FACTORY ACCOUNTS

THEIR PRINCIPLES AND PRACTICE

A Handbook for Accountants and Manufacturers

WITH

APPENDICES ON THE NOMENCLATURE OF MACHINE DETAILS; THE INCOME TAX ACTS; THE RATING OF FACTORIES; FIRE AND BOILER INSURANCE, ETC.

INCLUDING ALSO

A GLOSSARY OF TERMS AND A LARGE NUMBER OF SPECIMEN RULINGS

BY

EMILE GARCKE

Managing Director of the British Electric Traction Company, Limited

AND

J. M. FELLS

Formerly General Manager of the Salt Union, Limited

Fifth Edition, Revised and Extended

LONDON

CROSBY LOCKWOOD AND SON

7, STATIONERS' HALL COURT, LUDGATE HILL

1902

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FACTORY ACCOUNTS

"The counting house of an accomplished merchant is a school of method wherein the great science may be learned of ranging particulars under generals, of bringing the different parts of a transaction together, and of showing at one view a long series of dealing and exchange."

DR. JOHNSON, *in Preface to Rolt's "Dictionary of Commerce."*

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LONDON:
PRINTED BY H. VIRTUE AND COMPANY, LIMITED,
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PREFACE TO THE SECOND EDITION.

THIS work is, we believe, the first attempt to place before English readers a systematised statement of the principles relating to Factory Accounts; and of the methods by which those principles can be put into practice and made to serve important purposes in the economy of manufacture.

It is not necessary to convince men of business of the advantages and importance of correct mercantile book-keeping; but as regards their factories and warehouses they are for the most part content to accept accounts which are not capable of scientific verification. Such accounts can only be regarded as memoranda of transactions.

Our aim has been to show not only that as great a degree of accuracy can be attained in factory book-keeping as in commercial accounts, but that the books of a manufacturing business can scarcely be said to be complete and reliable unless they are supplemented by, and to a large extent based upon, the accounts special to a factory.

The principles of Factory Accounts do not differ in the main from those general rules on which all sound book-keeping is based, and we have but applied fundamental axioms to the practice of an important and extending branch of industrial accounts. With the view of rendering the book of special utility to Accountants we have not dealt with the principles and practice of accounts in so far as they apply merely to elementary and commercial book-keeping, as to do so would, in large measure, be a work of supererogation. The diagrams showing the relation between Factory and Commercial books will, we hope, with the numerous specimens the book conta-

render the information we have to present of service to those who, while concerned in manufacture, and therefore interested in our subject, have not occasion to inquire closely into the practice of accounts.

The various Appendices dealing with the legal, financial, and other questions connected with factory administration are submitted in the belief that they will be regarded as indicative of matters calling for the careful consideration of those engaged in industrial pursuits.

October, 1887.

NOTE TO THE FIFTH EDITION.

IN this edition, some matters of factory routine and registration not previously dealt with have been included.

The Appendix to be found in former editions, giving a summary of the Factory and Workshop Acts, does not now appear in the volume, as the extension of legislation on the subject prevents its being satisfactorily dealt with in so brief a fashion.

The remaining Appendices have been brought as closely as possible up to date.

Since the first edition was published in 1887, considerable attention has been given to the subject matter dealt with in the work, and several books and papers have been written and lectures delivered thereon.

LONDON,

July, 1902.

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FACTORY ACCOUNTS:

THEIR PRINCIPLES AND PRACTICE.

CHAPTER I.

INTRODUCTORY.

WITH the rapid development of the modern Factory System there has arisen a need for regulations which would not have had application at a time when pro-

The modern Factory System.

duction was carried on under a comparatively simple industrial organization. The extent to which by the aid of machinery the specialisation of labour is now carried, generally involves the passing of an article through as many hands or machines as there are processes in its production, and renders a further extension of routine and registration necessary. A simple form of accountancy sufficed to ascertain the cost under manual labour of working up material, or producing an article under a system of domestic or cottage industry, or under the early type of the factory system dating from the time of Henry VII., when master manufacturers, weary of municipal and guild restrictions, organised little communities in country places solely for industrial purposes, and so arranged as to

afford greater scope for the combination and division of labour.* The introduction of steam and machinery, and the establishment of large factories, where numbers of persons of both sexes co-operate through the division of labour in the production of articles of consumption, has changed the industrial conditions of society.

Under these altered conditions employers find it economical to adopt methods of supervision and of registration which, *prima facie*, make production more costly. The advantages of the combination of labour—of each workman confining himself to one process, and that always the one for which he is best fitted—are so great that the expenses of the necessary organization are insignificant in comparison. Experience has shown that wherever the magnitude of the operations renders it practicable, every further extension of this principle of specialisation results, in spite of the increased expense of administration, in an economic advantage.

The legislation with regard to factories and workshops, regulating the employment of children and women and their hours of labour, as well as providing for their health, education, and safety, affords but one of the many indications of the universality and complexity of the methods of organised production which now obtain. Although this change in our industrial arrangements has already been fraught with many far-reaching consequences both material and moral, it has been of comparatively recent growth. "In the course of little more than a century the industrial framework of the whole civilised world has been radically reconstructed, and more changes have occurred in consequence, even more obvious and tangible changes—changes con-

The Factory System: its history.

