it is necessary to separate total cost of wages from the total cost of material or supplies, as combining these would still permit the profit to be calculated very readily. To do this, it is suggested, would further simplify the procedures just described.

This is quite true, and a modification of the system already explained has been adopted by the Small Industry Credit Scheme. This employs a form designed

as shown below.² Here financial transactions are reported merely as "Money Paid Out" and "Money Paid In".

DAILY RECORD FORM				
DATE	ITEM	PERSON OR COMPANY	MONEY PAID OUT	MONEY PAID IN
Jan. 1	100 pounds fibre mats	Mallam M.	₦ 5	
2	Labor	Mallam S.		₦ 9
		Mallam T.	₦ 2	

Utter simplicity of this sort can be very useful, especially for those operators whose primary interest is a set of records that reveals the extent of the monthly profit, and for whom further cost analyses are of little interest. An example of such enterprises would be a corn mill or a rice mill, of a very small size. For those enterprises where more complete studies of the distribution of the costs of operation are important, however, the usefulness of separating the two items of expense (material or supplies, and labor) should not be overlooked, for the following reasons:

- a) A tendency for one or the other of these two costs to get out of line can be more readily detected if they are reported separately;
- b) It is good fundamental bookkeeping practice to separate the costs of wages from the costs of material or supplies, because if eventually the enterprise should grow and require more precise record-keeping procedures,

² "Small Industries Credit Scheme Fund", Brochure, Mimeographed, undated, Ministry of Trade and Industry, Kaduna

the transition will be simpler; and

c) the manager will be more aware of the importance of his labor costs if they are reported separately.

These are benefits that can be enjoyed for little additional investment in time and no important increase in the complexity of keeping the records.

For these reasons, it is recommended that except for the very simplest industrial operations, the procedure described earlier be employed.

This completes the description of the Minimum Record (Cash) procedure.

The recommendation for small enterprises that do business for credit as well as for cash is the Minimum Record System (Credit and Cash) which is similar in principle to the accounting method already described.

THE MINIMUM RECORD SYSTEM (CREDIT AND CASH)

The Minimum Record System (Credit and Cash) is slightly more detailed than the procedure just explained but is by no means complex to install or to use.

In this accounting method, two separate records are kept of financial transactions. These records are:

1. INCOME AND ACCOUNTS RECEIVABLE
2. COSTS, EXPENSES AND ACCOUNTS PAYABLE

In the first of these records is recorded all receipts for cash sales, and all amounts of money owing to the enterprise for goods sold on credit.

The second form provides a record of all cash payments for goods or materials purchased, as well as a record of all sums still owing to suppliers for goods and materials purchased. In Nigeria, these two accounts are commonly referred to as the "Debtor's Account" and the "Creditor's Account" respectively.

Figure 2-3 (below) illustrates the design of these two forms, and identifies the notations required by these two sets of records.

INCOME AND ACCOUNTS RECEIVABLE							Month
Date	Sales		Other Cash Received £.s.d	Received from whom for what	Invoice		
	Cash £.s.d	Receivable £.s.d			Date Sent	Date Paid	
1	2	3	4	5	6	7	

COSTS, EXPENSES AND ACCOUNTS PAYABLE							Month
Date	Wages £.s.d	Material or Supplies		Other Cash Paid £.s.d	Paid to whom for what	Invoice	
		Cash £.s.d	Payable £.s.d			Date Rec'd	Date Paid

Figure 2-3
Design of two forms used for recording daily financial transactions in the Minimum Record System (Credit and Cash)

The two forms are alike in design. The INCOME AND ACCOUNTS RECEIVABLE form notes the date of the transaction, in Column 1; and the amount of money involved, to be recorded in Column 2 if for cash, and in Column 3 if for credit. In Column 4 is recorded the amount of cash received in payment for credit sales of previous months; in Column 5 is the name of the company or person concerned and what the transaction was for. The

date the invoice was sent, and the date payment was received, are recorded in Columns 6 and 7.

In the COSTS, EXPENSES AND ACCOUNTS PAYABLE form, the date of the transaction is noted in Column 1; wages are recorded in Column 2; and expenditures for purchases of material or supplies are recorded in Column 3 if for cash, and in Column 4 if bought for credit. In Column 5 is recorded the amount of cash paid for bills incurred in previous months on a credit basis. In Column 6 is the information as to which person or company was involved in the transaction. The date the invoice was received is noted in Column 7 and the date it was paid is written in Column 8.

An example of how these two forms are used is provided below.

AN EXAMPLE OF THE MINIMUM RECORD SYSTEM (Credit and Cash)

An example of the Minimum Record System (Credit and Cash) applied to a leather-products enterprise is illustrated in Figures 2-4, 2-5, and 2-6 (Pages 25, 28 and 30).

1. Income and Accounts Receivable

In Figure 2-4, items of cash income and receivable items have been entered for activities of the month of December. The transactions are relatively simple. For example, on December 2, Maïam Abdu paid ₦ 10 cash for a leather jacket that had been tailored for him, and an entry of ₦ 10 is seen in Column 2, the "Cash" column.

On December 4, Mr. Brown ordered a pair of shoes, and gave an advance of ₦ 2. He promised to pay ₦ 2 more on delivery of the shoes. The entry then made in the record appeared as shown on the following page.

INCOME AND ACCOUNTS RECEIVABLE						
Date	Sales		Other Cash Received £.s.d	Received from whom for what	Invoice	
	Cash £s.d	Receivable £s.d			Date Sent	Date Paid
1	2	3	4	5	6	7
Dec. 4	£ 2	£ 2		Mr. Brown 1 pair of shoes		

That is, £ 2 Cash was received, as noted in Column 2, and £ 2 is owing as recorded in the Receivables Column, Column 3.

A similar transaction occurred on December 6, when M. Ahmadu ordered two pairs of shoes, for which he paid £ 2 in advance, and owed £ 3 more.

On December 11, Mr. Brown's shoes were finished, and he came into the shop to pay the remaining £ 2 owing to the enterprise. The £ 2 entered earlier in Column 3 as Receivable was crossed out, and an entry was made on December 11 for £ 2 Cash, thus showing that the transaction was complete. The date "December 11" was written in Column 7 (Date Paid Column) on the December 4 entry line to designate the date payment was made.

On December 12, £ 3.10.- was received from Mr. Smith in final payment for a purchase he had made in November, and which had not been paid. This entry is placed in Column 4, "Other Cash Received".

On the 13th of the month, Trader Sani ordered 20 pairs of sandals, advancing £ 20, and promising to pay the remaining £ 10 on delivery.

Malam Paiko LEATHER PRODUCTS						
INCOME AND ACCOUNTS RECEIVABLE						
Month: December						
Date	Sales		Other Cash Received £.s.d	Received from whom for what	Invoice	
	Cash £.s.d	Receiv- able £.s.d			Date Sent	Date Paid
1	2	3	4	5	6	7
Dec 2	£ 10			M. Abdu- Leather Jacket		
Dec 4	2	2		Mr. Brown- One pair of shoes		Dec 11
Dec 6	2	2		M. Ahmadu- Two pair of shoes		Dec 20
Dec 11	2			Mr. Brown- Final Payment		
Dec 12			3.10.-	Mr. Smith- Final payment for November purchase		
Dec 13	20	10		Trader Sani- 20 Pairs of sandals		
Dec 14	5	10		Art Shop- 12 poufs		
Dec 20	3			N. Ahmadu- Final payment		
Dec 21		28		Craft Sales- 25 pairs sandals	Dec 21	
Dec 24	4			Mrs. Jones- One hand bag		
Dec 26			24	M. Bala- Final payment for November purchase		
Dec 27	5	18		Mr. Thompson- Suit Case	Dec 27	Dec 31
Dec 31	10			Mr. Thompson- Full payment		
Dec 31	10	20		Kraft Centre- Variety products		
Total	£ 73	£ 68	£ 20.10.-	Total Sales income for the month:	£ 141.-.-	

Figure 2-4
The Income and Accounts Receivable form used in a leather-products enterprise

The same kind of transaction is noted on the 14th of the month; a small cash sale was made on the 20th; and on the 21st, Craft Sales Company ordered 25 pairs of sandals to be delivered from stock immediately. An invoice was sent on the same day (noted in Column 6) and the ₦ 28 owing is recorded in the Receivable Column. The remaining transactions of the month are similar to those already described.

2. Costs, Expenses and Accounts Payable

Financial activities involving expenditures and accounts payable are equally as simple to record as those just described. Transactions arising in the same leather products enterprise during the month of December are noted in Figure 2-5 (Page 28).

In this example, the first transaction occurred on December 1, when M. Paiko bought camel-hide leather for ₦ 5 cash from the leather-supply company. The entry is shown on the first line under the "Cash, Material or Supplies" column, Column 3 of Figure 2-5.

The second entry of December 3 is also a cash payment and is recorded in the same way. The entry of December 8 involves both cash and credit. M. Paiko contracted with M. Musa to paint the inside of the shop for a total of ₦ 6, of which ₦ 2 was paid in advance, the remaining ₦ 4 to be paid when the job was finished. The entry for this transaction then appeared as shown on the following page.

COSTS, EXPENSES AND ACCOUNTS PAYABLE							
Date	Wages £.s.d	Material or Supplies		Other Cash Paid £.s.d	Paid to whom for what	Invoice	
		Cash £.s.d	Payable £.s.d			Date Rec'd.	Date Paid
1	2	3	4	5	6	7	8
Dec 8		£.2	£ 4		M. Musa- To paint shop		

On December 10, payment was made of the wages due the workers in the enterprise. The Manager paid himself £ 15, and two journeymen, an apprentice and a watchnight were paid varying sums for their work during the month. These items of expense were entered under Column 2, as they were payments for wages.

On the 13th of December a bill for £ 17 for leather bought in November from the Leather Supply Company was paid.

A tax bill for £ 12 was received from the Internal Revenue Department on the 17th.

On the 22nd day of December a quantity of sole leather was ordered by mail from the Leather Supply Company for £ 20, and an invoice for this amount was received from the Company on the 29th. These last two items have not yet been paid, and both are considered "Material or Supplies".

On the 28th, M. Musa was paid the remaining £ 4 for painting the shop, a job which he had just completed. The £ 4 payable entry was then X'ed out and the date December 28 was written in Column 7, on the line of the December 8 entry. On the 29th of December a bill of £ 8.10.6 for October purchases was paid.

MALAM PAIKO LEATHER PRODUCTS							
COSTS, EXPENSES AND ACCOUNTS PAYABLE							
Month: December							
Date	Wages ₹.s.d	Material or Supplies		Other Cash Paid ₹.s.d	Paid to whom for what	Invoice	
		Cash ₹.s.d	Payable ₹.s.d			Date Rec'd.	Date Paid
1	2	3	4	5	6	7	8
Dec 1		5	=		Leather Supply Co.- Camel-hide leather		
Dec 3		3			Sales Commission- Trader Ahli		
Dec 8		2	4		M. Musa to paint shop		Dec 28
Dec 10	15				Salary of Manager		
Dec 10	16				Salary of two journeymen		
Dec 10	4				Salary of apprentice		
Dec 10	6				Salary of watchnight		
Dec 13				17	Leather Supply Co. for leather bought in Nov.		
Dec 17			12		Internal Revenue for Tax	Dec 17	
Dec 22			20		Leather Supply Co. for sole leather	Dec 29	
Dec 28		4			M. Musa, painter; full payment		
Dec 29				8.10.6	Leather Supply Co. for various supplies- Oct.		
Dec 30		3	5		Leather Supply Co. for reptile skins		

Total ₹ 41 ₹ 17 ₹ 37 ₹ 25.10.6 Total Cost: ₹ 95

Figure 2-5
The Costs, Expenses and Accounts Payable form used in a leather-products enterprise

On the 30th, the manager ordered some reptile skins, for which \$3 was paid in advance and \$5 was owing. These entries were also "Materials or Supplies".

With these transactions the month ended.

The totals of all the transactions were written at the foot of the form. These are: Total Costs: \$95, of which \$37 was still owing; expenses classified as Material or Supplies: \$54; and Wages: \$41. Other Cash: \$ 25.10.6

3. The Monthly and Annual Summary

The figures recorded on the Monthly and Annual Summary are identical in nature to those recorded in the system previously described for cash transactions. Determining the figures to be entered on this form to calculate the profits requires more computations than before, however. The needed calculations are noted below, and the figures derived for this leather products enterprise are also listed, thereby demonstrating how the December figures on the MONTHLY AND ANNUAL SUMMARY were determined.

CALCULATION OF DATA FOR MONTHLY AND ANNUAL SUMMARY

<u>To determine:</u>	
1. Total expenditures for Material or Supplies 2. Total expenditures for Wages 3. Total of all expenses	
1. COSTS, EXPENSES AND ACCOUNTS PAYABLE	Leather Products example (Figure 2-5)
a) Total all items in Col. 2 (Wages)	£ 41
b) Total all items in Col. 3 (Cash, Material or Supplies)	17
c) Total all open (not X'ed out) items in Col. 4 (Payable, Material or Supplies)	37
d) Find the sum of Col. 3 and Col. 4 totals. This is the total cost of Material or Supplies.	54
e) Find the total of Wages (Item a) and Material or Supplies (Item d). This is the total of Expenses.	95
<u>To determine:</u>	
1. Total Sales 2. Monthly Profit	
2. INCOME AND ACCOUNTS RECEIVABLE	Leather Products example (Figure 2-4)
a) Total all items in Col. 2. This is the total of cash sales.	73
b) Total all items in Col. 3. This is the total of all receivable items still due at the end of the month.	68
c) Find the sum of these two totals (2a + 2b). This is the total of all sales for the month.	£141

d) Subtract the total expenses for the month (Item 1e) from the total sales for the month (Item 2c). This is the profit for the month.	₱ 46
To find the Annual Profit to date:	
3. MONTHLY AND ANNUAL SUMMARY	(Reference Fig. 2-6)
a) Enter the total from Item 1d in Column 2	54
b) Enter the total from Item 1a in Column 3	41
c) Enter the total from Item 1e in Column 4	95
d) Enter the total from Item 2c in Column 5	141
e) Enter the total from Item 2d in Column 6	46
f) Total Column 6. Record this figure in Column 7. This is the Annual Profit to date.	₱315.10.3

MAIAM HAIKO LEATHER PRODUCTS						
MONTHLY AND ANNUAL SUMMARY						
MONTH	MATERIAL OR SUPPLIES	WAGES	EXPENSE (Col. 2 + Col. 3)	TOTAL SALES	MONTHLY PROFIT (Col. 5 - Col. 4)	ANNUAL PROFIT (Total Col. 6)
1	2	3	4	5	6	7
JANUARY	₱40	₱ 41	₱81	₱115	₱34	₱ 34
OCTOBER	46.5.5	41	87.5.5	118.5.5	36	221.0.3
NOVEMBER	32.10.-	41	73.10.-	122	48.10	269.10.3
DECEMBER	54	41	95	141	46	315.10.3

Figure 2-6
Monthly and Annual Summary
as Applied to a Leather Products Enterprise

Other Cash Received and Other Cash Paid

Items of "Other Cash Received" or "Other Cash Paid" refer to payments for credit transactions of previous months, and therefore are not included in the totals of the current month. Credit sales or purchases are considered income or expenses of the month in which they were incurred, and therefore cannot be included a second time if they are carried forward to, and paid in a following month. They will be reflected, of course, in the amount of cash the manager has received or has paid during the month, aside from his current-month transactions.

A Study of Accounts Receivable and Accounts Payable

The manager may wish to study closely the trends in his Accounts Receivable and Accounts Payable activities. So that he may know the current status of each customer's account, periodic summaries of the sums owing to him from important or especially active customers may be compiled from his records. In all cases, the manager will be well advised to review frequently and follow-up actively all unpaid bills.

It is also well for the manager to preserve the credit status of his enterprise by an occasional review of his outstanding debts, and to make a continuing effort to keep such obligations to a minimum.

Periodic summaries or analyses may be readily prepared from his records of unpaid debts, and will usually suffice to inform him of his current financial condition.

ADOPTION OF A RECORD-KEEPING SYSTEM

One of the two types of accounting practice described should generally be applicable to every small enterprise, whatever its products or services may be.

The manager will find it much easier to do his business with reasonable efficiency when he uses a system of accounting for his financial transactions, and the two procedures presented represent a minimum requirement that will fulfill the needs of even the smallest shop. The simplicity of these two systems recommends them for practical application and use.

However, it will be observed that the very elementary design of record-keeping described here may be modified to provide more detailed information if desired. For example, instead of a general listing of "Sales", one might list sales under several headings according to types of products sold, sales areas, or other variations. Similarly, expenses may be broken down into a variety of headings, according to the wishes of the manager. The procedures outlined here, however, have stated in the simplest basic terms how a minimum record-keeping system may be established. Further detail and more precision can be secured readily, of course. One way to acquire more precise figures is by the adoption of a more elaborate bookkeeping system. The "Double Entry Bookkeeping System" is typical of the procedures available to the business manager.

THE DOUBLE ENTRY BOOKKEEPING SYSTEM

The level of operation pursued by the enterprise for which this book was written rarely should require a set of records more formal or precise

than those described here.

The Small Industry Credit Scheme, however, has presented a double-entry bookkeeping procedure for those whose operations are or might become sophisticated enough to require the type of bookkeeping typical of more developed industry, and of larger manufacturing organizations.

For purposes of record, a description of the double-entry bookkeeping system suggested by S.I.C. is provided in Appendix C of this book and may be referred to for study or application if desired.

SUMMARY OF RECORD KEEPING AND FINANCIAL TRANSACTIONS

Keeping records of financial transactions is one of the fundamental needs of every manufacturing or service establishment, no matter what its size. The need for simplicity in the accounting system of a small business is apparent, however. The two simple systems of record-keeping that have been presented should fill the needs of the small enterprise whether it is engaged in manufacturing or in some service activity. Progress in development and expansion of the enterprise will require such records, on which a study of the efficiency of operations may be based. The adoption of such procedures is, therefore, most important.

* * *

In the following section of this book is presented another form of record, which is used for recording and controlling the production process

This, it will be found, is also a much needed addition to the management operations of many small enterprises.

(III)

Planning and Controlling Production

RECORDS FOR PLANNING AND CONTROLLING PRODUCTION

Records of business affairs supply information needed by all persons who participate in directing the production process. The usefulness of such records is very apparent to those who are familiar with modern industrial management.