* "The Industrial History of England." Gibbins. London: Methuen.

spicuous upon the very face and features of the country itself —than for certainly the whole of a previous thirteen hundred years." But it is only quite recently that any endeavour has been made to trace the continuity of the various impulses, historical and economical, that have been concerned in the evolution of this particular method of production.*

Under these circumstances it is perhaps not surprising that systems of regulating the intricate affairs pertaining to a factory have hitherto been determined entirely by empirical methods.

Misconception as to factory books.

Although the term Factory Accounts may be familiar, and its meaning sufficiently evident to persons acquainted with manufacturing business, or experienced in any operations requiring records to be kept of materials, plant, and stock, yet it is not infrequently assumed, even by accountants, that the ordinary commercial method of book-keeping by double entry, without the special subsidiary books which every trade demands, suffices for every kind of business.† The fundamental principles applicable to accounts necessarily hold good throughout all the branches of book-keeping; but many businesses involve, in addition to the mercantile transactions familiar to everyone acquainted with the routine of an office or counting-house, multifarious and often extensive operations, of which the employment of labour and payment of wages, the purchase of raw materials and

General principles of book-keeping and particular trades.

* "Introduction to a History of the Factory System," by R. Whately Cooke Taylor. London: Bentley.

† Thus, *The Accountant*, in reviewing an earlier edition of this work, said: "It is rather concerned with the wages and time books, stock books, and matters of a similar nature, which as a rule do not come within the scope of an Accountant's duties."

their conversion into manufactured commodities, are but some of the outward manifestations; and for their proper registration special methods of book-keeping have to be devised. In the case of manufacturing firms the operations referred to call for careful analyses of expenditure, sometimes necessitating the storage of large quantities of various kinds of raw material, and the warehousing of goods to a considerable extent, as well as the manufacture, purchase, or erection, and gradual wearing out, of valuable plant and tools. All this implies accurate adjustments of accounts. When large sums are paid in wages, it is essential, if the business is to be economically conducted, that the time during which the workpeople are employed and the work upon which they are engaged, should be accurately and sufficiently recorded. It is equally important that the material should be systematically charged to the work on which it is used.

Requirements of a manufacturing business.

Profit or loss on individual transactions.

It is only by these means that employers can know the cost in wages and material of any article of their manufacture, and be able to determine accurately and scientifically, not merely approximately and by hap-hazard, the actual profit they make or loss they sustain, not only on the aggregate transactions during a given period, but also upon each individual transaction. In a business, the operations of which vary widely in character, this special knowledge as to the pecuniary result of a particular piece of work is of paramount importance, for it is not only conceivable but very probable that the presence or absence of this information may determine the policy to be pursued is accepting or rejecting large contracts, for while in selling or contracting the price is limited or determined in the majority of cases by competition, it is obvious that the ultimate

Profitable and unprofitable branches.

determining factor is the cost below which a manufacturer or contractor will not knowingly supply for any length of time, in the absence of some equivalent advantage in other directions. In the future the selling price of commodities will probably stand in more close and direct relation to cost of production than hitherto. The merchant or middleman has endeavoured to buy from the manufacturer at the lowest price he could get him to accept, and has endeavoured to sell to the retailer or user at the highest price which competition with other manufacturers permitted.

The lack of knowledge of cost has thus often meant that manufacturers unknowingly have been selling below it, but have considered their price remunerative, because on the whole their business was profitable. The tendency to the combination of the productive and distributive function, will necessitate "larger knowledge of cost in the productive department, larger knowledge of prices in the distributive department, larger knowledge even of foreign cost of production."* There is always a danger, when only the general result of a business is known, of departments or processes which are relatively unremunerative being unduly fostered, and of those which yield more than the average profit not receiving adequate attention. Employers should not, as is too frequently the case, be entirely dependent upon the periodical profit and loss accounts for their knowledge as to the financial result of their transactions, but should at any time, and at any stage of manufacture, be able to ascertain, *pro tanto*, rapidly and reliably, the actual, and not merely the estimated, cost of production of any given article of their manufacture. They should also be able to determine, without the delay and labour

* H. John Falk "On Changes in Trade Organisation," *Economic Journal*, 1896.

Stock should be knowable without survey.

of a survey or inventory, the quantity of stock and of raw material on hand, or of any particular item or part thereof. It would be discreditable to any cashier if his principal could not ascertain by a glance at the books the amount of cash in hand, but found it necessary to have the money counted; and there can be no reason why the same punctilious book-keeping should not be adopted in the case of goods. It is not too much to say that for a manufacturing or trading concern to be well organized, the storekeeper or warehouseman should be able to state, by referring to his Stores or Stock Ledgers, the actual quantities of any kind of material, or stock, on hand with the same facility and precision as the accountant can ascertain from the books the balance of cash at the bankers, or the amount of securities in the safe. By means of detailed records of cost accurately compiled, and carefully considered and criticised, purchases of stores and expenditure of wages may be regulated, production facilitated and increased, economies introduced, and the business thereby placed on an improved competitive and profit-earning basis.