Yet very commonly the small manufacturing enterprise in the developing country keeps few records useful for planning and controlling production. The manager of such an enterprise usually gives orders to his workmen on the basis of job operations as he finds them at the moment. This quick assessment of operating conditions is generally made without the assistance of records of past performance or of the current status. We have learned from experience, however, that management decisions made without the guidance of such recorded data are not necessarily the best. Usually more effective programs can be adopted when reliable performance figures are available for reference.

So the manager wishing to manage well, usually finds it advantageous to establish records appropriate for his short-term planning of production, and for assuring that such plans are carried out. The efficiency of his operations may be greatly improved if he uses his records properly. Of course, often the manager does not readily recognize how such records can help him, and he may not initially be very enthusiastic about the thought of keeping more records than the few he already has. And it is very correct that the manager should not be overloaded with

record-keeping responsibilities. Understandably, any records of production planning and control he adopts must be useful to him and practical for his particular circumstances.

HOW CAN PRODUCTION RECORDS BE USEFUL?

Many a small-enterprise manager may be found who will confidently assure one that production records are unnecessary in his business. Yet only a few questions put to him on the operation of his affairs will usually be sufficient to reveal how urgently he is in need of such assistance. We may ask him the simplest of questions: What orders do you have on hand? What is the condition of these orders—are they on time, ahead of schedule, or are they behind schedule? Will the orders being worked on today by your workers be completed by their scheduled delivery dates? How much work has been done on each order? And when is the order expected to be completed? The manager may regret his inability to provide ready answers to these questions. Or answers, if given, will be fragments of memory, and not infrequently most inaccurate.

Records used in the small enterprise should primarily answer the most obvious questions. First, what orders are on hand? The manager should have readily available some simple record of the orders he has ahead of him. What are the orders that are being worked on, and what orders are available for future processing? Secondly, he will want to know: how well am I doing? That is, what is the progress on the orders being worked on at this time? He will wish to determine which orders, if any, need to be expedited and which can conveniently be postponed for some

time. Thirdly, he will want to know on the basis of the first two answers: how should I schedule my workers? He will wish to assign his workers to jobs in a way that will permit him to meet his commitments most effectively. Which workers, he will want to ask himself, should be doing which jobs?

When the operator of the small enterprise asks such questions of himself, he embraces fully the important responsibilities of a professional manager. Such a manager makes management decisions based on facts, rather than on opinion or guesswork. So he is a manager who has some assurance of being successful in the operation of his enterprise.

Three basic records are recommended here for use in the small business, whereby reliable answers to the manager's scheduling problems may be provided.

These records are:

1. The Order List
2. The Production Record
3. The Workers Schedule

Descriptions of these forms and explanations of their use in the small business are provided in the following pages.

1. THE ORDER LIST

One of the most important sets of facts the manager needs for his planning is a systematic record of the orders he has on hand. The record the manager uses to accomplish this is the Order List. The

Order List provides written information on each order as to what must be produced; by what date it is required; and the quantities in which it must be made. It is possible to use quite an uncomplicated design of Order List and still acquire highly useful guidance. For example, the simple Order List shown in Figure 3-1 (Page 39) illustrates a typical application for an artisan making leather products.

In this example, the entries needed to complete the form are: The Order Number; the customer's Purchase Order Number, if any, and customer's name; the item ordered; the promised date of final delivery; the promised date of partial delivery, if any, and the delivery date of the balance; also the date the order was invoiced after completion.

Thus, in Figure 3-1, Mrs. Brown ordered a leather bag (Order Number 65) for delivery on October 15. The bag was completed and a bill submitted on October 17.

On Order Number 66 , Kano Craft Shop placed its Purchase Order Number 264 for 24 pairs of sandals. Partial delivery of one dozen of these sandals was promised by October 20, and the balance by November 1. The order was completed on time and an invoice was submitted on November 3.

The remaining entries on the Order List are similar in nature to those described, and are the open orders on which the enterprise is working or will soon be working.

Having a list of promised delivery dates before him is a great assistance to the manager in scheduling his workers to meet his production commitments.

ORDER LIST
Alhaji Scadu Leather Shop

ORDER NUMBER	CUSTOMER'S:		Item Ordered	PROMISED DATE OF:			Date of Invoice
	No.	Name		Delivery	Partial Delivery	Balance	
65	264	Mrs. Brown	Leather Bag	Oct. 15			Oct. 17
66		Kaduna Craft Shop	24 pairs sandals		Oct. 20 1 dozen	Nov. 1	Nov. 3
67	92	Alh. Muhammed-Trader	12 brief cases	Nov. 8			
68		University Shop	10 brief cases	Nov. 15			
69		Malam Audu Trader	12 ladies handbags		Nov. 15 6 bags	Nov. 25	
70		Mr. Smith	2 pairs shoes	Nov. 12			
71		Mrs. Jones-export	8 suit cases	Nov. 10			
72		Trader Abli	10 poufs	Nov. 14			

(39)

Figure 3-1
Order List as applied to a small leather-products establishment
(As it appears on November 4)

Furthermore, the Order List not only provides a running record of all orders on hand but also is a record of orders already completed, which makes it even a more useful document. In fact, only short experience in using an Order List is generally enough to convince the manager that this way of doing things is preferable to manipulating mentally the many items of order information relating to his enterprise.

Adoption of the Order List in a small enterprise is, therefore, a practical first-step towards more systematic management of production operations.

2. THE PRODUCTION RECORD

But it is no more than a first step. Having established what orders are on hand, the manager will also wish to have a record of how well orders currently being worked on are progressing. Are delivery dates likely to be met with production proceeding at the present rate? Are any orders falling behind? If so, can other orders be delayed while extra efforts are made to bring the late orders up to date? These questions are more readily answered when the manager has at hand a record of where his production efforts stand on any given day. The form used to provide him with these answers is the Production Record. The importance of establishing the Production Record may be readily explained.

Practical experience of those who have observed the operation of many small enterprises reveals that unless he has a record of his current production status, the manager is almost certain to have some orders on

hand that will not be completed by their scheduled dates, (as well as some others that may be finished earlier than necessary.) The whole production situation is often quite confused when the manager relies entirely on his memory to establish where his operations stand at the moment. And this can be a serious matter, for many managers lose orders because their delivery commitments are not kept. Customers will simply not buy from an enterprise whose deliveries are consistently late. In fact, unreliability is one of the most harrassing deterrents to small enterprise profitability.

EXAMPL OF PRODUCTION RECORD

An example of a Production Record applied to the operation of a craft shop making leather products is shown in Figure 3-2 (Page 42). (The Order List for this same enterprise was illustrated in Figure 3-1, (Page 39).

Provision is made on the Production Record for noting:

the Order Number; the item to which it refers; the daily and total production to date for each day of the month; and the day each order is to be completed. By daily comparison of the quantity produced to date and the total required as of a specified date, the manager can readily recognize which orders need to be given special attention in order to meet his delivery obligations.

In Figure 3-2, for example, Order Number 67 calls for 12 brief cases to be made by November 9. This is designated by the number "12" written in the "Total" line on the 9th day of November. Starting on November Second, two brief cases were made on each day for six days, and the order was completed on time on the Eighth of November. These entries are noted

PRODUCTION RECORD
Alhaji Seadu Leather Shop

ORDER NUMBER	ITEM	PRODUCTION	November 1966															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
67	12 Brief Cases	DAILY	0	2	2	2	2			2	2							
		TOTAL	0	2	4	6	8			10	12	12						
68	10 Brief Cases	DAILY					1			1	1	1	1	2				
		TOTAL					1			2	3	4	5	7				10
69	12 Handbags	DAILY				2	0			0	0	0	1					
		TOTAL				2	2		SUNDAY	2	2	2	3			SUNDAY		6
70	2 Pair Shoes	DAILY			$\frac{1}{2}$	$\frac{1}{2}$					$\frac{1}{2}$	$\frac{1}{2}$						
		TOTAL			$\frac{1}{2}$	1					$1\frac{1}{2}$	2						2
71	8 Suit Cases	DAILY								2	1	1	1	1				
		TOTAL								2	3	4	5	6	8			
72	10 Pouches	DAILY					1			2	1	3	1	1				
		TOTAL					1			3	4	7	8	10	9			

(42)

Figure 3-2
Production Record applied to a leather-products establishment
(As it appeared on November 11)

in the "Daily" production and "Total" production lines.

Order Number 68 for 10 brief cases is progressing, and seven have been made by the 11th, thus suggesting that the delivery date of the 15th can be met without difficulty.

Order Number 69 for 12 handbags is on schedule, or a bit ahead of schedule.

Order Number 70 for two pairs of shoes was completed several days earlier than was necessary to meet the required delivery date.

Order Number 71, however, has fallen behind. Only five of the eight suit cases on order were completed by the 10th of November, and one more was done on the 11th. Special attention to completing this job is now required.

Similarly, Order Number 72 is late. Only eight poufs have been completed on an order for 10, due on the 10th. At least two days will be lost on this order.

The manager who has before him a record of this kind can more readily determine the most appropriate actions required of him to keep his production in balance with his delivery dates. In some instances he may hold up the starting dates of new orders if other orders are falling behind, and concentrate his efforts on completing the late orders.

In other cases he may delay continuing production of items already on schedule or ahead of schedule, so that orders behind schedule may be brought up to date.

In instances where his capacity is already fully utilized, and he is still not able to keep up with his orders, the manager may wish to employ temporary labor in order that the scheduled delivery dates may be kept. Under such circumstances, new orders may be given delivery dates extended further into the future than is usual, in order to avoid continued delays in completing existing orders.

Whatever types of action are implied by the conditions existing in his enterprise, the manager will be guided by the systematic provision of reliable records. In fact, he is unlikely to wish to operate his business without this kind of record, after he has learned to use it effectively.

Furthermore, the applicability of this kind of planning record is very wide. It can be adopted usefully by many kinds of small enterprises, including: carpenters, tailors, metal-workers, craftsmen of many kinds; shoemakers; and bakers. The list of manufacturers who can use this type of record with benefit is, actually, almost endless. Also it will be especially useful to those managers who are endeavoring to expand their establishments, or to widen the scope of their operations.

THE PRODUCTION RECORD FOR EXPANDING ENTERPRISES

Small enterprises that have made efforts to expand their sales and enlarge their scope of activity will usually acquire modern machines capable of faster and more accurate operations than the hand-methods previously used. When this happens, the manager finds that his production capability will be greatly increased. He may, in the same

amount of time, be able to do several times the quantity of work done before, or, conversely, may be able to do the same amount of work as done before, in a fraction of the time originally required.

Inasmuch as the procurement of machinery generally implies that a loan has been negotiated, there is usually a need for the fullest utilization of the machines throughout the day, so as to secure the greatest possible return from them, and thereby facilitate re-payment of the loan as well as to increase the level of profitability of the enterprise.

The practical meaning of this requirement is that the manager must somehow increase the number of orders for his products, or, preferably, secure orders for larger quantities of production or longer runs of the type of products he is accustomed to making.

The manager finds, however, that when he undertakes to produce large quantities of products, rather than the one-at-a-time, small-volume production he has been accustomed to, he must also change his production methods to fit the new conditions caused by the use of faster, more accurate machines and by the larger orders he is handling.

The usual effect in manufacturing large quantities of products is that a "Component Production" method is required, rather than the "Unit Production" method used before.

COMPONENT PRODUCTION vs. UNIT PRODUCTION

That is, in the Unit Production method, a worker will undertake to fabricate or process a product completely from the first operation to the last. He will do all operations required, and other workers also

making similar production items will also do all required operations. For small-volume production, this is an adequate and satisfactory method of production. For larger volume output, however, the manager finds it advisable to adopt the Component Production method, whereby different workers perform different operations on the component parts of the product.

That is, the product is analysed in terms of the unit operations required to fabricate or process it, and these operations are divided into balanced units of work among several workers who continue to produce unit parts of the product until all components required by the order are completed. Then additional workers concentrate on the final assembly or finishing fabrication of the completed components, and bring it into its final form.

When the production method changes, so, also, must the method of keeping the Production Record of that performance.

For example, when an order is received for a product to be manufactured in relatively large quantities, the manager must plan his production procedures in somewhat greater detail than is normal when complete products are made one at a time.

The first step the manager undertakes in these conditions is to list all required operations in the production of the item. These operations are then broken down into groupings depending on the number of workmen to be employed on filling this order, and on the urgency of completing the order. That is, generally the more workers put on the job, the quicker it will be finished.

An explanation of how these planning steps are performed is provided by an example taken from a wood-working shop.

EXAMPLE OF PLANNING FOR COMPONENT PRODUCTION

An example of Component Production is illustrated by the manufacture of a wooden stool, produced in rather large quantities by a small company. The appearance of this stool is suggested by Figure 3-3, (Page 48).

It is assumed here that this small woodworking company has received "Order Number 126" for 200 "Easy-Rest wooden stools", an item typical of the standard line of wooden products produced by this small enterprise. The purchaser asks for delivery no later than three weeks from the acceptance of the order.

The manager of the small business, therefore, undertakes to establish how his product will be produced and what the requirements will be to meet the requested delivery date.

First, using a simple form identified here as a "Production Estimate", the manager lists all operations required to fabricate this product, using modern wood-working machinery capable of high-speed and accurate operation. His workers are well-trained in the use of this equipment.

In Figure 3-4 (Page 49), the Production Estimate is illustrated, with the eleven distinct operations the manager has listed. These are the required steps in making this stool.

The 11 operations have been divided into four groups. Three workers will work simultaneously on the first nine operations, making the components of the stools. The manager estimates 20 completed sets of components

per day per man as a reasonable expectation.

All components must be completed by the same day, so that the final assembly and finishing operations may begin without unexpected delays.

Having established the expected production capacity for the components of the product, the manager may estimate the completion date and determine for cost purposes the anticipated man-hours required for each stool manufactured.

In the Production Estimate illustrated, the units of work to be done are identified by the letter symbols A, B, C, and D, and individual workers perform each of these groupings of operations.

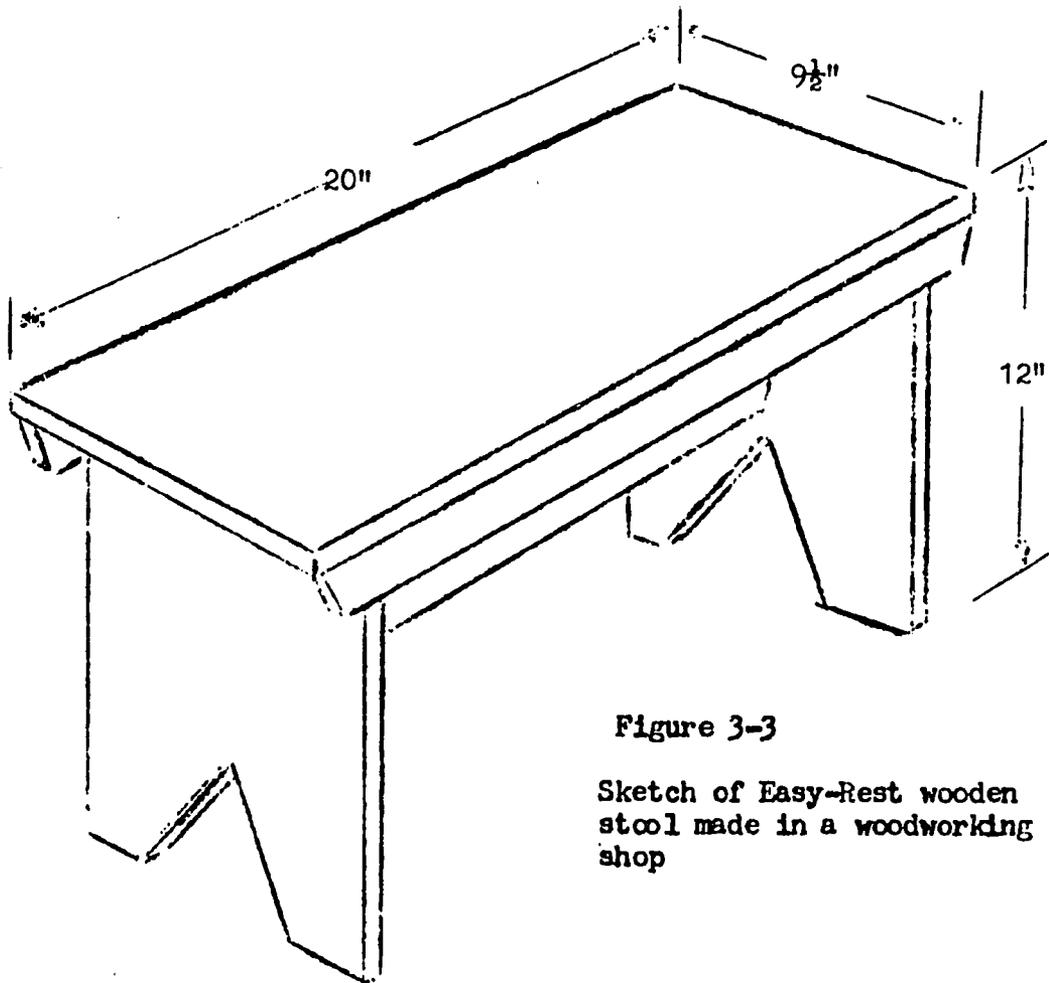


Figure 3-3

Sketch of Easy-Rest wooden stool made in a woodworking shop

PRODUCTION ESTIMATE				
Product <u>Easy Rest Wooden Stool</u>		Quantity of Order <u>200</u>	Order Number <u>126</u>	
OPERATIONS	Symbol	Estimated Production Rate	Required Man Days	Notes
1. Dress Lumber-- Plane to 3/4" thickness	A	20/day/man	10	Black Ofara lumber in planks 1" x 12". Two stools are made per plank.
2. Saw to approximate length				
3. Joint Edges				
4. Rip to width	B	20/day/man	10	
5. Joint Rapped edge				
6. Mark net size and cut to finished length by band saw				
7. Rout edges				
8. Sand surfaces	C	20/day/man	10	
9. Mark and drill pilot and assembly holes				
10. Asscnble with screws	D	40/day/man	5	
11. Finish surface complete				

Figure 3-4

Production Estimate made on component production of a wooden stool in a woodworking shop

THE PRODUCTION RECORD IN COMPONENT PRODUCTION

Day-to-day reports of component production are entered on a Production Record in a manner similar to that described earlier for Unit Production methods.