These are only a few of the questions which present themselves in a cursory consideration of the nature of Factory Accounts. The subject of Prime Cost admits of very varied treatment. When the indirect charges and depreciation are of a more or less fixed character, it is probably sufficient to know the cost of an article in wages and materials only, but if the indirect expenses and wear and tear of plant form a more direct element in the cost of production, it would be highly desirable to apportion such items among the various operations or departments. The allocation of indirect charges thus presents many interesting problems, whilst

Prime cost and depreciation.

Indirect charges.

the numerous methods of "writing off" and of determining the proper incidence of items such as deterioration of plant, tools, buildings, deserve the serious attention of owners of property, and tax to no mean degree the abilities of accountants, and their power of obtaining an absolutely accurate statement of affairs.

For the above-mentioned purposes, among others, systematised factory books are essential. The advantage of such books, clearly representing the actual state of affairs, is particularly evident when a business is for

Sale of business, &c.

disposal; or is being converted from a private firm into a joint stock company, or when the whole or some part of the factory has been destroyed by fire, and it is necessary to prepare a claim on insurance companies. Then it is that the figures in the commercial books require to be substantiated in detail. There is little doubt also that under a well-organized

Moral effect of proper accounts upon employes.

system of Factory Accounts, each employé feels that he is contributing to the attainment of accurate records of costs; and that it is necessary that his account of the time he spends, and the material he uses, should be adequate and precise. This begets general confidence in the manner in which the accounts are kept, and on occasion of strikes or reduction of wages, or resort to the sliding scale, employés have less hesitation in accepting the results shown by the books as correct and as based on fair principles.

It will be seen, even from this superficial summary, that it is not feasible to record accurately, and with

Ordinary commercial books inadequate.

requisite detail, in the ordinary commercial books, all the numerous entries necessary for the proper registration of the operations of a large manufacturing establishment. It is moreover essen-

tial that factory books should have columns for the weight or measurement of materials and the number of articles, in addition to cash columns for values; and this, which is an indispensable condition in factory books, would not serve any useful or practical purpose in commercial books, but would on the contrary mar their utility. The insufficiency of the commercial books alone to represent the transactions is conspicuously evident in the case of undertakings of the magnitude of railway, gas, and water companies.

Factory books must not, however, be considered, as is generally the case, to be merely memoranda books, which are not necessarily required to balance. They should so assimilate to the books of the counting-house that the obvious advantage of having a balance-sheet made up from the General Ledger, embracing the balances of the ledgers and books kept in the stores and warehouses, is not sacrificed. No matter how far the subdivision of departments of an establishment be carried, or to whatever extent the principle of localising the book-keeping be applied, the concentration of the accounts—the merging of the departmental books in the General Ledger—should be kept constantly in view. There is not any special theoretical or practical difficulty in establishing a separate set of books for each and any of the departments, if it be not attempted to make the proper working of all dependent upon the proper working of each, or if no regard be had to the necessity of attaining the highest degree of efficiency and despatch with the minimum expense. On the other hand, to devise upon sound principles, and to carry out efficiently and economically, a system of accounts which necessitates the whole of the departmental book-keeping in a large establishment being subsidiary to one

Assimilation of all books.

Specialisation consistent with concentration.

Economy of clerical labour.

centre, is a science as well as an art. That a system is not economical which is inefficient is but a truism, and although we appreciate the importance, and indeed the necessity, of minimising clerical labour, we feel there is no occasion to lay particular stress upon this consideration, as the tendency is to dispense with services which an adequate recognition of the value of sound book-keeping would probably show to be indispensable. Book-keepers and clerks being, unlike factory workpeople, only indirectly engaged in the production of wealth, are often regarded in comparison with them as "unproductive" workers—using the expression not invidiously, but in the sense in which some economists employ it. Too generally the routine of the office is limited by the number of clerks from time to time engaged, instead of the system of accounts and routine best adapted for the business being determined on, and a staff employed proportionate to the work to be done. The wisdom of initiating by the dismissal of one or more clerks the retrenchment which in times of depression may be called for, is not always apparent. The maintenance of a perfect organization may enable economies to be practised, in comparison with which the whole cost of the office staff is insignificant. It is well, therefore, to weigh carefully the *pro et contra* before relaxing vigilance over expenditure and the salutary checks upon wastefulness and extravagance in manufacture which a good system of accounts affords. One of the disadvantages of insufficient records being kept is that book-keepers and clerks have often to spend much time in obtaining from foremen and workmen, after the event, information which should reach the counting-house in a regular and systematic manner. This is contrary to the principle that true economy is to be found in the specializa-

Division of work.

tion of labour, and in clerks devoting themselves to clerical and foremen and workmen to mechanical work.

The scope of this work.

The task we have set ourselves is to explain the nature of factory books and the method of keeping them, and to show the *modus operandi* whereby the subdivision and localization of the accounts may be made consistent with the system of book-keeping by double-entry obtaining in the counting-house.

Ordinary commercial books not explained.

We do not propose to enter upon a detailed explanation of the Ledger, Journal and Cash Book, and of the subsidiary books which constitute the system of commercial accounts. The numerous excellent treatises extant on general book-keeping render this needless, and we shall assume on the part of our readers that acquaintance with the elements of the subject which is essential to a proper understanding of factory and other accounts. For this reason chiefly we do not think it necessary to follow the precedent of writers on commercial book-keeping by tracing the entries of an imaginary firm through a series of model books. We do

Specimen rulings.

not hesitate, however, to give specimen rulings of the books and forms suggested in these pages for adoption, and for facility of reference these specimens are numbered consecutively, as indeed should be the case in actual practice.

Exterior of books and distinguishing features.

In this connection it may be well to point out that some regard should be had to the exterior of the books, an advantage being derivable from the books of each department or of each class being distinguishable by their bindings; similarly papers of different colours should

General applicability of books.

be used for the various forms suggested, while their rulings and headings may with advantage be printed in copyable ink. As in the majority

of businesses the articles dealt in are reckoned in weight we think it well to show the specimen rulings with weight columns. As it is not possible to show the specimen rulings of books applicable to every trade we show only those of one class. Slight alterations in headings make these rulings applicable to trades using other measures, for the principles on which they are based are equally applicable to the liquid and mixing trades, such as those of brewers, distillers, manufacturing chemists and others, as well as to paper and other industries in which there is a continuous production of one kind of commodity. The relation of the various books to each other will be found further elucidated by the diagrams at the conclusions of Chapters II. to V., showing the manner in which the books and forms assimilate to each other and converge into the Commercial Ledger.

Diagrams.

Whilst not presuming to suggest that the forms and books of which specimen rulings are given apply universally and are incapable of modification either by subdivision or concentration, we believe that the principles underlying them are of general application and that the rulings will serve as useful examples.

In the next chapter we deal with the subject of Labour, defining the requisites of a proper wages system; and explaining, in as much detail as seems needful, the purpose of the books and the nature of the routine which in our opinion should be adopted by manufacturers. It will then be necessary to explain the forms it is desirable to observe in connection with the purchase and consumption of materials for the purpose of manufacture, or the maintenance of plant and buildings. The question of Stores and the manner of dealing with the invoices for goods purchased will next demand our atten-

Outline of contents.

tion. In this connection we shall have occasion to explain the uses of the Stores Ledger and its relation to the subsidiary stores books and to the Commercial Ledger. Having considered the book-keeping and routine relating to the two chief classes of expenditure for the purpose of production of commodities, *i.e.* labour and material, we shall be in a position to consider the important books in which this expenditure is concentrated, analysed, and properly apportioned to the resultant objects. The books by means of which this is accomplished are the Prime Cost Books. Their object is to enable a manufacturer to ascertain the cost to him of any given operation, and thus afford him some of the principal data for the conduct of his business.

Definition of prime cost. There are many systems of Prime Cost in vogue, but the writers who in dealing with book-keeping generally have touched upon the subject are not agreed upon the definition of the term Prime Cost. In some instances the confusion of ideas and language has been carried so far as to render it necessary to speak of net and gross prime cost. Throughout these pages we take Prime Cost to mean, as shown in the Glossary, and as in fact the words imply, only the original or direct cost of an article. Cost of production, on the other hand, we define to be the total expenditure incurred in the production of a commodity.

The sale or distribution of manufactured commodities will next be dealt with, and at this point we think it well to

Distinction between stores and stock. draw a clear distinction between materials for manufacture and articles in the manufactured state. Until materials are converted into manufactured articles we speak of them as stores, but when so converted they are termed stock; and the book-keeping we recommend is based on this view. The accounts in the

Prime Cost Ledger are debited with wages and materials spent in manufacture, and are credited with the stock produced. The importance of this distinction between stores and stock will be evident when the subject is dealt with in detail. The fifth chapter treats of the Stock Books, which, though in some respects analogous in their functions to the Stores Books, are as distinct from them as is consistent with the principle of a system by which all the books of the establishment are required to merge into the Commercial Ledger.

This practically completes the outline of what constitutes the absolutely essential books in a system of Factory Accounts, but there are many other matters which have too important a bearing upon the subject of this work to admit of being passed over without reference. Such are the questions of depreciation of buildings, plant, tools, stores and stock, and of surveys or inventories. These matters are dealt with in subsequent chapters. In our cursory consideration of the former of these questions we refer to various methods of determining a rate of depreciation. As regards the question of surveys or stock-taking we do not presume, in view of the varying requirements of different trades, to do more than to offer some more or less obvious suggestions which have a general application.

The Appendices contain a reprint of a paper on the advantages derivable from the use of symbolic nomenclature for parts of machines, some notes on the law of rating of factories containing machinery, and also some notes on the law of Fire Insurance and on the Income Tax Acts and other matters having reference to the subject of this work.

CHAPTER II.

LABOUR.

THE initial step in the organization of a factory must perforce be the adoption of a system by which each person employed at a rate of pay on a time scale shall receive payment for the exact time employed. Such a system should necessarily be one in which the workpeople have confidence, and in which they themselves co-operate.

A wages system the initiative in the organization of a factory.