Notations on the Report must, however, be made by component groupings of operations, in the same manner as the work was done by the several workers.

For the wooden-stool example described, the appearance of these notations on the Production Record is illustrated in Figure 3-5, (Page 51). It is observed that a standard production of 20 items per day per man has been maintained for each of the three early component operations, permitting this production to be ended by June 9. The assembly and finishing operations have begun several days before the components were all completed, thus saving some time and providing the possibility of finishing the job by the 11th of June.

When Component Production methods are used as described here, it is preferable to have production continue without interruption from other jobs of shorter duration. The skills the worker develops in using modern machines are most effective when parts are produced in an unbroken sequence without unnecessary delays or change-overs. The continuous scheduling for production of the wooden stool in this manner is reflected in the Production Record shown in Figure 3-5.

PRODUCTION RECORD														
ORDER NUMBER	PART	Month June												
		1	2	3	4	5	6	7	8	9	10	11	12	13
125	A	D	20	20	20	20		20	20	20	20			
		T	60	80	100	120		140	160	180	200			
126	B	D	20	20	20	20		20	20	20	20			
		T	60	80	100	120		140	160	180	200			
126	C	D	20	20	20	20		20	20	20	20			
		T	60	80	100	120		140	160	180	200			
126	D	D							40	40	40	40	40	
		T							40	80	120	160	200	
		D										200		

Figure 3-5

Example of a Production Record applied to the reporting of component production of a wooden stool in a wood-working enterprise

THE SERVICE ENTERPRISE APPLICATION

The small enterprise that provides services, as well as the one that manufactures products, is also in need of such planning records. Examples of typical enterprises include services such as radio-repair, automotive repair, cycle repair, painting, and tanning. The Order List already described can readily be modified to fit the needs of such service enterprises. An example of an adaptation of the Order List to a radio-repair shop is illustrated in Figure 3-6 (Page 53). Similar information is provided on this form as on the Order List already described, (Figure 3-1), and no further explanation is required here of this adaptation.

In addition to the Order List, however, the service-shop manager will also require a means of noting the progress of the work on his orders, just as is true of the manufacturing enterprise. In his case, however, a weekly record of progress, rather than a daily report, is usually sufficient. An example of such a Weekly Service Record for radio repair is illustrated in Figure 3-7 (Page 54). Here the number of each order being worked on at the end of the week is listed and a graphic means is provided for noting the extent to which each job has been completed. In this example a small "X" is placed opposite the Order Number indicating the manager's best estimate of how nearly complete the job is. The starting date and the planned completion dates are listed also, as well as notes commenting on the status of each order.

For example, the Weekly Service Record for Order Number 122 shows that this order, as of the week-ending July 18, is approximately $3/4$ complete

ORDER LIST
Malam Sani Radio Repair Shop

ORDER NUMBER	CUSTOMERS NAME	SERVICE	PROMISED DATE OF DELIVERY	DATE OF INVOICE
122	Malam Adminu			
123	Malam Tukur	Replace Spæker	July 28	
124	Malam Musa	Check Volume Control	July 18	
125	Malam Usman	Replace Transformer	July 19	
126	Malam Umaru	Check Circuit	July 23	
127	Malam Mohammedu	Check Circuit	July 20	

(53)

Figure 3-6
An Order List applied to a radio-repair enterprise

WEEKLY SERVICE RECORD							Week Ending <u>July 18</u>
Malam Sani Radio Repair							
ORDER NUMBER	HOW MUCH OF THE JOB IS COMPLETED?				STARTING DATE	PLANNED DATE OF COMPLETION	NOTES
	0	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$			
122			X		July 12	July 20	On time
123	X				?	July 28	Waiting for spare parts
124	X				July 4	July 18	Delayed-worker absent
125			X		July 15	July 19	Completed 2 days late
126		X			July 17	July 23	Ahead of schedule 2 days
127	X				July 6	July 20	Need to expedite

(54)

Figure 3-7

A Weekly Service Record as applied in a radio service enterprise

(as shown by the X placed at the 3/4 mark.) The order was begun on the 12th and is expected to be completed by the 20th.

Work on Order 123 has not yet begun because of a delay in securing spare parts. An X is placed at the "0" mark indicating that nothing has yet been done on the order. Other orders are completed in varying degrees as shown by the notations.

A study of Figures 3-6 and 3-7 shows that the two sets of information on these forms are closely related; and by using these two documents the manager makes it easier to have his orders completed with the least delay and in a proper sequence for delivery to his customers.

3. THE WORKERS SCHEDULE

Even in the small enterprise, however, whether it is a manufacturing establishment or a service organization, the manager needs to make plans for his workers and decide which workers are to work on which jobs on each day. Under unorganized conditions, this "work plan" is commonly a spur-of-the-moment decision made at the instant a worker needs to be placed on a job. The need for good management, however, suggests that it should be a considered decision if the most logical arrangement of workers and jobs is to be secured. Even if the manager tries mentally to visualize what his schedule should be for the next few days, he will find it a complex and annoying task, which can be performed much more readily if a detailed reference record is available for his guidance. Adoption of the two records already discussed for production planning leads logically to the

development and use of a third form by which a work plan may readily be devised. This is the "Workers Schedule".

The Workers Schedule is prepared by the manager at the end of each week to plan the work to be done in the week ahead. Figure 3-8 (Page 57), illustrates the use of such a form.

The workers' names are listed on the schedule as well as the dates of the working days of the forthcoming week. After reference to the Order List and Production Record (or Service Record) the number of the order to be worked on is written opposite the name of each worker for each day of the week. In this way the manager allocates jobs to the workers in a sequence permitting him to finish the job on time.

For example, in Figure 3-8 we note that the manager scheduled Order Number 122 to be completed on the 20th day of July, after which the worker (Malam A) is scheduled to work on Order Number 124 for the rest of the week. Malam B is scheduled to work on Order Number 128 all week. Malam C will work on Order Number 127 on the 20th and 21st, then change to Order Number 126 on the 22nd and 23rd, then to Order Number 130 for the rest of the week.

As the week proceeds, occasional revision of the work plan may be required. These changes can be made readily, however, by crossing out the planned Order Numbers and writing into the spaces the substituted Order Numbers. To make changes in an existing plan, of course, is far superior to not having a systematic plan of work in the first place.

WORKERS WEEKLY SCHEDULE						
Malan Sani Radio Repair						
Week Ending <u>July 25</u>						
Workers Name/Date	July 20	21	22	23	24	25
Malan A	122/124	124	124	124	124	124
Malan B	128	128	128	128	128	128
Malan C	127	127	126	126/130	130	130
Malan D	125	125/131	131/132	132	132	132/133

(57)

Figure 3-8

The Workers Weekly Schedule as applied to radio repair. (The numbers 122, 124, 128, etc. refer to Order Numbers of open orders)

The Workers Schedule, therefore, presents the manager with a means of recording important planning information. If the Workers Schedule is to be valuable, however, the manager must keep the Order List and the Production Record up-to-date and complete. The Workers Schedule is dependent on the accuracy of these two other documents for its usefulness. The manager may wish to post the Workers Schedule in the shop for ready reference by the workers, and thereby simplify his supervision.

SUMMARY OF PRODUCTION CONTROL RECORD KEEPING

The manager of the small enterprise, whether engaged in production operations or service activities, requires certain basic planning information.

He needs particularly to have three types of records:

- a) he needs to know what open orders he has on hand;
- b) he needs to know how well he is doing with the orders currently being worked on; and
- c) he needs to plan his workers' time so as to meet his commitments and get his orders completed on time.

Three forms have been suggested to provide ready answers to the questions that arise when the manager undertakes to plan and control the operations of his enterprise. If he uses these records, the manager stands a better chance of operating efficiently and profitably, than if he relies on his memory in making the necessary management decisions.

The manager can almost be guaranteed to step up his operating performance by using these planning tools if he has never kept such records before.

Additional records equally useful to the manager are described in Section IV, the following section of this book. These concern materials control.

(IV)

Records of Material or Supplies

THE NEED FOR RECORDS OF MATERIAL OR SUPPLIES

In small manufacturing enterprises in developing countries, the raw materials from which products are manufactured are likely to be a major expense item. They frequently constitute a greater portion of the cost of making the product than the labor and overhead investment combined. Yet commonly few if any records of material or supplies are kept by such enterprises, and records that are kept are often inadequate for the degree of control that the value of the material justifies.

Large manufacturing companies in industrially developed countries have found it desirable to set up precise records for controlling their materials, to insure that economic quantities are kept on hand-- not too much, yet not too little. In contrast to that condition, the record-keeping procedures needed in a small enterprise in developing countries are very elementary. Nevertheless the requirement cannot be overlooked completely. The importance of keeping correct records of critical raw materials on hand is, in fact, easily recognized.

If too little material is available, the manager of the enterprise sometimes unexpectedly runs out of stock and finds himself unable to continue his production operations. Then a production shutdown occurs for the period needed to procure a new supply of the material. If the procurement time is short, little time will be lost; but if a long time is required, serious interruption to the

production plans of the enterprise occur.

On the other hand, having too much raw material on hand also is a problem. Then the manager finds himself with his working capital tied up in supplies that are not immediately useful to him, and which may lose their value over a period of time through deterioration or obsolescence, or from other causes. This is a form of unnecessary waste that he wishes to avoid.

DETERMINING THE CRITICAL MATERIALS

In order to avoid this loss, the manager must first determine which of his raw materials are critical to his continued operation. These "critical" materials are those that are fundamental and without which he would be unable to continue his production. In a small enterprise, these critical materials are likely to be relatively few, thus easing the requirement of maintaining the records needed to control such items. In a bakery, for example, critical materials include such items as flour, yeast and sugar. In a shoe-manufacturing shop, critical materials include the several kinds of leather needed to make shoes. In a radio-repair shop, (a service organization), critical materials include certain electronic components used frequently in making repairs; wire; solder; and like items necessary for continued operation of the enterprise.

The nature of these critical materials varies, of course, with the type of business, and is different even among businesses of a given type. Each manager, therefore, must make his own list of critical materials as a first step in establishing a control over their avail-

ability. With this step, the manager decides which and how many of his materials he should control through his records. As a second step, he should study his production records and determine how much of each of these materials he uses annually, as a guide to the purchasing and record-keeping procedures he will set up.

Having determined the kinds and quantities of critical materials he uses, the manager next must consider whether his present storage facilities for these materials are adequate.

KEEPING CRITICAL MATERIALS

One of the frequently found characteristics of the small enterprise is that little attention is given to the careful storage of its raw materials. Expensive materials too often are left scattered on the ground or are jumbled together with other supplies or scrap parts. This condition makes it quite difficult to know what material is available or how much there is of it. Consequently having made a list of the items of material that are critical to his operation, the manager should now undertake to provide suitable storage facilities for such items. For example, if he uses sheet steel, the sheets should be stored on shelves or on racks in a sheltered area that is protected from the dangers of pilferage and weather. If the raw material is in bags, these should be stored on a wooden platform on the floor to avoid deterioration from dirt or water. If the raw materials are parts of a small size, they should be kept in a series of wooden bins or boxes and arranged on racks or shelves,

with appropriate labels identifying the items. There are many other examples, and it is an easy conclusion to reach that material records will have their greatest usefulness to the manager who uses a systematic means of storing his critical materials. Moreover, recognizing that his list of critical materials is likely to be fairly short, the manager will need to make only a small investment to accomplish this, and in many cases the savings that result will more than compensate him for any expenditure needed to set up adequate storage facilities.

THE PRINCIPLES OF MATERIALS CONTROL

The effect of using supplies of available materials is like spending personal money: the more we use, the less we have. And if we continue using our resources without replacing them, we will eventually be without resources, whether money or materials. The small enterprise that has no systematic means of knowing how much of any critical material should be kept on hand, or when new supplies should be procured, faces a danger of running out of such materials and temporarily going out of business until additional supplies are available.

The natural question that arises from a study of this effect is: how will the manager know when to order a new supply so as to minimize the possibility of running out of material, yet avoid overloading himself with unnecessary supplies?

Two factors that affect this decision are: a) How much time is required to purchase a new supply of the material? (This time is referred to as the "lead time";) and b) how much of the material is

used during the lead time?

The effect these two factors have on the point at which a new order should be placed may be expressed as two simple principles:

a) the longer the time required to purchase quantities of a given material, the more must be kept on hand to avoid running out of stock;

b) The more material that is used during the lead time, the more must be kept on hand to avoid running out of stock.

This means that each critical material will have a different ordering point from any other material. That is, it is unlikely that any two materials will have the same lead time as well as the same usage during that time. Each critical material, therefore, must be individually considered.

Of course, the manager can use simple arithmetic to calculate an approximation of his stock needs. For example, if he knows that critical item "A" is used in quantities of approximately 10 per week, and the time to secure new supplies of this raw material is 1 month ($4 \frac{1}{3}$ weeks) then he knows he will use 43 items during the period needed to get a new supply. That is the "usage during the lead time". But if there is a delay in procurement, or other purchasing difficulties arise, an additional "safety stock" will be needed.

Having no means of determining what this level of safety stock should be, he would have to do some guesswork, and still would not be sure that he was guessing correctly.

This problem has been equally troublesome throughout the years for large manufacturing companies, as well as the small ones, as their

quantities of stock on hand and usage are great, and the losses resulting from being out of stock could be very high. Fortunately for the small-enterprise manager, he can benefit from the work that has been done to solve this problem for the large companies, and ready answers are now available to this question.

The procedures used by progressive companies have employed statistical calculations to establish the appropriate re-order points under varying conditions. The re-order points have been calculated with a mathematically determined probability that stock will be on hand at all times based on an established level of usage and a known lead time.

The small-enterprise manager will have no particular interest in the derivation of these figures³ but can adopt them freely. If he uses them, he will enjoy a good certainty of having an adequate but economic supply of his critical materials on hand. The list of re-order points referred to appears in Table 4 - 1, (page 67).

Use of the Table is simple. Assume, for example, that a manager of a small bakery uses an average of 3 bags of flour a day and that 3 days are required for procurement of the flour. The "Lead time"

3. For explanation of the procedures referred to here, see: "Production Control", N.V. Reinfeld, Prentice Hall, p. 266; "Scientific Programming in Business and Industry", A. Vazsonyi, John Wiley & Sons, p. 296; "Management for the Smaller Company", Ed. Elizabeth Marting, American Management Association, p. 203; and "Basic Course in Production Planning and Control", Department of State, A.I.D. Communication Resources Division, p. 51ff. A probability of stockout of 1% has been employed in the calculations for the Table.

The last two references cited above are available in the Library of the Industrial Development Centre, Zaria.

therefore, is 3 days, and the "usage during the lead time" is 9 bags of flour. Referring to the Table, the manager will see that he should re-order his flour when his supply on hand drops to 16 bags.

In reference to the problem raised earlier of the shop having a usage during lead time of 43 pieces of critical material, the solution to this question can also be determined by use of the Table. A re-ordering point for a usage of 40 pieces during lead time is read to be 55 pieces. And a usage of 50 pieces during lead time requires a re-order point of 66 pieces. For a usage of 43 pieces during lead time, therefore, a proportional figure between 55 and 66 can be calculated. This is 58 pieces. (That is, $0.3 \times (66-55) = 3.3$, and $3.3 + 55 = 58$ approximately.) This figure should provide the manager with adequate assurance that his stock needs will be maintained at an economic level.

THE ORDERING QUANTITY

Now the manager will wish to know what is the most economic quantity to purchase of the critical material when he orders a new supply. He has already established the minimum quantity he should have on hand of each material, but will still have to decide whether to buy in quantities that raise his supply on hand well above the minimum level, or make small purchases so as to keep quantities on hand as close to the minimum level as possible.

Three factors affect the decision that the manager will make in this respect. These are:

1. The cost of the material. If the cost of the material is high,

TABLE OF REORDER POINTS FOR MATERIAL CONTROL			
USAGE DURING LEAD TIME (1)	REORDER POINT (2)	USAGE DURING LEAD TIME (1)	REORDER POINT (2)
0.5	2.0	70	90
1.0	3	80	101
1.5	4	90	112
2.0	5	100	123
2.5	6	150	179
3.0	7	200	233
4.0	9	250	287
5	10	300	340
6	12	400	447
7	13	500	554
8	15	600	657
9	16	700	762
10	17	800	866
15	24	900	970
20	30	1000	1074
25	37	1500	1590
30	43	2000	2104
40	55	2500	2617
50	66	3000	3128
60	78	4000	4147
		5000	5165

Example:

A small-enterprise manager uses 50 pieces of a certain critical material each month. The "lead time" is 2 months. At what level of stock should he reorder?

Answer:

With a usage of 50 pieces per month, and a lead time of 2 months, he will use 100 pieces during the lead time. Reading opposite the number 100 (Column 1) on the Chart, the reorder point of 123 is noted (Column 2). He should therefore, reorder when his stock level falls to 123 pieces.

Table 4-1
Chart of reorder points for material control

the manager will naturally wish to minimize his investment and will purchase a small quantity. Cheap materials can be bought in larger quantities, of course.

2. The storage space available. If he has adequate storage space, larger quantities can be procured without difficulty, but if his storage space is very limited, the quantity purchased will again be reduced to a figure close to the practical minimum. Usually, however, the amount of storage space needed by a unit of the material is a consideration also. That is, a bag of flour, for example, requires more storage space than a small box of 100 $\frac{1}{2}$ " bolts. Frequently the small enterprise has little storage space and a decision to minimize purchase quantities is most practical.

3. The cost of ordering the materials. Often the cost of placing an order in a small enterprise is very low, so this also encourages the manager to order frequently for the minimum quantity consistent with his needs.

Of course, the quantities in which a material is in the market place also affects the size of the purchase. For example, flour for bakeries is sold in units of 100 pounds, while other parts and materials are sold in boxes of 1000, in units of 100 square feet, or in similar standard quantities. The manager must then purchase in these quantities. In most cases, however, he can adjust his purchases to fit his needs without much interference from this requirement.

The manager, therefore, may generally be advised to purchase in quantities that keep his stock on hand just above the reorder point, and place orders frequently. The safety stock included in his reorder point will usually be sufficient to fill his needs and still give him the necessary protection from running out of critical materials. In cases where the conditions of the market suggest that material of any kind is likely to become more difficult to procure, the lead time will be extended and a new higher level of reorder will have to be established.