In the present chapter we show how each employé's record of his or her own time may, through the instrumentality of the leading hand in the shop and of the time clerk, be compared, checked, and if need arise, corrected by the record kept by the timekeeper. By these means the possibility of an error either by over or under payment is reduced to a minimum, whilst fraud necessitates for its successful perpetration the connivance of the employé, the timekeeper, the leading hand of the shop in which such employé works, the time clerk, and of the clerk in the counting-house who makes up the Wages Book, and also of the cashier who pays the wages. Such collusion is almost, if not altogether, impossible.

Proper wages system minimises error.

Summary of chapter.

Further, we show that, by means of a weekly return, it is impossible for any one connected with either the counting-house or the factory to enter in the books wages for

"DUMMY MEN."

Creation of dummy men prevented.

"dummy men." This phrase is used to designate such a system of fraud as can only exist in a large undertaking where it is possible for the foreman, the timekeeper, or the pay clerk, either singly or in conspiracy, to show a larger number of men employed than is actually the case.

By the use of the same return, fraud through the unauthorised alteration of the rates of pay of the work-

Weekly return of alteration of rate.

people is prevented, and the authorised rate recorded for future reference. The regulation and recording of piece-work prices, and the payment of piece-work balances to those employés who have been paid during the continuance of piece-work at time rates, is described; as are also the modes of controlling time made outside the factory and of preventing undue recourse to overtime.

It is then shown how deductions may, if required, be made from the wages of the employé, for rent, fines for non-observance of rules, etc., in respect of savings bank,

Sick and other funds.

sick, superannuation, or other funds; or of the amounts of adverse balances on piece-work, or of the deductions authorised by the Factory Acts. Attention is called to the fact that the Wages Book may be correctly and concisely compiled from these various returns, and that it, in its turn, may, if thought well, be summarised for the use of the principal into a more condensed form.

The possibility of obtaining receipts from employés with very little trouble is dealt with, provision against the mis-

Receipts for Wages. Duties of time clerk.

appropriation of unclaimed wages suggested, and consideration given to the mode of payment. The work of the time clerk in reference to the systematic allocation of the wages for the Prime Cost Books, and of the timekeeper or other employé in reference

to the records required by the Factory Acts, is explained. The necessity of compiling a list of addresses and of obtaining information as to the character of employés, as well as some miscellaneous matters, are incidentally dealt with.

Time office and workmen's checks.

At the entrance to a factory there is almost invariably found a small building, where the time of the entry and exit of every employé is registered by a gate or time keeper. This is effected, as regards the entry, by each employé, on entering the factory, being required to pass the time office and mention the number which has been allotted to him at the commencement of his engagement, receiving from the timekeeper a metal check, or other ticket, bearing his number and taken from a board, on which the checks have previously been consecutively arranged.

On leaving the factory the employé should deposit this check in a box placed outside the time office. The checks will be sorted by the timekeeper, and can, in any case of doubt or dispute, be compared with the entries made by him in a book which is hereafter described. The checks having been again placed on the board, the process referred to is repeated each time the workpeople enter or leave the premises. In some cases separate check boards are used for, and a different series of numbers are allotted to, each department, and different sizes or shapes of checks are used for each shift.

Mess room.

Should a mess-room have been provided for the use of the employés there will not be any obstacle to the carrying out of the system if the mess-room is outside the timekeeper's lodge, but should it be situated inside the works, the checks can be issued from that point after meal hours.

After admitting the workpeople, the timekeeper proceeds to register their time. He sees by the presence or absence of checks on the board what employés are, or are not, in the factory. In a book so ruled as to show each employé's name and number, and each day of the week divided into four parts (for the time made before breakfast, after breakfast, after dinner, and overtime, or such other divisions as may be most suitable for the business), the timekeeper enters the employés present. This is in most cases done by a vertical stroke, absence being denoted by a horizontal one. In some cases the four divisions of time above referred to are shown in the form of a square, thus □; or in cases where three divisions only are required, by means of a triangle, thus △. In the square, the top stroke is supposed to represent the time before breakfast, the down stroke, right hand, that after breakfast, the base, the time after dinner, and the up-stroke, left hand, any overtime that may be made. In the triangle the down stroke left hand, is presumed to represent the first division of time, the base the second, and the up-stroke, right hand, the third. In printing the book the various lines of the square or angle may be faintly printed, and when entries are made, inked over completely or partially, as required.

Method of keeping time books.

Absence during any or all of these divisions is of course made apparent by the omission of the stroke or strokes. Specimens Nos. 1, 2, and 3 show a Time Book so ruled.

In large establishments automatic time recorders are often used, by means of which the employé makes his own record. The record slips are summarised in a Time Book, in the same way as the records obtained by checks, and it is desirable that they should be retained for purposes of reference over the ensuing pay day, in case of dispute. In cases

TIME BOOK.—SPECIMEN No. 1.

No.	Name.	Trade.	Wednesday.	Thursday.	Friday.	Saturday.	Sunday.	Monday.	Tuesday.	Total Hours.

where there are a number of shops, some a considerable distance from the main entrance, the clocks are placed at the entrance of the shops, thereby ensuring that the time recorded is that at which the employé commences work; but in those cases when men are working overtime or at odd times, the record is usually taken, as a measure of precaution, on the time clocks at the main entrance. The "Dey" and the "Bundy" are the two time recorders at present most largely used.