This means that the manager will have to store more of the material, and will consider purchasing larger quantities when orders are placed. The necessity for the manager to pay close attention to his available stock of such items becomes obvious, therefore. His close study of the market condition in respect to these materials also is imperative, if he is to avoid being caught with shortages in the supplies necessary for his continued operation.

AN EXAMPLE OF MATERIAL CONTROL

An illustration is shown in Figure 4-1, (Page 71), of the variation of a critical material in a small leather-working shop. The manager notes that he requires approximately 300 square feet of chamois leather a year, and that an average of two months lead time is needed to secure new supplies. From these facts, he determines that a level of 66 square feet is the minimum he should have. He decides on a standard purchase quantity of 75 square feet. As the materials are used, the quantities on hand fall, then rise again as new supplies arrive, and the process

is repeated again and again. A detailed explanation of the events shown in Figure 4-1 follows.

DETAILED EXPLANATION OF THE EVENTS

The events that occurred in this enterprise are readily understood. As of January 1, 90 square feet of chamois leather were on hand. During the month 18 square feet were used.

On February 1, therefore, 72 square feet were still available, but by February 2, only 66 square feet remained. So Order #27 was placed to purchase 75 square feet more. Before the end of the month, another 17 square feet were used.

On March 1, 49 square feet were available, and 20 were used during the month.

As of April 1, 29 square feet were in the stores and 10 square feet more were used by April 8, when the 75 square feet ordered on Order #27 arrived and were placed in stock. Seven square feet more were used during the remainder of the month.

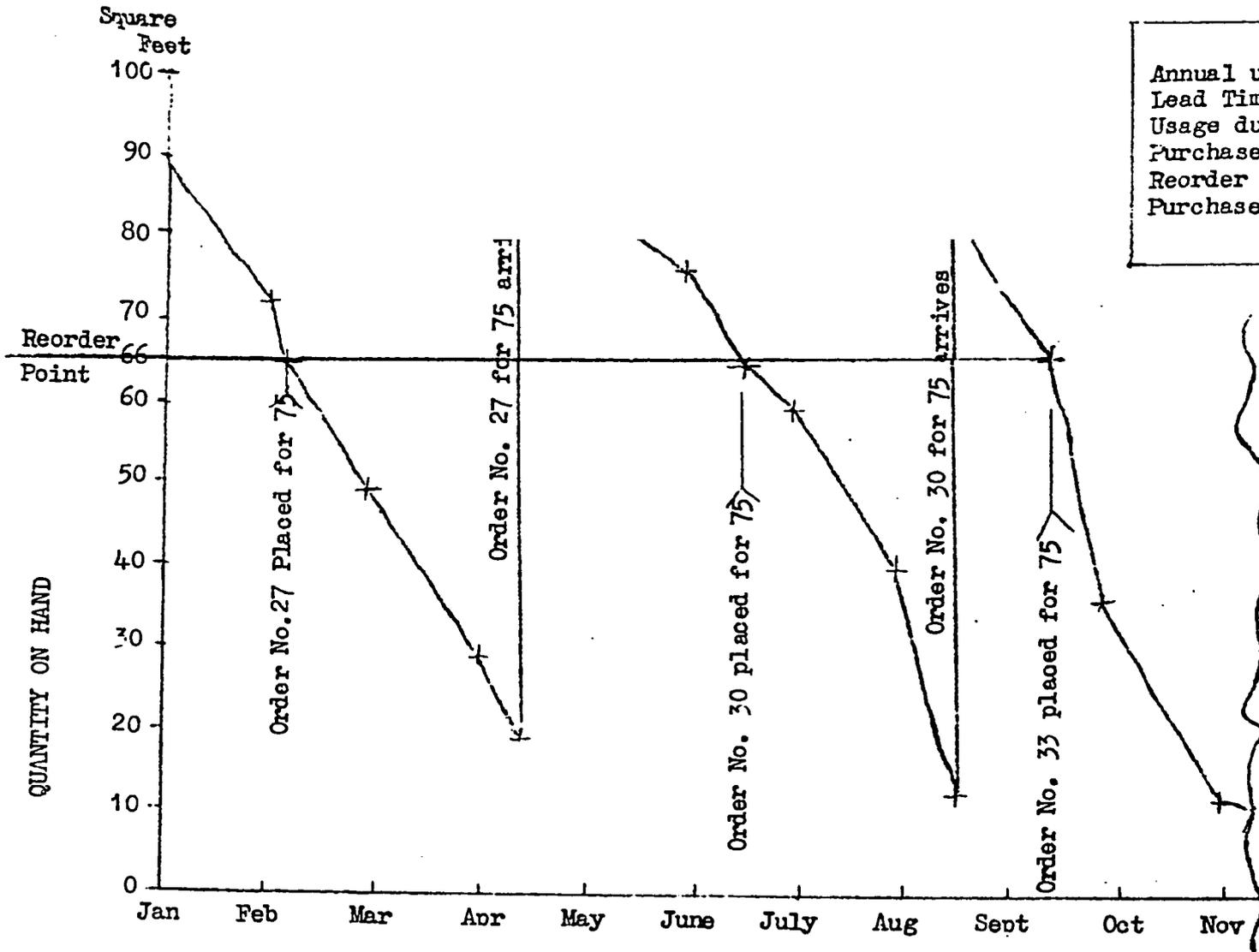
May starts with 87 square feet on hand, of which only 10 square feet were used before June 1.

June started with 77 square feet available, and by the 16th of the month a level of 66 square feet was reached, when Order #30 was placed for the standard quantity of 75 square feet. Six square feet more were used before July 1.

Following months continue in a similar manner.

This illustration shows how the manager may minimize his quantities

MONTHLY USAGE OF CHAMOIS LEATHER
 Alhaji Musa Manaja - Leather Artisan



NOTES
 Annual usage: 300 Sq. Ft.
 Lead Time: Approx. 2 months
 Usage during Lead Time: 50 Sq. Ft.
 Purchase: Units of 25 Sq. Ft.
 Reorder Point: 66 Sq. Ft.
 Purchase quantity: 75 Sq. Ft.

Figure 4-1
 An illustration of the variations in the quantity of

of materials on hand, and still operate with a reasonable certainty that he will have sufficient supplies for his needs.

The question must now be considered, however, as to what records the manager will need to accomplish such a control over his critical materials.

A RECORD FOR MATERIAL CONTROL

The record used to maintain an adequate material control in a small enterprise need not be complex, but can be very simple and easy to keep up-to-date.

In most cases in small businesses, the easiest way of controlling receipt and usage of materials is through a "Bin Card", which is a record placed with the material at the storage point. When the manager removes a quantity of the material, he records it on the card; and when he adds material to the supply from incoming purchases, this also is noted. A typical Bin Card is illustrated in Figure 4-2, (page 73), as applied to the leather-working shop referred to in Figure 4-1 for the months of January through April.

Notations made at the top of the Card identify the material it refers to; the bin in which it is to be placed; the re-order level; and the purchase quantity. Dated notations are entered periodically for quantities taken out of the bin (OUT); for quantities added from incoming orders (IN), for which the Purchase Order Number is also noted; and for the quantity in the bin at the moment (BALANCE). The additions and subtractions are so simple they need no detailed explanation.

DESCRIPTION CHAMOIS LEATHER				
BIN NO: 12		REORDER LEVEL: 66	PURCHASE 75	
		SQ. FT. QUANTITY: SQ. FT.		
DATE	PURCHASE ORDER NO.	IN	OUT	BALANCE
JAN. 1				90
JAN. 5			10	80
JAN. 22			8	72
FEB. 2			6	66
FEB. 12			17	49
MAR. 2			10	39
MAR. 15			10	29
APR. 6			10	19
APR. 8	#27 FEB. 2.	75		94
APR. 20			7	87

Figure 4-2

Typical design of a Bin Card used for the leather-working shop referred to in Figure 4-1 for the months December to April.

In most small enterprises the Bin Card can be kept with the material, and recordings on it made by the manager himself. He will thereby be exposed repeatedly to a record of the available supply of this particular material and can assure himself that the quantity on hand matches the recorded quantity.

Despite the availability of records, errors occur and materials are sometimes used and notations forgotten, so deviations from the recorded figures may easily arise. A check at least once a week to assure that this simple materials control record is maintained will usually prove a good investment of the manager's time, recognizing that his number of critical materials is small and the quantity kept on hand has already been minimized.

In some enterprises, of course, it may not be practical to keep the Bin Card with the material, as for example in a concrete-block manufacturing company, where materials are loose and may not be kept in a "bin" in the usual sense, and may even be exposed to the weather. Keeping a similar record in a book in the manager's office may then serve the required purpose. The design of the Card, however, will be similar to the design already illustrated.

In other instances, where raw materials are used in small quantities regularly throughout the day, and may not be taken from a bin in specific unit quantities, the task of recording OUT figures is different from that of other cases. For example, in manufacturing enterprises where ordinary sand is used, quantities used throughout

the day may not be in measured standard units. In this case, the manager may measure or calculate the total usage at the end of each day and make a single notation.

In other instances variations in the design of the form or in the recording procedures may have to be adopted; but in principle, the procedures recommended here will be very adaptable to most small-enterprise needs. Such records have a high utility, and the manager will be wise to pay close attention to his material control records.

SUMMARY OF MATERIAL CONTROL RECORDS

Before the manager can set up proper material control records, he must know certain things: which are his critical materials; how long it takes to purchase them; and how much is used. With this knowledge in hand, he must decide what quantities he will purchase and how they will be stored physically so as to minimize deterioration.

A procedure employed by large companies for establishing minimum quantities to be maintained has proven applicable to small enterprises also, and this procedure has been explained here.

With this information established, a simple Bin Card or equivalent form may be created to record daily usage or replenishment, and a running record of available supplies can readily be maintained. The need for periodic personal attention to the condition of the supplies cannot be overlooked, however.

A further record-keeping requirement explained in the next section of this book refers to the maintenance of a good product quality.

Quality Control Records

THE IMPORTANCE OF QUALITY CONTROL RECORDS

It has been observed that "The manager of the small shop is not so conscious of his need for quality control as he is for certain other requirements of his business...."² Because this is true, he is unlikely to keep very effective records of the quality of the products he produces and therefore will be without adequate means of determining whether unnecessary waste is occurring in his manufacturing process.

Often customers are not critical of the quality of the products they purchase from such small enterprises, and in many instances are more concerned about the price of the product than about its quality. So cheap products are made and cheap products are sold, and both manufacturer and purchaser are satisfied.

We should not assume, however, that because the items manufactured by the small enterprise are inexpensive, no records of quality control are necessary. The need for such records is determined by the necessity for minimizing waste and maximizing the usefulness of the material and labor resources applied in producing the product, whether it is an expensive or inexpensive item. In the expression "quality control", the word "quality" does not refer merely to high-value, expensive products, but also to inexpensive items with a low sales price.

2. "Handbook of Management Principles," R. F. Bruckart, Industrial Development Centre, Zaria, p. 35

In fact, many shops, large and small, have a policy of producing low-priced, low-quality products to supply the needs of a particular market. In other enterprises and for other products, the quality level is set high, and only products attaining that level of excellence are acceptable. The important thing is, whatever the value of the product, a standard of the desired quality should be established, whereby the quality attained may be measured, and the degree of effectiveness in using available resources of labor and material may be closely controlled.

To "control" quality means to assure that a product is produced that is neither significantly better or worse than the established standard for that product. Thus the first requirement for quality control is that the manager have a clearly established concept of how good a product he is trying to make. Having this understanding, and producing the product according to this standard, he will wish to receive periodic information on any items that are produced that do not meet the established standard. Then reasons for such a shortfall in quality may be determined and action taken to correct it and to avoid the repetition of similar waste in future operations. The process of doing this is the process of quality control.

As was demonstrated earlier about daily transactions, and about production control and materials control, even simple records aid the memory of the manager in remembering the facts of his operation. Quality control is no different. It also is easiest to do through

the use of records.

QUALITY RECORDS AND THE QUALITY CONTROL PROCESS

The need for such records arises at two points in the quality control process, namely at the point where standards are established for the products to be made, and at the point where the manufactured product quality is compared to the standard for that product.

The five steps in the Quality Control Process in any kind of small business establishment are:

1. Establishing the quality standard
2. Producing the product according to the standard
3. Comparing actual results with the established standard
4. Taking corrective action when necessary
5. Revising the standard if necessary

These five steps and the two points of record control are illustrated graphically in Figure 5-1, on page 80. . In normal practice, Steps 2, 3 and 4 of this process will be repeated regularly as production continues.

Step 1, in which the quality standard is established, is the first point at which quality records are required. Here are listed specifications and dimensions that constitute the standard for the product. An alternative for such records is to prepare a sample of the standard product to which routine production may be compared.

Step 3 is the second point in the process of quality control where records are needed. Here records are kept of any defective parts

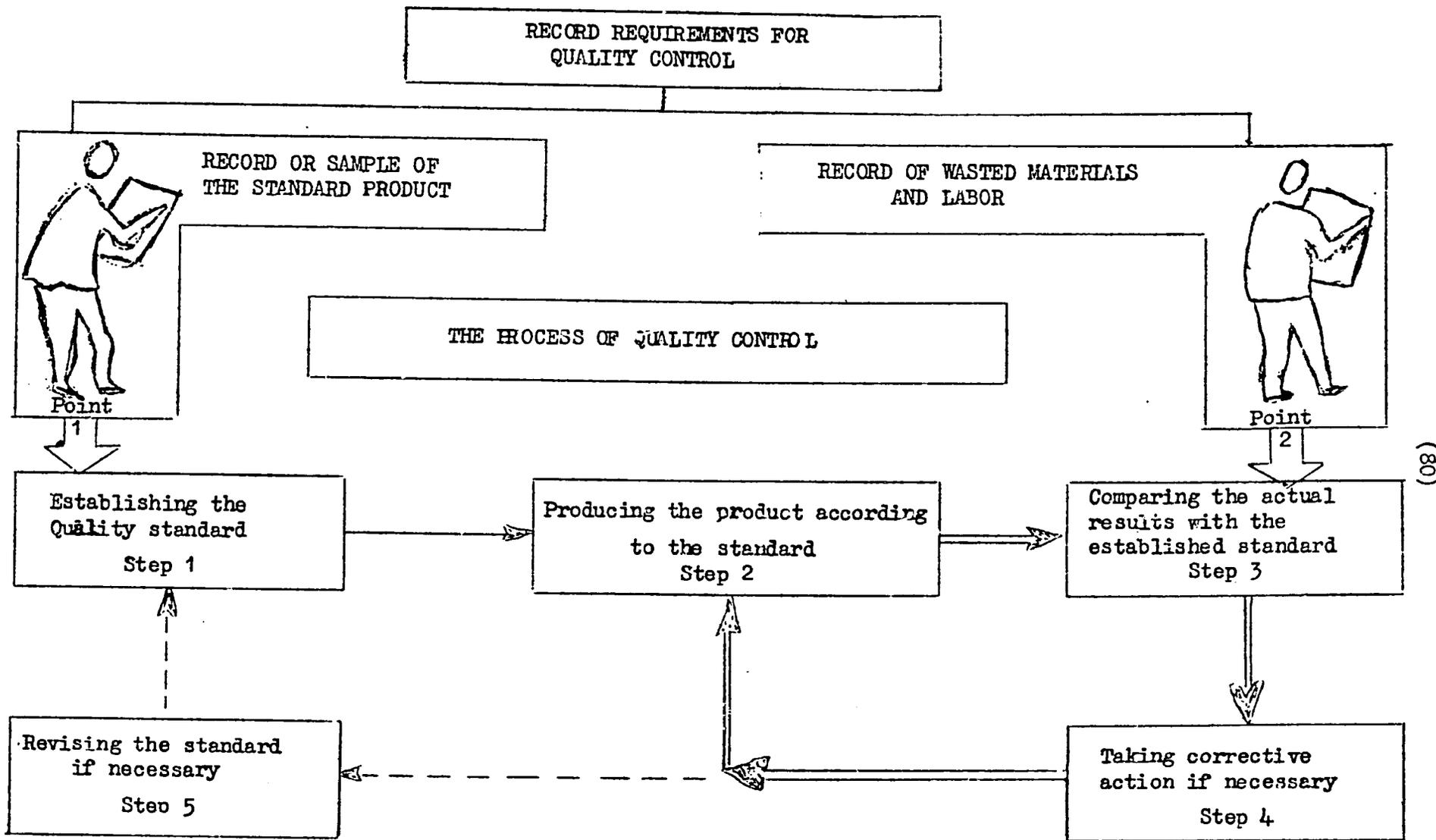


Figure 5-1

Graphic illustration of the relationship of the Record requirements for quality Control and the Process of Quality Control

produced, and of the extent of the loss incurred through such below-standard manufacture.

Step 5 in the process of quality control suggests the necessity of revising the standard. This is a remedy that should be employed infrequently, as such changes are properly made only when the standard is set too low or too high, or if some aspect of its manufacture is too challenging or expensive for processing in the manner or at the cost anticipated. It should never be used merely to permit defective products to pass inspection in order to avoid financial losses. Passing on to the customer products that are known to be defective is not only an act of questionable ethics, but is also bad business, as it has an undesirable effect on the reputation of the establishment.

The information the manager needs to maintain his product quality depends, of course, on the kind of business activity he is conducting, and on the types of products he is manufacturing. It is desirable now to consider further the nature of this required information.

WHAT THE MANAGER SHOULD KNOW ABOUT HIS PRODUCT QUALITY

Any manager wishing to adopt a record-keeping procedure for his product quality needs first to establish what characteristics of his products determine their "quality". Many things affect quality. Among these are: surface finish, as in leather products, fabricated sheet-steel products, and furniture. In some cases, the color or color consistency of the product is important, as in clothing, in

certain food products, or in the manufacture of paints. In other instances, mechanical movements or fits establish the quality of a product. For example, a pair of hand-shears designed to cut paper should operate so that the two blades move freely and cut smoothly along the edges. Frequently the dimensions of products are important, as in the size of a pair of shoes, or of a garment, or the dimensions of spare parts for automobiles or any mechanical device.

In the case of food products, taste, color, hygienic preparation, cleanliness and careful handling influence the customer's decision on quality. In many cases the expected life of a product determines its quality. For example, a knife that loses its edge in a very short time will not be regarded as a quality product, nor will a garment that wears poorly. And shoes that wear out long before they should are considered inferior products.

In many cases, quality of a product is also a function of the consistency of its critical characteristics over an extended period of manufacture. For instance, if the taste or texture of a given type of bread varies from day to day, and the customer is never sure whether he will get a good loaf or not when he buys one, he will conclude that the quality of the bread is poor. Consistency in the dimensions of spare parts for motorcycles or other vehicles is another example of the need for this type of quality.

Finally it should be noted that the relative value of the raw materials in a product also influences its quality. A ball-point

pen, for example, may be made in inexpensive models of cheap materials such as plastic, or may be fabricated with great refinement in gold or silver or other valuable materials. The latter model is regarded as being of "higher quality" than the cheap model, although the operation of the device may be identical in both cases. It is clear, of course, that no matter what the value is of the raw materials of which a product is made, if it does not function properly, it will still be regarded as having low quality. That is, if an expensive ball-point pen does not write properly, the fact that it may be made of gold does not give it more quality. Performance in mechanical devices is the most important feature of their quality.

So whatever the nature of the products made by the small enterpriser, he must have a clear concept of what constitutes a standard product and what the characteristics are that identify that quality. With this information at hand, he is in a position to establish the records of the first stage in his quality control.

THE FIRST STAGE OF RECORD KEEPING IN QUALITY CONTROL

The first stage of record keeping in Quality Control is to establish which characteristics of the product are important to its quality. A simple listing of these characteristics, along with other dimensional information is usually sufficient for the small establishment. If these characteristics can be made sufficiently clear by written description, this should serve as a reliable reference for quality checks of newly made products. If the written word is

insufficiently descriptive or clear, a sample product made according to the standards required for that product may serve to clarify the specifications.

An example is provided here of how such a product quality may be established in a small business. The example is taken from an enterprise making a small, leather traveling bag. This small bag has high utility for travelers and is a popular product of this leather-working artisan. The bag is made of camel's-hide leather, is lined with an attractive durable cloth, has a side pocket with a zipper closure, and a large zipper opens on the top. The two leather-covered handles of the bag are designed for comfortable carrying. A sketch of the bag is shown in Figure 5-2, page 85.

In order to maintain the established quality of this product, the manager had to decide what the characteristics were that were critical to its quality. Six things were listed (shown also on Figure 5-2) which he regarded as important. These, as will be noted, concerned the action of the zippers, the quality of the stitching, the color characteristics, and neatness in affixing the lining.

With a sample of a properly-made bag available, and a list of the critical characteristics affecting its quality, the workers can be guided in fabricating this product. Such standards minimize any tendency to deviate from the established quality level.

The time and effort to create such quality standards and monitor them closely are best justified for those products for which a



THE READY-TRAVELER

QUALITY CHARACTERISTICS OF THE READY-TRAVELER BAG

1. Both zippers must slide smoothly and close tightly
2. Stitching on edges of bag must be even and without loose ends
3. Color of leather must be consistent and surface must be clean
4. Handles must be stitched carefully and equal in size
5. Lining of bag must be sewed carefully around edges and fitted neatly. No rough edges of the lining must be seen.
6. Rings supporting handles must be triple-sewed firmly to the bag

DIMENSIONS OF THE BAG

Length: 20"

Width: 12"

Height: 14"

Quality characteristics of the Ready-Traveler Bag

Figure 5-2

regular production is maintained, and which have a good sales level. Such standards may not be necessary for the occasional product that will not be made a second time, or for products having little demand. The maintenance of quality becomes a vital matter, however, in the manufacture of items for which there are repeat orders and of which there is a relatively regular and continuous production. This requirement is related to a simple principle of small enterprise operation, which states that: every small-industry manager should establish a standard line of products for his business.

ESTABLISHING A STANDARD LINE OF PRODUCTS

One of the basic principles of small-manufacturing operation is that every enterprise should concentrate its efforts on a line of products that can be sold in fairly large quantities, so that productivity in fabricating these products will improve and worker skills will be developed. A consistency in quality, too, will be secured and production time will be reduced when products are made in larger quantities. Waste will also be gradually reduced as skill in making the product increases.

In large companies, precise product standards are established on quantitative terms. Dimensional tolerances, degrees of finish, smoothness of surface,— many of these characteristics of a product are standardized within narrow ranges to assure its consistency and excellence. The small enterprise usually cannot employ such exacting standards, but the manager still needs to have a tangible measure

on which his quality is to be based. The provision of product specifications and a sample of a standard product for the items in his standard line of manufacture is a requirement he cannot afford to ignore, however, if his product quality is to be maintained. The provision of the product standard, therefore, constitutes the first stage of quality control. The second stage of quality control records is the comparison of the quality of the fabricated product with the established standard.

THE SECOND STAGE OF RECORD KEEPING IN QUALITY CONTROL

Of equal importance to the creation of a product standard is the control of product quality in routine production.

In a small enterprise, quality control must be simple to carry out but yet must be equally as effective as the same process in a large shop. Control of quality is based on a comparison of the excellence of the fabricated product with a standard product of the same kind. In the small enterprise the manager visually checks the critical points in the manufactured product, and on the basis of what he finds determines whether it is sufficiently similar to the sample to be accepted.

In cases where the standard is not completely achieved, a decision must be made about what is to be done with the product. If it can be salvaged and repaired, this may be done. As, for example, if the stitching in a leather bag is not neat enough, it may be possible to rip out the stitches and do it again. If no repair is possible, however, the manager may have to scrap the product or re-use the

material it was made of. For example, in a bakery, if bread was burnt by having been in the oven too long, it must be discarded. In a carpentry shop, wood, in wooden products that do not meet the standard, may frequently be re-used for other products.

No matter what action is taken on below-standard items, however, waste and unnecessary expense will occur as a result of having made an inferior product. Even if the product can be re-worked, there will still have been a loss of labor, time and materials that should not have been experienced, and if it is used as raw material for other items, or if it is scrapped, the waste in materials and labor is quite apparent. The records of the manufactured quality level, therefore, should also include notations of how defective products have been disposed of, in order that a summary of the trends in quality control may be prepared. These and other characteristics of such records are described below.

QUALITY CONTROL RECORDS

Quality control records must be useful to the manager as a tool of management. Obviously they must do more than merely tell him how much scrap occurred or how many items that he manufactured did not meet the established standard. They must also provide the opportunity of determining what or who caused the waste. In small shops more than in large ones, much of the work is done manually and quality, good or bad, is more the effect of the degree of care taken by the worker doing the task than anything else.

Thus the quality records of the small enterprise not only must

help the manager determine what happened, but must also enable him to associate the work done with the worker who did it. If a given worker caused one or more scrap items, was it because he lacked skill? was careless? didn't understand the standard requirement? didn't have proper tools? or for some other reason?

The usefulness of quality control records, therefore, arises from the process that is necessary to create them. That is, first, all items manufactured are inspected visually or with measuring tools, to determine whether they match the working standard. In the small enterprise, generally 100% of the items made must be checked, and all critical characteristics of each item are inspected on the basis of the known standard. Quantities are usually small enough that a 100% inspection can be made without excessive time requirements.⁵

Second, the manager making the inspection notes on his quality report his comments about any faulty items and the reasons for their deficiencies. He will then discuss with the worker who did the job the cause of this faulty work and advise him what the appropriate action is to avoid it in the future. It is a principle of quality control in the small establishment that there is no substitute for close

⁵. This recommendation, of course, assumes that the inspection can be made without destruction of the product. In the case of food products, for example, where tasting or drinking the product is the only means of inspecting it, obviously sampling inspection will be necessary, otherwise no salable product would remain. Infrequently the production of the small enterprise is in such large quantities that 100% inspection is impractical, as for example in a concrete-block manufacturing business, in which hundreds of blocks may be made daily. Sampling inspection is also called for in these cases. Such enterprises are relatively few, however.

personal attention by the manager to the quality of the products produced by his workers. No matter how detailed are the records that are set up, they can never substitute for the interest the manager takes in seeing that his workers are producing according to his standard.

His close observation, supported by an appropriate quality control record, will go far in making consistently good quality a real possibility.

Let us now consider the form a Quality Control record may take in the small establishment.

THE QUALITY CONTROL RECORD

The design of the quality control record for the small enterprise may vary depending on the circumstances under which it is used, but it usually will approximate the form shown in Figure 5-3, page 91. Every Record is likely to note the job number, the item worked on, the cause of the rejection, the name of the worker responsible and a notation of how the article is to be disposed of, whether scrapped, re-worked, the material to be salvaged, or whatever may be done with it.

The example shown in Figure 5-3 illustrates a typical report for a day's activities in the enterprise of a leather-artisan.

Throughout the day, the manager periodically checks the work of his employees and notes any items that are below standard. For example, a zipper sewed incorrectly in a leather jacket was called to the attention of the worker responsible, and he was asked to re-work that part of the job. In this instance only the time of the worker was lost.

QUALITY CONTROL RECORD				
Alhaji Musa Manaja - Leather Artisan				
Date <u>July 23</u>				
JOB NUMBER	ITEM	CAUSE OF REJECTION	WORKER RESPONSIBLE	HOW DISPOSED OF
120	Leather Jacket	Zipper sewed wrong	Abdu	Re-work
118	Sandals - 4 pair	Sole mounted loosely	Musa	Scrap
122	Ready-Traveler Bag	Cut in leather on side	Dauda	Salvage Material
119	Brief Case (2)	Inner pockets cut at wrong angle	Saidu	Re-work
NOTES: Estimate £0.10 loss in materials and £0.10.0 in labor				

(91)

Figure 5-3
 Illustration of a Quality Control Report
 in a small enterprise

In the second example noted, four pairs of sandals were made incorrectly, with the soles mounted loosely. These sandals had to be scrapped, thereby causing not only a labor loss but a material loss as well. The third example, the Ready-Traveler bag was cut by careless work of the employee, and the bag had to be salvaged as raw material, thereby causing both labor and material waste. A fourth example also resulted from poor worker skill, and the product had to be re-worked. The manager has estimated his day's loss through waste in material as £3.10.- and a labor loss of an additional £0.10.-. This reminder of what below-standard work costs him is a stimulant to closer attention and better supervision of his workers. It may also show the absence of needed skills in certain workers if repetition occurs frequently among one or more of them. These documents accumulated from day to day are a revealing and informative record of how well or how poorly work is done. Also, how much waste is costing him is equally apparent to the manager if he studies his records.

From the use of such simple devices should come a much better management. It should stimulate a drive to attain maximum production with minimum waste.

QUALITY CONTROL IN THE SERVICE ORGANIZATION

Small enterprises that render services, rather than manufacture products from raw materials, also require quality controls. The procedures already described for maintaining quality, however, are not fully applicable to service activities such as occur in radio-repair,

automotive-repair or cycle-repair enterprises, for example.

In the case of the service organization, the performance of the product after it has been serviced is the most significant determinant of the quality of the job done. For example, after a radio has been repaired, it should function well and continue to do so without the need for a prompt return to the workshop for further repairs. Service managers sometimes operate a repaired radio for a few hours as a test, before it is returned to the customer, to assure that there will be no recurrence of the repaired fault. Similarly, when automobile engines are repaired in an automobile repair shop, the engine should undergo a test run after repair to assure that the operating problem is corrected, and furthermore to determine whether any additional faults have been created incidentally during the repair process.

In maintaining quality in service activities, close attention to the proper use of tools and servicing equipment is one of the important requirements.

Manufacture of products with unsophisticated equipment and simple tools is possible and acceptable products may be created by this process. But the repair and maintenance of complicated modern machinery or electrical devices requires a higher level of skills and more specialized tools and equipment. The provision of adequate employee training is one of the most important factors in assuring the quality of a servicing job.

Also the small establishment fabricating manufactured products may find that occasional items not completely meeting the required standard may inadvertently pass through to the customer. This is understandable if large quantities of a given product are manufactured. A service activity, however, deals with individual jobs, no two of which are likely to be identical in their requirements. Personal attention to each job, therefore, is of great importance in the service establishment, and with good management few if any jobs done should need to be returned to the work shop because of faulty work.

The needs for attaining good quality in a service industry are, therefore:

1. Having workers with adequate training and appropriate skills;
2. Use of modern servicing equipment and tools;
3. Use of good-quality spare parts or raw materials designed for the purpose that they are to serve. (Substitution of spare parts cheaper but supposedly "just as good" for the correct replacement part or parts is rarely justified);
4. Close personal attention to the performance of the service task by the manager.

The form of the Quality Control Record used in service organizations may be similar to that already described, with modifications to suit the particular kind of establishment. The same principles of control and accountability apply in a service-reporting activity as apply in a manufacturing establishment. The same basic questions arise: What

happened? Why did it happen? Who was responsible? What is to be done about it? All of these questions must be answered by the information provided on the Quality Control Record. Even with close attention to the work done, the quality control procedures assuring quality in a service organization should not exceed in complexity or difficulty those introduced in a manufacturing organization. In either case it will be found that the control of quality is a highly desirable feature of the management of the enterprise and one fully justifying the simple records needed to attain it.

THE RELATIONSHIP OF QUALITY CONTROL RECORDS AND PRODUCTION RECORDS

Quality control records are most useful when other records already recommended have been installed and are operational. Quality control is aided by the availability of reliable information on production, on sales, on material control, and on other aspects of good management. The installation of a quality control reporting procedure should follow in sequence the adoption of other types of production reporting. Otherwise the types of losses and wastage noted by the Quality Control Record will be largely beyond the possibility of correction at this level of operation. For example, if no scheduling or planning of production is introduced before quality controls are applied, production may be rushed in some cases, and quality may be sacrificed in order to get the job finished on time. A Production Planning system in operation should avoid this difficulty.

Another example: without a material-control system in operation, critical parts may sometimes be in short supply, thus forcing a substitution of second-best raw materials instead. Then quality will probably be sacrificed again in order to complete the order. Prior adoption of a good materials-control procedure should avoid this condition.

Other reporting methods have a similar effect. Thus it is recommended that a quality-control record be adopted only after previously described production-reporting systems have been installed and are in regular use. With their operational assistance as a background, the use of a quality control reporting system may proceed with good assurance of success.

SUMMARY OF QUALITY CONTROL RECORDS

After the manager of the small enterprise has set up good working records of daily transactions and production and materials control, he will wish to create a continuing record of his product quality as well. The requirements of keeping such records are not demanding.

In most small enterprises the easiest way of establishing a tangible product standard is to have a well-made sample to which reference is made for comparison to newly fabricated items.

Having established the characteristics that influence quality of such products, the manager may adopt a simple Quality Control Record. He will then take appropriate action to avoid repetition of the fault in the future. This should help him to manage better, for several reasons:

1. The quality standard on which all products are based is unvarying.

2. The characteristics affecting quality of a given product are established.

3. The daily listing of below-standard performance identifies the type of product, the worker responsible and the nature of the fault. Better supervision is possible with such quantitative data at hand.

4. The costs of waste resulting from inferior work are brought to the attention of the manager repeatedly and action is more likely when a continuing record of the degree of loss is available.

The total effect, therefore, of keeping this simple record may well be beyond what might have been imagined before such controls were undertaken.

Further records are also useful in the small enterprise, if waste is to be avoided. One of these is a record of how the workers use their time while in the enterprise. This subject is covered in detail in Section VI of this book, which follows.

Employee Records

THE IMPORTANCE OF EMPLOYEE PRODUCTIVITY

Each morning when the worker in the small enterprise steps up to his work place he has at his disposal eight hours of time that can be spent in productive effort for his employer. How does he use this time? How much of it will be spent usefully and how much of it will be devoted to activities that do not advance the work of the enterprise?

One guiding principle that provides an answer to these important questions is: the worker can be productive only to the extent that his manager makes plans for him to be productive.

In industrially developed countries, management subscribes to the concept that a productive worker is one of the most important assets of the company. Small enterprises in developing countries, however, give less attention to this aspect of management. The owner or manager of the small manufacturing shop commonly takes the point of view that "labor is cheap and readily available", and therefore he is not very much concerned about how his employees use their time.

It is true, of course, that labor in developing countries is paid relatively low wages, compared to that of industrially developed countries. One important reason for such low wages is that labor in small enterprises is generally much less productive than labor under more developed conditions. However, whether in a developed country or a developing one, the manager of the small enterprise is no different from the manager of the large company, in that he can

afford to pay wages to his employees only in proportion to their productivity. Wages must be paid out of the income from the sale of what is produced. There is no other source. So low production means low productivity, which in turn means low wages.

LOW WAGES DO NOT MEAN LOW COSTS

Low wages, however, do not mean low costs. "Cheap" labor may be very expensive, indeed, when little productive work has been done for the wages paid. In fact, it is not infrequent to find that products produced by the enterprise employing low-paid labor are much higher in cost and sales-price than the same type of product produced by a more productive enterprise, which is also able to pay higher wages to its workers.

THE MANAGER DEPENDS ON HIS WORKERS

In large companies, workers spend much of their time in the use of production machines, many of which establish the work pace. In the small enterprise, however, where more of the work is done manually, the manager needs to depend on the initiative of his workers and on their full utilization of available time to secure a reasonable output. Too often in small enterprises the manager makes inadequate arrangements to insure continued production, and workers are left to their own inclinations as to how much they will produce and how they will do it. The unfortunate result of this lack of adequate planning is that unless the manager is immediately present, the workers tend to maintain a low productivity, through ineffective or inadequate utilization of their time. Then the manager's close personal attention

becomes the only really effective means he has of assuring continued production. This need for unending vigilance over the production process may readily leave the manager with less time to perform his management tasks than is required and productivity is almost certain to be low under these circumstances.

Well-managed companies in industrially developed countries usually provide their workers with allowances of up to 25% of their available working time for personal needs and relaxation. The result is that for approximately 75% of the time, the worker can be expected to be doing productive work. In small enterprises in developing countries, however, studies have shown that as much as 50% to 75% of the working time available to the employees may be spent on other than productive activities of the enterprise. In some cases, unfortunately, the figures have been found to be even higher.

Ineffective use of time may result from many causes. Usually closer management attention to what is happening in the enterprise would serve to reduce the amount of time that is lost through ineffective activities. Whatever the cause of the lost time, however, the low productivity the condition produces and the high costs that accompany it mean not only that workers cannot be paid high wages, but also that the manager of the enterprise is severely limited in his effort to meet his production schedules. Certainly any desire to expand his operations will be seriously hampered by such wasteful conditions. So everyone loses when these things happen.