If the employés are working in two or three shifts a separate Time Book may be used for each shift; or one book may be so ruled as to take all three returns. The time of the workpeople who are admitted into the works, or allowed to leave, at intervals between any of these divisions, may be shown by a red ink note of the number of minutes or hours' difference between the time at which they should have presented and did present themselves for admittance and departure, or, if the square and the triangle are

Double or treble shift.

adopted, by recognized shortenings of the strokes. The time at which employés are admitted into the works if late in arriving, will follow prescribed rules. No employé should be allowed to leave work at an irregular time unless provided with a permit or "pass out" note signed by his foreman, setting out the cause of such permission.

In some, and particularly in the larger, establishments, the functions of gatekeeper and timekeeper are quite distinct. The gatekeeper attends to the opening and closing of the gates, to the various callers thereat, and often records the times of the entry and exit of members of the staff and of visitors. So far as regards the time records, his duty consists in opening the gates at the prescribed times, seeing that each employé admitted receives or takes off the time board, or puts into the time box, as the case may be, one check only, closing the time box at the regulation hour, and forwarding it to the timekeeper. It will be seen that the general principle of recording the time is the same whether checks are given to the hands or taken by them from the time board as they enter the works, and are deposited by them on leaving, or are deposited by them on entering and taken up on leaving the works.

If it be deemed desirable to have a record of the employés who periodically absent themselves, it may be kept in an Absentee Book ruled to show the names of those away on any particular day, and to bring out prominently the names of those who are most frequently absent. The same principle may be applied in recording, by means of a Time Lost Book, the names of those who are unpunctual. At each four-weekly or other period these absentee and time lost records should be summarised under names, trades, and times, and the foreman should record the steps taken in individual cases.

Absentee Book.

It may also be desirable to keep a similar record as to overtime (Specimen No. 4), and so prevent its becoming chronic in the case of individuals, trades, or departments.

TIME BOOK.—SPECIMEN NO. 2.

No.	Name.	Trade.	Wed.	Thurs.	Fri.	Sat.	Sun.	Mon.	Tues.	Total Hours.
			△	⊿	^	∠	△	△	∠	

TIME BOOK.—SPECIMEN NO. 3.

No.	Name.	Trade.	Wed.	Thurs.	Fri.	Sat.	Sun.	Mon.	Tues.	Total Hours.
			□	⊔	⊏	⊓	□	□	⊔	

OVERTIME BOOK.—SPECIMEN NO. 4.

Date.	Employé's No.	Time.		Hours worked.	Allowance.			Total Time.	Remarks as to work.
		From	To		¼	½	Double.		

IMPERIAL LIBRARY

Having thus booked the time, entry by entry, and day by day, the timekeeper at the conclusion of the week or fortnight, as the case may be, proceeds to cast across and enter in the column provided, the total time made by the employé during such period, and then forwards the book to the office.

Use of employe's time boards or record sheets.

Each employé having been provided with a time board, enters on it, in accordance with the instructions received from his foreman, a record of how his day's time is spent, giving in two or three words or in symbols, the nature of his work, the number of the order (if for plant or buildings, called the working order number, if for manufacturing any commodities, the manufacturing or stock order number), and the time spent thereon.

These time records, if used for more than one day's work, are perhaps most convenient if written on a form, which can be easily gummed at one end to a board. On these forms or time slips it is well to have two divisions ruled—the one for a record of ordinary time, the other for overtime.

TIME RECORD SHEET.—SPECIMEN NO. 5.

Name_____ No. _____

Day.	Nature of Work.	Order No.	Time.			
			Ordinary.		Over.	
			Piece Work.	Day Work.	Piece Work.	Day Work.

The records should be initialled by the shop foreman or leading hand, and afterwards copied by the time clerk into a Time Allocation Book. In a business in which the work is highly specialized, and in which the employé is engaged on one piece or form of work only, and on that for some considerable time, it is possible, and may be found advantageous, to use these time slips as the direct sources of entry in the Prime Cost Books* instead of the wages being analysed in the manner described later. It is essential that in either case the total entries made in the Prime Cost Books on account of wages should agree with the total wages expended.

Time records, when posted to Prime Cost Ledgers

The Time Allocation Book previously referred to is cast up by the time clerk and forwarded, at the end of each payment period, to the office.

Time Allocation Book.

The two records of time made, viz., the Time Book (as prepared by the timekeeper), and the Time Allocation Book (as entered from the workpeople's own records, which are initialled by the leading hand), are, when sent to the office, compared, and in cases where differences arise, explanations obtained by the Wages Book clerk from the employé or the timekeeper. Should the explanation then given not be satisfactory, or should it not be received in time, it is incumbent on the clerk making up the Wages Book to see that the employé, pending the settlement of the question, is paid only for the lesser number of hours.

Verification of time return.

A suggested form for a Time Allocation Book, which may be ruled so as to take the records for a week, fortnight or month, is shown (Specimen No. 6).

* See Chapter IV.

TIME ALLOCATION BOOK.—SPECIMEN No. 6.

No. ____ Name ____ For ____

ending ____ 190

Days of Week.	Working Hours.	Overtime. ½ Time.	Overtime. ¾ Time.	Overtime. Double Time.	Total Overtime.	Total Time.	Description of Work.	Order Nos.	Orders to be charged.