THE MANAGER WORKS WITH PEOPLE

The job of the manager of the small enterprise, as well as of the large company, is to get things done with people, through people, and by people, these people being his employees. Consequently his need for high productivity becomes apparent. Any desire that he may have that his employees will achieve it is not fulfilled, however, merely by providing the worker with a job and hoping for the best. Experience shows that the best isn't secured in this way.

So it becomes easy to conclude that whether or not the productivity of his operation is to be high is a decision to be made by the manager himself. To the extent that he displays an interest in a productive enterprise, to that degree the workers may also be expected to do so. Usually a formalized system is needed to accomplish this, however. That is, it generally calls for a set of records of what is expected to be done by the workers, what actually was done, and if necessary a report on what was done that was not in agreement with what was anticipated.

This means that records of employee performance are needed. Planning for productive employee efforts is an important managerial responsibility, but one that is not always well understood by the manager of the small enterprise, to his disadvantage. Adoption of what is termed the "Principle of Accountability" is the first step towards an achievement of productive employee performance.

THE PRINCIPLE OF ACCOUNTABILITY

Among well-organized and efficiently managed industrial enterprises, both large and small, the Principle of Accountability is the basis on which effective direction of business activities is achieved. This principle states that the manager bears ultimate responsibility for everything that happens in the company. He is the one who is credited with the successes, and he bears the burden of dealing with any failures or losses incurred.

THE JOB OF THE MANAGER

Thus it becomes clear why the manager must have a strong grasp of his shop operations, especially in such things as cost control, work simplification, waste control, quality control, and production control. If the manager faces the necessity of accounting for the overall performance of his business, then the workers in his establishment also must be made responsible for their performance as well.

The responsibilities of the manager are well known. He organizes the work of his employees. He provides the tools, equipment and materials they need to do the required jobs. He finances the enterprise. He provides the facilities and proper environment in which workers may undertake their assigned tasks. So, in the face of these requirements, logically he also is in a position to expect his workers to meet their responsibilities.

The responsibilities of the workers are: to give their employer a fair day's work for the wages they are paid; to produce products

of an adequate quality; and to maintain a level of productivity mutually acceptable to their employer and to themselves.

If a manager experiences **losses** from unsatisfactory administration of his enterprise affairs, his partners or financial backers will and have a right to ask "Why?" And an explanation must be forthcoming. It is his responsibility to manage affairs well. Similarly, if a worker has an assigned task in the small enterprise, he also is expected to meet a reasonable standard of quantity and quality. That is his responsibility.

The manager can secure this accounting from his employees without the unpleasant necessity of never-ending scrutiny and exacting supervision. Managers of modern enterprises supervise through a simple system of: a) assigning specific tasks to workers; b) establishing reasonable standards of performance for those tasks; and c) determining, after the task has been completed, whether the expected standards of performance have been achieved. Such a procedure makes possible an effective control without exerting severe authority to accomplish it.

Small-enterprise records of performance can be very simple, yet highly revealing. The control procedure mentioned above will be provided by records that supply answers to these questions: a) what work was done? b) what are the quality and quantity standards? c) who did the work? and d) how well has the worker met the standards? If the standards are met as anticipated, little

attention is required, while if there is a short-fall the inevitable question WHY? can be raised with those responsible.

The "teamwork" between workers and the manager, which is so important in the small enterprise is more likely to be realized under these planned conditions than it is in an environment of inflexible supervision.

THE MEASUREMENT OF WORK AND OTHER TECHNIQUES

In the large, well-organized company, the expected standards of quantity and quality are prescribed in detail. "Work Measurement" is employed to determine with close accuracy the levels of production on any job that may reasonably be expected of an employee. "Time Study" is the stop-watch technique used in most cases to measure the time that is needed by a worker to perform a given task. "Method Study" or "Work Simplification" is a study of how the performance of a job can be simplified and how higher productivity can be achieved without unreasonable physical demands on the worker. "Quality Control" includes the techniques used to determine the degree of product excellence to be maintained. Any deviation from the quality limits prescribed may mean that the product becomes unacceptable and an unnecessary degree of waste will result.

These techniques are excellent management tools, but in the very small enterprise, the manager may not yet have reached a stage of development in which precise work measurement or exacting quality control are appropriate. Work Simplification may always be used with

benefit, however, and the manager should spend part of every day studying how his jobs are done and in seeking better and easier ways of doing them. If he does this successfully, he may eventually be able to establish a higher level of productivity in his enterprise. However, the small-enterprise manager must also give some attention to determining his production expectations, even though he may not formally use a work measurement procedure.

He will, through experience, learn to estimate the time needed to produce a given type of product or perform a given service. He uses this "educated guess" to quote a price to a customer before the job is undertaken. Thus, for example, the manager of a carpentry shop may estimate that a new table on which he is quoting a price may be produced in his shop at a rate of three a day for each man employed on the job. He may also estimate the times for performing component assemblies of the whole table, and on the basis of these estimates he plans his production and promises a delivery on a certain day.

Thus having committed himself to his customer, the manager obviously cannot let to chance the achievement of his promised day of delivery. It becomes imperative for him to stress on his workers their share of the responsibility in meeting his commitments. He does this most effectively by establishing production standards and quality standards that are reasonable to the workers and fair to himself, and which will lead to completion of the work on time.

Thus, for example, if the worker in a carpentry shop is given a new job to do, say the construction of a number of small wooden tables, and is told that the production expectation is 5 tables per day, he is more likely to maintain a production standard approaching that level than if merely given the job to do without any advice on what is expected of him. This planning is a fundamental part of the job of every manager. His success in achieving a high productivity among his employees will be determined largely by his skill in keeping a good control of the activities of his business.

KEEPING RECORDS

Even simple records of employee performance then become a highly useful means of determining how well the expected level of production and quality are being achieved.

To maintain an effective control, however, requires a coordinated system of records. In previous section of this book, four basic records have already been described. These have been: the Workers Schedule, listing jobs to be worked on by the workers on given days; the Production Record, showing total production for each day; the Quality Control Record, listing any defective production items; and the Order List, which lists all orders on hand. To this list, however, we must add one final record designed to report on the actual performance of the workers. This is the "Workers Performance Record".

THE WORKERS PERFORMANCE RECORD

The Workers Performance Record is a simple listing of the names of the production employees, and notes on how much production was expected of them and how much work they actually did produce on any given day.

In the illustrated sample in Figure 6-1 (Page 108), it is observed that M. Abdu was scheduled to work on Order Number 20, calling for the production of a lot of chairs, and he is expected to produce two of these complete per day. The record shows that on this day he completed his two chairs and his performance is regarded as satisfactory. M. Fund, however, who is scheduled to work on order Number 18, made only three benches, rather than the five that were expected. This is explained by the incorrect working of the electric saw he used. M. Tela and M. Ahmadu also are reported having produced numbers of products varying from what was expected. An explanation is provided in each case.

Such a record provides daily accounting for the efforts of each production worker. A new sense of responsibility is imparted to all persons concerned in the production process when such records are established and used. The casual attitude towards production that frequently exists in small enterprises where little if any planning is carried out disappears rather quickly with the introduction of such daily accounting records. Furthermore, the supervisory capabilities of the manager are greatly improved by this device. He finds

WORKERS PERFORMANCE RECORD

Date 4/6/67

Name of Employee	Job No.	ITEM	Actual Production	Hours Worked	Expected Production	Notes on Performance
M. Abdu	20	Chair	2	8	2	OK
M. Musa	19	Table	4	8	4	OK
M. Fuad	18	Bench	3	8	5	Low production- saw not working well
M. Manaja	22	Desk	1	8	1	OK
M. Tela	23	Small Table	6	8	8	Too much lost time-- should produce 8 per day
M. Ahmadu	22	Desk	2	8	1	Very good output
M. Abdullahi	18	Bench	2	6	4	Left early to go home

(108)

Figure 6-1
Employee Performance Record
Used in Carentryy Shop

that his time originally spent in close supervision of his workers, frequently ending with poor results, is now spent in carrying out his managerial responsibilities.

With the introduction of this fifth basic record, the manager also is provided with an opportunity of establishing a coordinated system of record-control over all aspects of his production process. The manager must learn to use these basic records in a systematic manner if he is to secure fullest utilization of the possibilities of good managerial control that they present.

He must see these five basic records as a coordinated system.

A COORDINATED SYSTEM OF BASIC RECORDS

Figure 6-2, (Page 110), illustrates the inter-relationship of the five basic records that are under the constant scrutiny of the manager. The first of these five records, the Workers Schedule, provides a starting point in the process of management. The manager develops his work schedule on the basis of existing conditions at the time, and workers are assigned specific jobs for each working day of the week. This is Step 1 in the process.

Step 2 of the process is an accounting to determine whether the quality and quantity of work done was consistent with what was expected. The Workers Performance Record reports on the quantity produced. The Quality Control Record provides information on any loss through inadequate product quality. Both records identify the workers responsible for any short-falls. When workers become

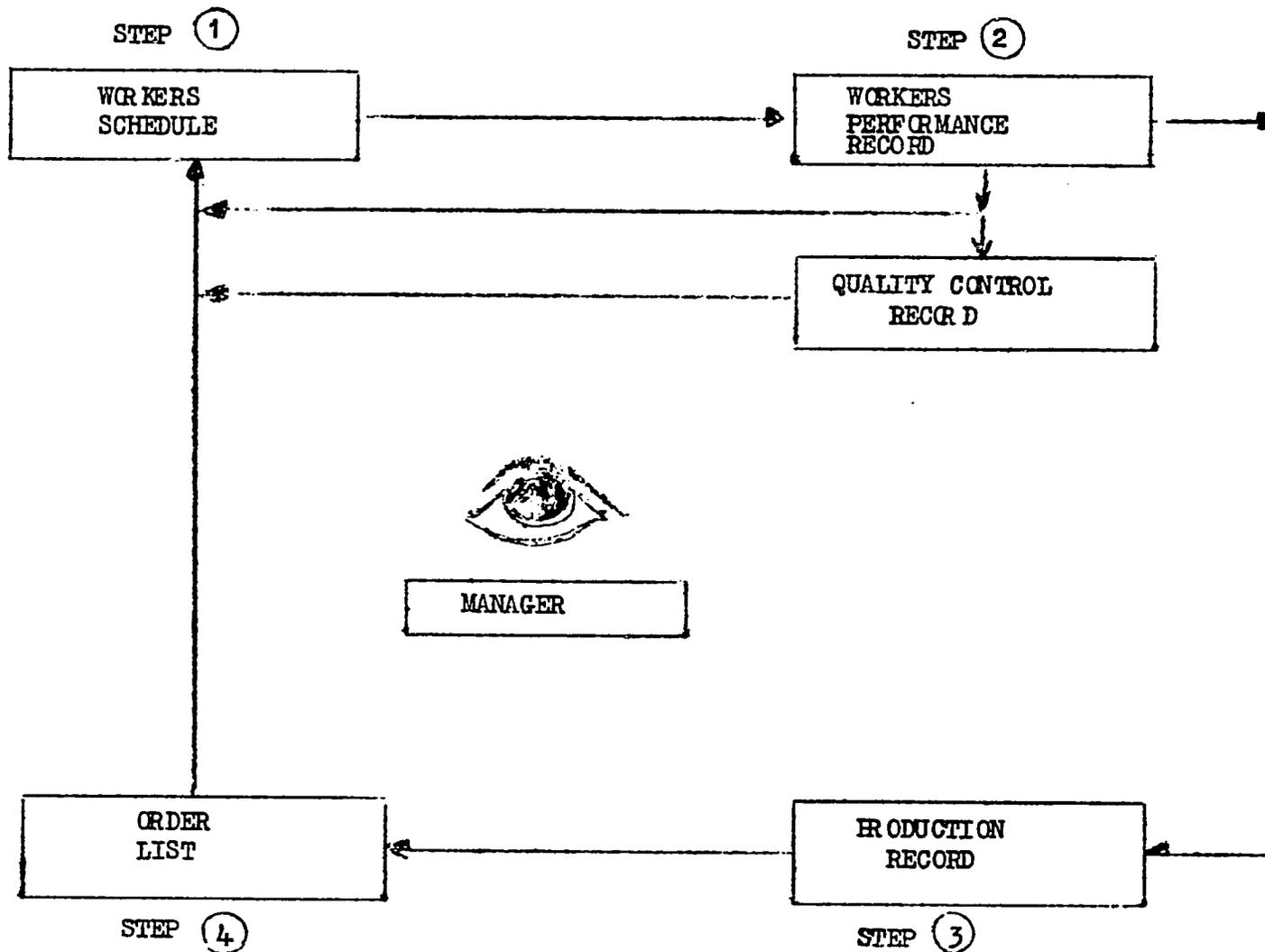


Figure 6-2
 The five basic records that come under the constant scrutiny of the manager of the small establishment

aware of the closer scrutiny that is being made of their work, they are likely to become more productive and to try harder to maintain an acceptable quality level.

If the Workers Performance Record and the Quality Control Record show that quality and quantity expectations have been met, the manager may immediately proceed to Step 3, and record the results in the Production Record.

Before the manager proceeds to the next step, however, he may have to take either or both of two additional actions:

1. If there has been a substantial deficiency in the quality of the items produced, the manager may wish to return his attention to the Workers Schedule to re-study his plans, and possibly to re-schedule some of the work to be done.

2. Similarly, if production expectations have not been met, the manager may also re-consider and revise his schedule, in order to assure himself that his production requirements will be fulfilled.

Having made any necessary revisions in his production plans, the manager may then pass on to Step 3, in which the Production Record is completed. This record shows daily and total production to date for each of the Orders being worked on. Total production for the day of each type of product may be compiled from the Workers Performance Record, and entered on the Production Record. Then production to date for each order can be found relatively simply by a few arithmetical calculations.

Step 4 refers to the Order List, which may be brought up to date with the addition of new orders received during the day, or revised to reflect the completion of current orders.

The final step, Step 5, is the re-consideration of the Workers Schedule at the end of the day. Any changes required for the next day on the basis of completed activity of the day just finished, are made as noted in Step 2. The process described is then continued, that is: plans are drawn up; schedules of production are prepared; and production is followed-up and reported. Managing production becomes far simpler using these procedures than it was before such management records were employed.

Such improvements in managerial methods, however, also bring with them certain additional responsibilities for the manager himself.

RESPONSIBILITIES OF THE MANAGER

With the introduction of a systematic means of management through control records, the manager begins to approach the methods of operation typical of the large, developed company. The experience of such large companies has demonstrated that certain additional responsibilities fall on the manager when he undertakes to administer such a program. In a word, he must be a better manager than he ever was before, if he expects to make his system work well.

One of the important considerations is his human relations with his workers. He is expected to treat his workers with the same degree of consideration that he wants others to display towards him.

The "driver" manager is a thing of the past, among progressive companies. The manager is a leader, not a dictator. If workers do not learn how to do their jobs well, the good manager recognizes that they probably have not been taught how to do them properly. If the quality produced is below standard, the good manager asks himself whether the workers have been impressed sufficiently with the need for quality, or whether additional training is necessary to achieve the desired quality.

The good manager, in other words, works with his workers as a leader and makes their efforts most fruitful by anticipating their needs and eliminating production obstacles that they experience. Courtesy towards subordinates is a natural instinct with a good manager. He is complimentary to those who do their work well, and exercises fair discipline over those whose efforts are below the expected standard.

The sense of direction the good manager provides his workers fosters an attitude of cooperation and unity among all persons in the enterprise. The goals of high productivity are most likely to be reached when such attitudes prevail.

The final section of this book expresses in more detail the means the good manager uses to apply his records in the broad exercise of his executive responsibilities. The reader will see that the value of the records already described may extend far beyond what might be

anticipated when simple, day-to-day figures are recorded. With a clear understanding of the potential uses of such operating data, the manager of the small enterprise learns to adopt modern managerial attitudes. These will tend to place him without disadvantage at a level comparable to the executive of the larger manufacturing company.

SUMMARY OF EMPLOYEE RECORDS

The Employee Record is the fifth basic record that the small-enterprise manager uses to maintain effective control over production affairs. Employee Records are notations of what was done by each worker, which may be compared with what was expected of him in terms of both quantity and quality. The record provides an opportunity of following closely the activities of individual workers. It tends to eliminate the need for close and continued personal supervision over each and every worker in order to assure sustained effort.

The Employee Record makes possible a systematic routine of record keeping, in which a whole operating system becomes available to the manager for his day-to-day direction of affairs. Plans are drawn up, production proceeds, comparison of what was planned to what was accomplished is undertaken, and revisions and new plans again are created. This repeating process illustrates the coordinated use of the five basic records.

(VII)

How the Manager Uses Records

RECORDS ARE ESSENTIAL

Records are essential to the proper operation of an enterprise. The soundness of the manager's decisions and his ability to know what the status of his business is at any moment depend on the completeness and accuracy of his records. Although small business operations are conducted in a much more informal manner than in a large company, this does not lessen the need for reliable operating records.

Furthermore, not only must the manager have good records at his disposal, but he must be fully aware of how the maximum benefit may be secured from them. Obviously all records are established with a specific purpose in mind. They accomplish some important function of providing information that assists the manager in operating his business more effectively or more profitably than he could otherwise. Thus most managers of even the smallest establishments find that the time and effort needed to set up records that make available such critical facts and figures is invariably a good investment.

Records of five kinds that managers find useful in their businesses have been described in the earlier sections of this book. To review briefly, these have been: a) financial records; b) production control records; c) material supply records; d) quality control records; and e) employee records. Although each of these is established to provide one particular kind of information, it would be incorrect to assume that they are independent of each other. Indeed, their full

utility would not be secured if they were regarded as mutually independent.

RECORDS ARE INTER-RELATED

On the contrary, they are inter-related, and while each set of records provides information on one facet of the operation of the business, the whole picture of the enterprise operation can be seen only through a study of all the records.

Let us take an example to illustrate this procedure. Suppose that the financial records of a certain small enterprise reveal that over several months time, business has fallen off in an important line of products, and the manager is anxious to learn why this has happened. He consults the records. A search through the Production Control records shows missed delivery dates of these products. Can that be the sole cause of falling sales? A search through the Material Records may show that the missed delivery dates were the result of unexpected material shortages. Will these recur, or were they due to an unusual circumstance? A study of the Quality Control records may also give a clue: was the quality of the line of products being studied properly maintained? Or could the decrease in sales be due to deteriorating quality? Finally, a study may be made of the Employee Records. Is there something critically wrong with the workers' performance that can explain why sales should be going down? Is there difficulty in getting the required quality? Can this be why production deliveries are not made on time? Do workers need additional training?

Fuller analysis of the Financial Records also could be useful. A study of the sales in terms of quantity, place, time retail area, and dealer will also provide information on the possibilities of a changing market. Thus, as shown by this example, when adequate records are available, the manager finds himself with a wide variety of sources of information from which answers can be provided to his searching questions. And from one or more of these primary records he will usually be able to determine what to do about the operational problems he is facing. Then the decisions he will make will be based on facts and trustworthy evidence, rather than on guesswork or on unreliable information.

When the manager begins to use his records in this manner to provide answers to his operating problems, the inter-relationship of these records is made apparent, and their value is demonstrated to extend far beyond the limits to which each record independently is a valuable resource to the manager.

There are, in fact, numerous ways in which such records will aid the small enterpriser.

THE WAYS RECORDS AID THE SMALL ENTERPRISER

Several of these ways are:

1. Good records provide a systematic picture of overall enterprise activities.
2. They make it easy to locate needed facts about operating performance and procedures, and about the general status of the business.

3. They help to measure the progress the enterprise is making towards its objectives.
4. They record trends in the development of the business by showing performance over successive periods.
5. They add some certainty to any forecasts about future operations.
6. They provide a background for planning, as realistic estimates of future activities depend on records that show past and present strengths and weaknesses in management.

The manager who has learned to use his records effectively will find that he no longer needs to spend so much time supervising his workers or checking the quality or quantity of the products they produce, nor will he need to use so much time trying to determine the financial condition of his business. He will have more time to do the job that only the manager can do: planning and directing enterprise activities through the efforts of others who work for him. To direct enterprise affairs effectively, however, the manager needs to have information of a more analytical nature than that provided by his several basic records. When these "collateral" or secondary figures that he needs are developed in Reports for his use, his direction of the enterprise is made easier.

Examples of some of the types of secondary reports and studies that can be created from the recommended primary records are suggested in Figure 7-1. (Page 119).

COLLATERAL INFORMATION DERIVED FROM BASIC RECORDS

PRIMARY RECORD	SECONDARY REPORTS AND STUDIES	FREQUENCY OF REPORT OR STUDY
1. Financial activities.....	Sales records by product, sales territory, and retailer or trader. Trends in sales. Slow-moving items; profitability of individual items or of lines of products; types of customers; order size; opportunities for standardization; sales emphasis. Financial matters such as collection of accounts; and degree of extension of credit	Semi-annually or annually
2. Production Control.....	Study of performance in meeting order commitments. Study of need for new or revised tools or machinery	Semi-annually
3. Materials Control.....	Study of stock-out frequency and losses experienced therefrom	Quarterly or semi-annually
4. Quality Control.....	Study of quality trends. Study of returns and losses from inadequate quality	Semi-annually
5. Worker Performance.....	Productivity Index calculation; study of individual performance; determination of training needs for individual workers	Monthly and quarterly

(119)

Figure 7-1
Illustration of types of collateral data available
from a study of the primary information in basic records

DEVELOPING COLLATERAL INFORMATION

The manager should learn to utilize all his basic records, because from these figures reliable reports on the operating condition of his enterprise can be developed.

An example of such a collateral report and how it may be used for providing operating records can be found in the preparation of periodic sales reports.

Although a Sales Record has not been suggested here as a primary document for the small enterpriser, the manager will be interested in making semi-annual or annual studies of his records to determine sales trends. The financial records he has kept on a day-to-day basis will provide a source of such data. Merely by summarizing and analyzing these recorded figures, valuable sales information is secured. These figures can be made to answer such questions as: What is selling best? Who buys it? What retail sales outlets are most profitable and active? What products are weak in sales? Which products show the greatest potential for the future? And many other similar questions. These illustrate only a few of the sales and marketing areas that can be investigated using secondary data from primary records.

Consider another example: Assume that plans are to be drawn up by the manager of a small business for entering a new field of manufacture. Decisions to take on such matters are greatly facilitated by having readily available information on production and quality, on worker capability, on the financial strengths or weak-

nesses of the enterprise, as well as on other questions relating to development decisions, such as: What new machines will be needed? What production can be expected from them? What capability of the workers is available? What skills are needed?

Finding the answers to these important questions also can be aided by reference to the primary records recommended for the small enterprise.

Through the development of such collateral data the manager finds that he is able to employ a method of management that is widely used in industry, both large and small, namely operation by Reports and Orders.

REPORTS AND ORDERS

Management of a small enterprise by Reports and Orders is a procedure by which critical operating information is routinely developed from operating records, and responsive supervision and direction of the shop is provided through statements of policy and orders.

In simple terms, of course, a Report is a statement of conditions existing in the enterprise, derived from available records. An Order is a statement of direction made by the manager to revise or deal with the condition revealed by the Report.

For example, a routine report provides information on the expenses incurred from producing and selling products during a given month. Another reports on the quantity of various styles or types of products produced during the same time.

One of the items of information that is useful in an operating report is: the quantity of production for the month for each £ of expense incurred in its fabrication. Such a figure is a measure of the productivity of the enterprise, and is a useful guide to the manager in his direction of shop affairs. Other analyses that may be made from figures appearing in the basic records are, for example: average sales cost per item sold; man-hours per item produced, for all major items; profit per £ of total sales for major items; and distribution of labor, material and overhead costs among major items produced.

The manager must decide for himself, of course, which kinds of information are of most value to him, and then incorporate them in his report procedures. Thus he will develop control figures over the aspects of his operation that are most critical.

The design of a report typical of those used by small enterprise managers is illustrated by Figure 7-2, (Page 123). Here we see that the manager makes monthly surveys of the trends in sales (Item A) and the unit-sale costs, expressed as value of sales per £ of total expenses (Items C and D). He also studies the profits in a similar way and determines the profit secured monthly per sales £, (Items F and G).

A third aspect is a study of the man-hours worked during the month (Item I), for each of several critical items produced by the establishment, (Item J).

MONTHLY OPERATING REPORT

Malam Ammani Carpenter

Month September, 1963

ITEM	Monthly Activity	Total for Month	Derived Data
A	Sales	Esd <u>₹122.10.-</u> <u>₹ 70. 5.-</u>	
B	Expenses		
C	Sales per ₹ of Expense	(C=A/B)	Esd <u>₹ 1. 2.7.</u>
D	Same last month		<u>1.00.2.</u>
E	Profit (E = A - B)	Esd <u>52. 5.-</u>	
F	Profit per ₹ Sales	(F = E/A)	<u>₹ . 8.7.</u>
G	Same last month		<u>0. 7.1.</u>
H	Man-Hours Worked		
	Product A <u>120</u>		
	Product B <u>60</u>		
	Product C <u>45</u>		
	Product D <u>38</u>		
I	Production		
	Product A <u>230</u>		
	Product B <u>80</u>		
	Product C <u>105</u>		
	Product D <u>91</u>		
J	Man-Hours per product	(J = H/I)	Same last month
	Product A <u>0.52</u>		<u>.60</u>
	Product B <u>0.75</u>		<u>.77</u>
	Product C <u>0.44</u>		<u>.53</u>
	Product D <u>0.42</u>		<u>.61</u>

Figure 7-2

Example of a Monthly Operating Report
used by the manager of a small establishment

The fourth aspect studied constitutes a measure of the productivity of the establishment, expressed as the man-hours spent in production of several standard production items.

A study of the figures developed by the manager through such an analysis may lead him to make even a closer study of his primary records. Questions will arise from trends revealed in this report, which he will wish to check, and for which he must find explanations.

Naturally, every small-enterprise manager will wish to adopt a form that best fits his particular needs if he undertakes such an analysis. The form illustrated here is merely typical of a design commonly used. Every manager will know what information is critical to his particular needs, and can design a report that permits a prompt analysis of critical figures, so that appropriate action can be taken without delay if unfavorable conditions are revealed.

A study of these Records and Reports created by his every-day operation aids the manager in making critical decisions on vital matters. He converts these decisions into orders on how enterprise affairs are to be conducted. New or revised procedures may then be undertaken, and the cycle is repeated as before.

This never-ending routine of reporting and ordering constitutes the basic "management process" in the small enterprise, as it also does in the large company.

THE MANAGEMENT PROCESS

The process of management is the same in principle for any progressive company, whether it is large or small. Management is a circular process,

in which the manager has the most important role, and in which all persons responsible for the performance of shop activities take a part.

The well-managed shop is a result of constant vigilance over the critical aspects of its undertakings. Among the most important of these are: a) the financial transactions that occur; b) the efficiency of its production; c) the precision of its material controls; d) the quality of its products; and e) the performance of its workers. These records are basic to the proper functioning of the management process.

A graphic analysis of the management process in its simplified form in a small industry is illustrated in Figure 7-3, (Page 126). The figure illustrates clearly how records and reports come to, or are developed by, the manager, who, after analyzing and considering them, issues orders on the matters they report on. The manufacturing or service activities of the enterprise then are undertaken along the lines of the manager's command, and the process is repeated, thus providing continuing controls over all important operating matters.

Whatever may be the difference in detail among small industries as to their operational methods, the procedure of reports and orders is fundamental. It is unlikely that any well-managed enterprise can develop or maintain a good level of productivity and profitability without careful attention to this basic principle.

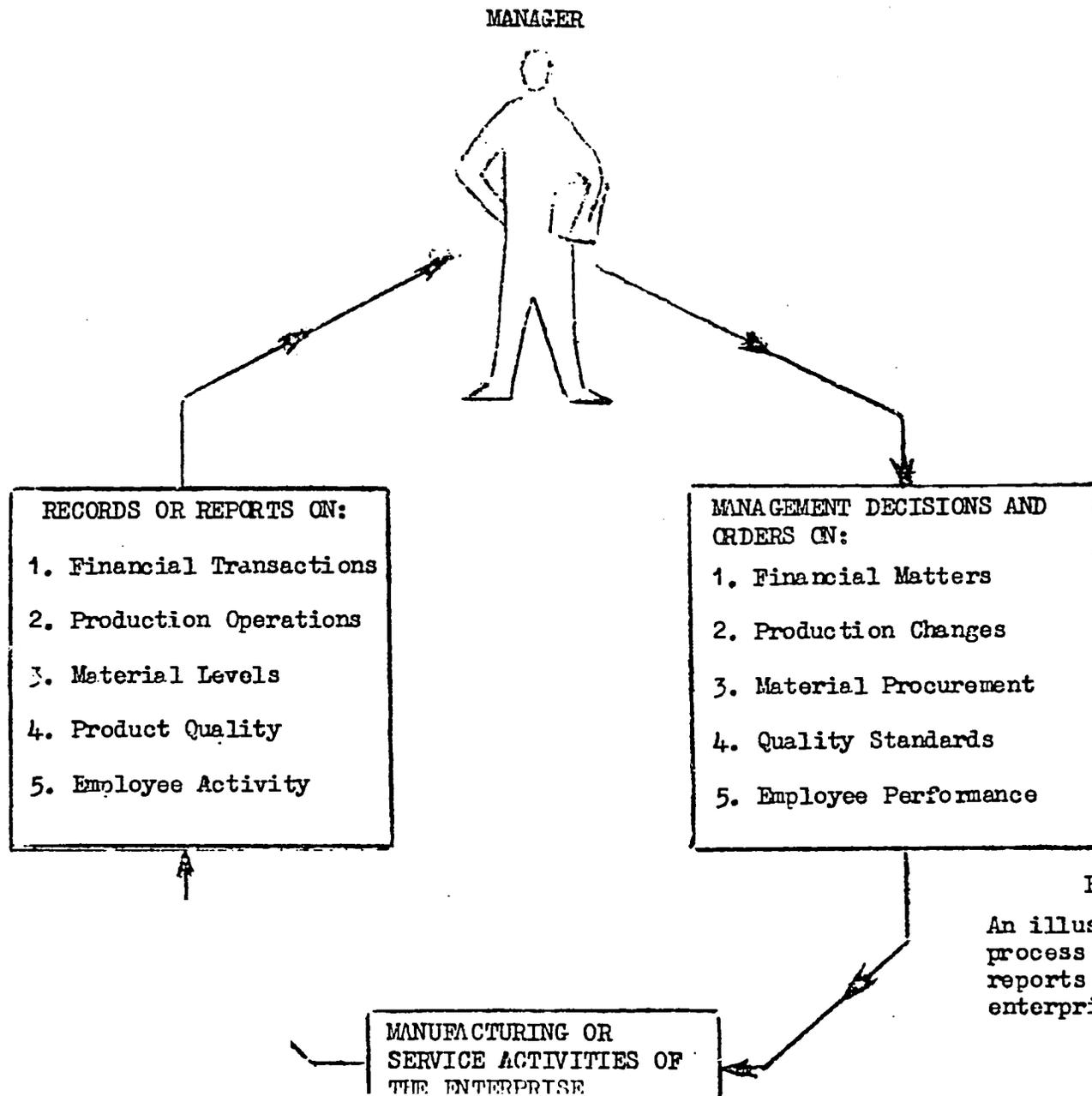


Figure 7-3

An illustration of the continuing process of management-through-reports and orders in a small enterprise

An example of a variation in keeping records is provided below concerning the use of printed forms. Although they are highly useful, adopting printed forms changes nothing in the fundamental method by which records are used by the manager, although his convenience may be enhanced when they are employed.

The closer the small-industry manager can bring his enterprise operations to the methods used by larger, more highly organized companies, however, the more effective will be his management. Therefore, such devices as printed forms for record keeping acquire an added importance.

THE USE OF PRINTED FORMS

Although a suggestion was made earlier in this book that small-enterprise data may be most conveniently kept in permanently bound record books, there will be some cases where the manager will wish to adopt printed forms. This is a progressive step for the small enterprise. Forms of this kind have been said to be the "silent partners" of a business, because they are used so frequently in so much of the manager's work.

Among the printed forms that are commonly used by efficient managers are: purchase requisitions, purchase orders, sales orders, invoices, and time cards. Although many small enterprises in Nigeria have not yet arrived at the stage of development where the adoption of such forms would be a practical step, the advantages that result from their use recommend them wherever the volume of activity undertaken by the enterprise can possibly justify it.

Some of the advantages that result from using printed forms are:

1. Information that must be recorded repeatedly may be printed. This saves time. An example is the numbering of forms.

2. All information that must be recorded will be properly indicated. This eliminates the possibility of omitting items such as dates, signatures, and a listing of items.

3. The placing of information is standardized. Numbers, dates and signatures, for example, will always appear at the same position on the form.

4. The use of printed forms is in agreement with a management principle of "putting it in writing". This fixes responsibility for the action and reduces the possibility of error.

In most of the small companies for which this book has been prepared, the level of operation does not justify a full system of printed forms.

In some instances, a partial use of printed forms is in order, however. For example, in a bakery, where individual buyers by the dozen come into the bakery every day to purchase small quantities of bread or other baked products, a small, printed invoice is useful. The quantity and the type of product sold and the sales price may be recorded with little delay. Then the slips are put on a spindle, from which they are taken at the end of the day to be totaled. This procedure is superior to a record-book entry system, and may readily be justified by the large volume of transactions and the need for a permanent record only of the total of the day's sales.

In service organizations, as for example radio-repair shops or printing shops, a "work order" is sometimes put into a printed form for convenience. This form designates the work to be done on each order, the materials used, the time taken and other information relating to the particular job. Using this printed form improves the manager's convenience in directing such enterprises.

Several typical printed forms useful for small enterprises are illustrated in Appendix B of this book.

EXTENSION OF THE CONTROL PROCEDURE

To the small-enterprise manager who is unfamiliar with the procedures of record-keeping described in these pages, the recommendations cited here may seem formidable and challenging. The outlined procedures, however, are only a relatively simple illustration of the application of controls typical of industry, or, for that matter, of any institutional operation.

Every institution, including manufacturing industry, is controlled most effectively through certain elements of operation. The most important of these are:

1. Definite goals and objectives. For the small-industry manager, these may include such things as: over-all goals of profitability; improvement of the company position with regard to sales; improvement or realignment of production processes in the enterprise; elimination of specific wastes in material, or in operating efficiency; strengthening of personnel; improvement of workers skills and abilities; or

re-organization of the financial structure of the enterprise.

Whatever may be its nature, the manager will find it well to direct his management towards a carefully specified ultimate goal or objective.

2. A plan for achieving each goal or objective. This requires effective use of available personnel, and a coordinating of activities of these persons; a timing of overall initiative; effective production control processes; the beginnings at least of a budget system; and attention to effective advertising of enterprise services or products.

3. A record of actual performance or accomplishment. The record-keeping systems described in earlier pages of this book, and the reports and ordering system that may be derived from them, will provide the required records to accomplish this.

4. Standards of performance. These may be expressed in the statement of objectives or goals of the enterprise, and attainment of the goals may be stated in terms of the degree of completion, as an index of accomplishment, or as an expression of actual costs as related to standard costs. Quantity, quality or other operational matters also may be compared to stated standards or goals, as an expression of the degree of attainment of those goals.

5. Comparison of actual accomplishment with the goals or objectives. The causes of any short-falls may be analyzed and expressed, and progress towards the stated goals may be reported regularly.

6. Methods of correcting delays or short-falls, deficiencies and inefficiencies. These methods are related to the expected questions:

What should be done? How should it be done? What should it cost? What did it cost? What are the differences between what was expected and what actually happened? These questions involve the most important elements of control. However, with answers to these questions in hand, responsibility may be fixed for achieving further progress towards the goal.

For the small-enterprise manager in Nigeria, this sophisticated type of control is still an objective to contemplate for the future.

Meanwhile, however, a reasonable initiative towards considered record-keeping along lines suggested in this book will be certain to lay the groundwork for more effective management, which eventually can lead to the same degree of control and profitability that is found in the industry of more highly developed countries.

* * * *

APPENDIX A
Bibliography

A-1

122

BIBLIOGRAPHY

The following publications related to record keeping and better management are in the Library of the Industrial Development Centre, Zaria, and may be removed on loan for reference purposes.