Employés outside factory.

Where employés are engaged outside the factory or works for any considerable period, and are unable to present themselves at the time office on commencing or finishing work, it is desirable to have an Out-works Time Record Sheet (Specimen No. 7), which the leading hand on the premises where the work is being carried on is asked to sign as a guarantee of the time being correctly recorded.

This Time Record serves as an authority to the time-keeper for the necessary entries in his book. In the margin of that book it is stated that the time was made outside the factory or works, the place and date being also shown. The time clerk will treat this Time Record Sheet as equivalent to the Time Slip or Board previously alluded to.

It is well to draw the special attention of the cus-

OUT-WORKS TIME RECORD SHEET.—Specimen No. 7.

Workman's No. _____ Name _____

Date 190	Day.	Where engaged.	Description of Work.	Order No.	From H.	From M.	To H.	To M.	Time Worked	Remarks.

N.B.—In all cases where possible this sheet must be signed by the person for whom the work is being done, or his representative, and must be posted so as to reach the time clerk by _____ a.m., on _____ day.

(Reverse side.)

_____

_____ 190

To _____

_____

_____

_____

We shall be obliged by your seeing that the other side of this Time Sheet is correctly filled up as regards the time of arriving at and leaving your premises; and, having done so, by your signing the same.

Should you desire overtime to be made please enter in the "Remarks" column that it is done at your request.

As these regulations are made to prevent mistakes and abuses, we trust they will have your kind attention.

_____

tomer for whom work is being done outside the factory to the request that he will note in the "Remarks" column any overtime made by his order, as many seem either to ignore or be ignorant of the fact, that the higher rate generally paid for overtime adds very considerably to the cost of the work and sometimes to the amount charged for it.

The economic aspects of overtime in relation to fixed capital are dealt with in a subsequent chapter. For our present purpose it suffices to say that if the employer desires to keep a check upon, and to reduce to a minimum, the overtime that is worked, he should require the foreman or leading hand, in addition to giving an "overtime slip," or authority to work overtime to an employé, to be handed to the timekeeper, to send to the office at the end of each period of payment a return of overtime made (Specimen No. 8).

Return of overtime.

This return is initialled by the foreman or leading hand to show that the overtime has been sanctioned, and the clerk making up the Wages Book, to whom the return is handed, sees that no overtime other than that shown therein is allowed to pass through that book.

Instructions might be given either to the time clerk or to the Wages Book clerk, or to both, to prepare a statement showing the amount spent on overtime in excess of the amount that would have been paid had the same work been done at ordinary rates.

This return might simply show the amount paid in excess in each trade or to each individual, or it might be in a more complete form, as shown in Specimen Ruling No. 9. It is desirable that the extra cost of working overtime should be noted in the cost records against the various orders on which it is incurred.

In factories where, owing to the solidarity of labour, a

OVERTIME RETURN.—Specimen No. 8.

Return of Overtime made at _____ Works, For the Week ending _____ 190 .

Workman's No.	Name.	Occupation.	Wednesday.			Thursday.			Friday.			Saturday.			Sunday.			Monday.			Tuesday.			Total hours during week.
			Order No.	Time. H.	Time. M.	Order No.	Time. H.	Time. M.	Order No.	Time. H.	Time. M.	Order No.	Time. H.	Time. M.	Order No.	Time. H.	Time. M.	Order No.	Time. H.	Time. M	Order No.	Time. H.	Time. M.	

OVERTIME COMPARISON BOOK.—Specimen No. 9.

Name.	No.	Trade.	W. No.		W. No.		W. No.		W. No.		W. No.		W. No.		W. No.		Total Amount.		Excess on Overtime.
			Day Rate.	Overtime Rate.	Day Rate.	Overtime Rate.	Day Rate.	Overtime Rate.	Day Rate.	Overtime Rate.	Day Rate.	Overtime Rate.	Day Rate.	Overtime Rate.	Day Rate.	Overtime Rate.	Day Work.	Over-time Work.	

large number of men and women are unable to commence, or fully carry out, their work unless a smaller number of men or women of a particular trade are present, it is sometimes found advisable to insure the greater punctuality on the part of the smaller number by instituting a system of fines for late, and of premiums for early, attendance. Thus the man who was punctual would get his premium and wages for the time made, whilst the unpunctual man would, besides losing pay for the time he was absent, be fined. In some cases a system of voluntary fines is resorted to, employés purchasing from the gatekeeper tickets recording the rule which has been broken, and the amount paid in connection therewith. Care should be taken in connection with any system of fines instituted that the provisions of the Truck Acts are respected. The number of times each employé is unpunctual is reported to the office by the timekeeper, and can of course be checked from the Time Books and record slips, if thought necessary. The amount of premium or fine in each case would then be passed through the Wages Book.

Despite the former strenuous opposition of trade unions, the system of payment by results, generally known as piece-work, is extending. Not only do "the ablest and strongest masters generally insist on it as necessary to enable them to carry out their plans freely and to get their men to use their best energies, and such employers naturally beat in the race those who yield to the unions,"* but the employés are beginning to recognise that the advantages of the system are not confined to the employers, and are withdrawing or modifying their opposition. In many factories, boot and shoe, tailoring, coopering, cotton weaving, for

* "Economics of Industry." By A. and M. P. Marshall. London: Macmillan.