1. Publications of the Office of Industrial Resources, International Cooperation Administration, Washington, D. C., undated, as follows:
 - Technical Bulletin No. 33 Problems in Business Management, Production Planning
 - Technical Bulletin No. 68 Production Planning Methods in a Small Shop
 - Training Manual No. 95 Management Primer, Principles and Practices of Productivity, Controls and Supervision
 - Training Manual No. 96 Management Primer, Principles and Practices of Productivity, Records and Reports
 - Training Manual No. 131 Personnel Management, Personnel Records and Statistics
 - Training Manual No. 141 Basic Course in Production Planning and Control
2. The Foreman's Handbook, Carl Heyel, Ed. The McGraw Hill Book Co. 1955
3. Management for the Smaller Company, Elizabeth Marting, Ed. American Management Association, 1959
4. Human Behavior in Industry, W.W. Finlay, A.Q. Sartain, Willis M. Tate McGraw Hill Book Company, 1954
5. Leadership on the Job, Edited by Staff of Supervisory Management, American Management Association, 1957
6. Production Forecasting, Planning and Control, E.H. MacNiece, John Wiley & Sons, 3rd Edition, 1961
7. Business Management Handbook, J.K. Lasser, Ed. McGraw Hill Book Co. 1952

8. Handbook of Management Principles for the Small Shop, R.F. Bruckart, Industrial Development Centre, Mimeographed, 1967
9. The Supervisor and his Job, A.Q. Sartain & A.W. Baker, McGraw Hill Book Co. 1965
10. Organization for Profit, G.G. Fisch, McGraw Hill Book Co., 1964
11. Sales Planning and Control, R.D. Crisp, McGraw Hill Book Co., 1961
12. Quality Control Handbook, J.M.Juran, Ed. McGraw Hill Book Co., 1962
13. Bookkeeping Fundamentals, N. Fritz, F. Hoffman, Gregg Division, McGraw Hill Book Company, 1965

A-3

134

APPENDIX B

Illustration of Forms useful in the
Small Business

B-1

135

MANUFACTURING ORDER					
DATE ISSUED	4/18	ORDER NO.	108		
DATE WANTED	5/20	QUAN. ON ORDER	1000		
DESCRIPTION					
PRODUCTION RECORD					
DEPT.	SCHEDULE		DATE STARTED	DATE FINISHED	QUANTITY FINISHED
	START	FINISH			
2	4/22	4/25			
4	4/26	4/30			
5	5/2	5/3			
6	5/4	5/12			

SCHEDULE TICKET	
DEPT.	2
ORDER NO.	108
QUAN. ON ORDER	1000
SCHEDULE	
START	FINISH
4/22	4/25
DATE STARTED	
DATE FINISHED	
QUAN. FINISHED	

BIN TAG					
SYMBOL	S P B S F 1/2 x 1 1/2				
NAME	Bolts, P.F. Hd				
	Steel	U.S. Std.			
SIZE OR DESCRIPTION	1/2 x 1 1/2				
LOCATION	A B 2 0 4				
MIN STOCK	1,500				
DATE	ORDER NO.	RECEIVED	ISSUED	BALANCE	
MO	DAY	NO.	LOT		
10	5			Brought forward	3,988
10	7	S.O. 9874		415	3,553
10	14	S.O. 9940		700	2,853
10	18	Count (Weight) loss		33	2,820
10	21	S.O. 9960		1000	1,820
10	25	P O 11,382		10,000	11,820

Manufacturing Order, Schedule Ticket and Bin Tag used in a small enterprise

APPENDIX C
Notes on the Double-Entry Bookkeeping System

C-1

NOTES ON THE DOUBLE-ENTRY BOOKKEEPING SYSTEM

(Adopted from the procedures described in the Small Industries Credit Scheme brochure "SMALL INDUSTRIES CREDIT SCHEME FUND", Section II, published by the Ministry of Trade and Industry, Kaduna, mimeographed, undated)

Important concepts to remember in double entry bookkeeping are listed below. Without knowledge of the following, it is impossible to utilize this system.

Debits: All items owned or paid for by the business which have been consumed or are to be consumed.

Credits: All interests of people in the assets of the business because of debts owed to them or investment and revenue which represent the increase in owner's interest.

In journalizing we:

debit in order to:

1. Increase an asset
2. Increase an expense
3. Decrease a liability
4. Decrease ownership

credit in order to:

1. Decrease an asset
2. Decrease an expense
3. Increase a liability
4. Increase ownership

In double entry bookkeeping, the total debits MUST equal the total credits. A fundamental equation for accounting and bookkeeping is as follows:

TOTAL VALUE OF ASSETS = TOTAL VALUE OF LIABILITIES & CAPITAL

All Debits = All Credits

Left = Right

(+) = (-)

DATE	ITEMS	C A S H		PURCHASES	SALES	EXPENSES	MISCELLANEOUS ITEMS	
		£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d
		DR.	CR.	DR.	CR.	DR.	DR.	CR.

The form illustrated above is a sample of the journal used in the more sophisticated bookkeeping systems. It is based on the principles of the double entry system. For every debit (Dr.) there must be a corresponding Credit (Cr.) for the same amount. There may be two debits for one credit or two credits for one debit but in the final analysis, every entry must have total debit equalling total credits.

The first column is for the date. Every day the business is operating, transactions will occur. It is not, however, necessary that every sale be recorded individually. The total sales for the day can be entered at one time in one entry. It is necessary that each expenditure of money be recorded individually so that in the "Items" column will be shown to whom and for what the money was spent as well as the terms of the transaction.

CASH

You will note that there are two money columns for cash. We assume that the majority of the transactions of businesses using this system will involve either the payment or receipt of cash. Every time a cash expenditure is made the amount is recorded in the Cash (Cr.) column because it is a decrease in the asset Cash, with a corresponding debit to either Purchases, Expenses, or Miscellaneous Items, depending on which was being paid.

In every transaction where cash is received the amount is recorded in the Cash Dr. column because it is an increase in the asset Cash. There must also be a corresponding credit to either Sales or Miscellaneous Items, Cr. again depending upon the transaction.

Simply stated, the important thing to remember is that to record an increase in cash, it must be debited; to record a decrease, it must be credited.

PURCHASES

PURCHASES is the term used to describe all materials that are bought and which will become a part of the finished product, or as in the case of a trading enterprise, all goods bought for resale.

Only one column on the sheet has been assigned to Purchases and this is for debiting the account. We do not expect that there will ever be cause to decrease Purchases, but if the need were to arise, it can be accomplished by use of the Miscellaneous Items Cr. column.

When a purchase is made, the cash paid out is the amount recorded in the Purchases column. If a purchase is made on credit, the amount is recorded in the Miscellaneous Items (Cr.) column instead of the Cash (Cr.) column, to show the increase in the liability, Accounts Payable. If partial payment is made, Cash is credited for the amount given and the balance is credited to Accounts Payable in the Miscellaneous Items (Cr.) column. You will find examples of the above in the Illustrative Problem at the end of this section.

SALES

Any item sold by the business, as part of its normal operations and either a product or service is considered to be sales. The sales price, the price at which the sale is recorded, consists of the cost of making the product or purchasing it, expenses incurred in selling, expenses of running the business and profit. All the afore mentioned making up the sales price have been recorded when paid for but they remain as part of the cost of each item which must be recovered. The profit, which will eventually go to the ownership interests, has not been recorded as the capital that it will be. Therefore, every time that a sale is made, a credit is made to the Sales Account to record the "increase in capital". At the end of the business period, the calculation of profit will be accomplished by deducting the cost of the products and other expenses from the Sales Amount.

If the sale is for cash, Cash is debited to record the increase of the asset; if the sale is on credit, Miscellaneous Items is debited to disclose the increase in the asset Accounts Receivable and in both cases is credited for the equal amount.

In the event that damaged or defective goods are sold and the customer returns them for a refund, the transaction can be recorded by debiting Miscellaneous Items to record the Sales Return. (See Illustrative Problem for examples of recording transactions dealing with sales.)

Costs incurred by an enterprise as part of its operations of producing and selling a product, or continuing operations, are expenses. Expenses, in computing profit, are deducted from Sales and are therefore shown as having debit balances (as opposed to the positive credit balance of Sales).

The procedure for recording expenses is the same as that for recording purchase transactions. If, however, an expense is paid for, either partially or fully, and part of the amount is applicable to the present business period and the remainder is for subsequent periods, that remainder must be recorded as a prepaid expense or asset. It is considered a temporary asset since it is not to be consumed immediately (but will be within the subsequent accounting period).

In recording this type of transaction, Cash (or Accounts Payable if a credit transaction) is credited for the full amount, Expenses are debited for an amount applicable to the current period and Miscellaneous Items is debited to record that portion which is a prepaid item. (Note with special attention the transactions involving the above in the Illustrative Problem.)

MISCELLANEOUS ITEMS

In constructing the sheets for recording the transactions of the business, we have provided columns for the most recurring items in the usual course of a business, Cash (Dr.) and Cash (Cr.), (or Paid In and Paid Out), Purchases, Sales and Expenses. There will be, however, transactions which involve items that will not fall under any of the above categories. Because of this, two columns have been added, Miscellaneous Items, (Dr.) and (Cr.), into which these transactions can be recorded as has been done in previous descriptions of recording.

ILLUSTRATIVE PROBLEM

Below are the details of the transactions in which the baking firm of Merrill Lynch, Pierce, Fenner and Audu were involved during the week of 3rd April, 1967.

April

- 3 Purchased for cash from M. Liman:
 - 20 bags of flour @ ₦ 1.10.- per bag
 - 3 tins of yeast @ -.15.- per bag
 - 5 bags of sugar @ 1.10.- per bag
- 3 Paid electricity for the month of March ₦ 23.-.10
- 3 Sales for day: ₦24.3.6

C-5

142

April

- 4 Purchased from D. L. Payne new baking tins as follows:
a- 30 bread pans @ ₦ -.9.6 each
b- 15 cupcake pans @ ₦ -.11.6 each
c- 20 cake pans @ ₦ -.10.3 each
- 4 Paid ₦ 10.-- cash, balance due in 20 days
- 4 Purchased 24 dozen eggs @ ₦ -.3.9 per dozen from Baptist Mission Society
- 4 Purchased 10 tins of powdered milk from M. Liman; price ₦-.16.3 per tin
- 4 Sales for day: Cash ₦ 24.7.1
Credit ₦ 6.10.- to Kingsway
- 5 Paid Ministry of Works and Water Resources for water rates of March: ₦ 2.3.10
- 5 Purchased lard from M. Jibrin, 4 gallons @ ₦ 1.15.- per gallon
- 5 Sales for day: Cash ₦ 22.1.9
Credit ₦ 4.12.0 Leventis
- 6 Returned to M. Jibrin 1 gallon of lard, which was spoiled, for cash refund
- 6 Received payment from Kingsway for baked goods sold on 4th April less ₦ 1.5.- for bread and other items not sold
- 6 Sales for day: Cash ₦ 23.1.7
Credit ₦ 5.10.- Kingsway
- 7 Paid employees for week: ₦ 11.15.-
- 7 Each of the 4 partners drew their weekly salary of ₦ 6.--
- 7 Received payment from Leventis; all items sold
- 7 Sales for day: ₦ 27.11.18
Credit: ₦ 4.12.- to Leventis
- 8 Purchased new dough-divider from D. L. Payne
Terms: ₦ 50.-- down, balance of ₦73.10.-
to be paid in three equal monthly of
₦ 24.10.- starting 1st May, 1967

April

- 8 Purchased 24 dozen eggs from Baptist Mission Society @ ￦ -.3.9 per dozen
- 8 Paid rent of ￦ 75.-- for months of April, May and June
- 8 Sales for day: ￦ 28.7.2

C-7

144

APRIL 1967

		CASH		PURCHASES	SALES	EXPENSES	MISCELLANEX US	
		£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d
2 April	M. Liman- Flour, Yeast, Sugar		44.15.-	44.15.-				
3 April	March Electric-ECW		23.-.10			23.-.10		
3 April		24. 3.6			24. 3.6			
4 April			10.-.-					
4 April	Baptist Mission Society; 24 Doz eggs		4.10.-	4.10.-			33. 2.6	23. 2.6
4 April	M. Liman; Powdered Milk		8. 2.6	8. 2.6				
4 April	Sales Cash Credit Kingsway	24. 7.1			24. 7.1 6.10.-		6.10.-	
5 April	March Water Rates NOW & WB		2.3.10			2. 3.10		
5 April	M. Jibrin - Lard		7.-.-	7.-.-				
5 April	Sales; Cash Credit; Leventis	22. 1.9			22. 1.9 4.12.-		4.12.-	
6 April	Purchase return; M. Jibrin		1.15.-					1.15.-
6 April	Kingsway-Sale of 4th April & Return		5. 5.-					
6 April	Sales-Cash Credit-Kingsway	23.1.7			23. 1.7 5.10.-		1. 5.-	6.10.-
							5.10.-	
	SUB TOTAL	100.13.11	99.12.2	64. 7.6	110. 5.11	25. 4.8	50.19.6	31.7.6

APRIL 1967 (Continued)

	CASH		PURCHASES	SALES	EXPENSES	MISCELLANEOUS	
SUB TOTALS FORWARD	100.13.11	99.12.2	64. 7.6	110.5.11	25. 4.8	50.19.6	31. 7.6
7 April Paid Employees for Week		11.15.-			11.15.-		
7 April Owners Salaries		24.-.-			24.-.-		
7 April M. Liman- Flour, Yeast & Sugar		44.15.-	44.15.-				
7 April Leventis-Sale of 5th April	4.12. -						4.12.-
7 April Sales-Cash	27.11.18			27.11.8			
7 April Credit-Leventis				4.12.-		4.12.-	
8 April D. L. Payne-Dough Divider £ 50 down; 3 monthly installments of £24.10.-		50.-.-				123.10.-	73.10.-
8 April Baptist Mission Society - 24 dozen EGGS		4.10.-	4.10.-				
8 April Rent-April, May & June		75.-.-			25.-.-	50.-.-	
8 April Sales-Cash	28. 7.2			28. 7.2			
TOTAL	161. 4.9	309.12.2	113.12.6	170.16.9	85.19.8	229. 1.6	109. 9.6

C-9

146

In order to be sure that all figures have been entered properly in either (Dr.) or (Cr.) columns, we summarize as follows from the totals of the columns:

Cash (Dr.)	£ 161. 4.9	Cash (Cr.)	£ 309.12.2
Purchases	113.12.6	Sales	170.16.9
Expenses	85.19.8	Miscellaneous Items (Cr.)	109. 9.6
Miscellaneous Items (Dr.)	<u>229. 1.6</u>		
	£ 589.18.5		<u>£ 589.18.5</u>

A brief description of the Miscellaneous Items Dr. and Cr. columns is as follows:

3 April	£ 33. 2.6	(Dr.)	Increase in the asset Baking Equipment
3 April	23. 2.6	(Cr.)	Increase in the liability Accounts Payable
4 April	6.10.-	(Dr.)	Increase in the asset Accounts Receivable
5 April	4.12.-	(Dr.)	Increase in the asset Accounts Receivable
6 April	1.15.-	(Cr.)	Increase in the account Purchase Returns
6 April	1. 5.-	(Dr.)	Increase in the account Sales Returns
6 April	6.10.-	(Cr.)	Decrease in the asset Accounts Receivable
6 April	5.10.-	(Dr.)	Increase in the asset Accounts Receivable
7 April	4.12.-	(Cr.)	Decrease in the asset Accounts Receivable
7 April	4.12.-	(Dr.)	Increase in the asset Accounts Receivable
8 April	123.10.-	(Dr.)	Increase in the asset Baking Equipment
8 April	73.10.-	(Cr.)	Increase in the liability Accounts Payable
8 April	50.-.-	(Dr.)	Increase in the asset Prepaid Rent

On April 1st the condition of the business was as is disclosed on the following statement:

MERRIL LYNCH, PIERCE, FENNER & AUDU
BALANCE SHEET
1st April, 1967

<u>ASSETS</u>		<u>LIABILITIES & OWNERSHIP</u>	
Cash	£ 195. 1.10	Accounts Payable	£ 60.-.-
Accounts Receivable		Merril Lynch Capital	323.6.10
Inventory of Raw Materials	317. 6. 6	Pierce Capital	323.6.10
Prepaid Insurance	14. 8. -	Fenner Capital	323.6.10
Prepaid Rent		Audu Capital	323.6.10
Bread Wrapping Paper	76.10. -		
Bread Baking Machinery & Equipment	<u>750. -.-</u>		
	£ 1353. 7. 4		<u>£ 1353.7. 4</u>

C-10

147

After the week's transactions, the business accounts have closed as is disclosed by the statement below:

MERRIL LYNCH PIERCE FENNER & AUDU
TRIAL BALANCE
8th April, 1967

	<u>DEBITS</u>	<u>CREDITS</u>
Cash	£ 46.15.5	
Accounts Receivable	10. 2.-	
Inventory of Raw Materials	317. 6.6	
Prepaid Insurance	14. 8.-	
Prepaid Rent	50. --	
Bread Wrapping Paper	76.10.-	
Bread Baking Machinery & Equipment	906.12.6	
Accounts Payable		£ 156.12. 6
Merril Lynch Capital		323. 6.10
Pierce Capital		323. 6.10
Fenner Capital		323. 6.10
Audu Capital		323. 6.10
Sales		170.16. 9
Purchases	113.12.6	
Sales Returns	1. 5.-	
Purchase Returns		1.15. -
Expenses	85.19.8	
	£ 1622.11.7	£ 1622.11. 7

THE MEANING OF BOOKKEEPING WORDS AND TERMS

- Accounts Payable: Money an enterprise owes
- Accounts Receivable: Money that is owed to an enterprise
- Bookkeeping System: A record of money coming into an enterprise and of money going out
- Capital Expenses: Money spent to purchase capital equipment
- Capital Items: Buildings, machinery, equipment, tools, and other things which an enterprise must acquire, maintain and use to produce and sell products or services and to earn a profit
- Costs: Money spent to produce what an enterprise sells
- Debt: Money owed to someone
- Depreciation: Loss of value of equipment, building or machines because of age and use
- Due: Requiring payment
- To Enter: To write down in a book
- Expenses: Money spent to manage an enterprise and to sell what it produces
- Invoice: A bill; a request for payment
- Mortgage: A pledge of property to secure loans
- Operating Statement: A summary of all income, costs and expenses
- Profit: Income that is left after all costs and expenses have been paid for and provided for
- Value: The amount of money for which something can be sold.