PIECE-WORK RETURN.—SPECIMEN NO. 10.

Week ending _____ 190 .

Workman's Name _____ No. _____ Rate

Started on _____, 190 , at _____

_____ Foreman.

Order No.	Reg. No.	Quantity.	Description of Work.	Rate.	£	s.	d.

	Date.	Hrs.	Date.	Hrs.	Date.	Hrs.	Date	Hrs.	Overtime Allowances
Wednesday									
Thursday									
Friday									
Saturday									
Monday									
Tuesday									

Last Piece-rate _____ Total time _____ at _____

Last percentage on Day-work _____ Balance _____

Percentage on Day-work _____

Signature of Workman _____

No. received as above

_____

Signature of Piece-work Clerk _____

_____ Foreman.

Balance entered in Wages Book _____ 190 .

Exd. _____

Time Clerk.

example, the majority of the employés are generally paid on piece wages and not on time rates. The employé is remunerated not on the basis of payment for time at a rate per hour, day, or week, but by a piece-work wage or specified price for the production of a standard article, or the execution of a specific process, both under normal conditions, with such modifications of the standard, either by extras or deductions, as may correspond with specified variations of the standard product, with adjustments in the rates in case of defective materials or tools supplied by the employer.

Method of recording piece-work.

In factories where employés engaged at time rates are employed on piece-work, they should, when starting on it, be supplied with a Piece-work Return Form (Specimen No. 10), which should specify the nature of the work, the extent of the job, and the rate at which it is undertaken. On the completion of the work the piece-worker should return this sheet, having entered thereon the number of hours spent on that particular job, for which he has been paid in ordinary course. The Return having been initialled by the viewer of the work, should be passed on to the time clerk, who will check the time entries made thereon from his Time Allocation Book, will give it monetary form, and enter the difference between the value of the output at piece-rate and the amount already paid at time-rate in his Allocation Book. Any balances favourable to the employé may of course be placed to his or her credit at the next piece-work settlement, whilst adverse balances may either then be deducted from the time pay, or from the next favourable piece-rate balance.

The latter course is in practice preferable, as it prevents any question being raised by representatives of the

Trade Union as to deduction from time pay, reducing wages below the ordinary standard rate.

The provisions of the Factory Acts and of administrative orders authorised by the Home Secretary, as to the publication of particulars of piece-work rates, in certain trades have, of course, to be borne in mind.

In some cases it will probably be found impracticable, owing to the nature or pressure of other work, to keep an employé continuously on the work which he has taken at a piece-rate. Under these circumstances the foreman or leading hand should at once notify the time clerk, in writing, that he has taken the employé off piece-work and put him on time-work. It may perhaps be found desirable for the foreman or leading hand to keep a Log Book, in which such interruptions to piece-working are noted. In a large establishment this function might be discharged by the piece-work viewer.

In any event it will be found very desirable to have a record as to interruption to piece-working to which reference may, if necessary, be made at the time of settlement.

The time clerk, after duly examining and vouching the piece-work returns, will forward the same to the office, where they may be re-checked, if thought desirable, in a general or detailed manner.

Considerable advantage accrues from a Piece-work Analysis or Register Book being compiled from these sheets. Such a book would, as indicated in Specimen No. 11, show the various rates at which work was undertaken, as also the percentage in which any kind of piece-work is favourable or unfavourable to either the employer or the employé; and it would serve as a record or check in fixing piece-work rates.

Piece-work Analysis Book.

PIECE-WORK ANALYSIS BOOK.—SPECIMEN No. 11.

Date.	Man's Name.	No.	Article	Rate	Time occupied.	Amount.	Rate.	Articles, No. of	W. No.	Article	Rate	Time made.	Amount of Balance.	Piece Work Percentage on Day Work.	Remarks.	1st Price.	2nd Price, reduction of...each.

From this source also comparisons between the percentage of piece-work rates and day-work prices ruling in the various shops or departments could be obtained.

Having been checked, these piece-work balances may be entered in the Wages Book (Specimen No. 14). The procedure applicable in the case of a piece-worker is also applicable when more than one employé is concerned either as an assistant or as a member of a piece-work gang. At the conclusion of the contract the remaining balance will be apportioned between the workers on the agreed basis, and their individual results credited to them in the wages sheets. It will also be found advantageous, and in large establishments indispensable, for a return or returns to be sent by the foreman at regular intervals, either to the clerk responsible for the Wages Book or to the principal, enumerating the names, trades, and rates of pay of employés who have been engaged since the date of the last return, and giving similar in-

Return of men engaged or left

formation concerning those who have resigned or been discharged. This return should also record any increases in the rates of pay, any transfers from one department to another, also the names of employés who are to be fined for neglect of duty or for any other cause, of those who are to receive premiums for some special reason, or who are on leave, or absent through illness or injury, but to whom wages or allowances are to be paid, and of those who are entitled to "black money" (or "dirty money" as it is often called), or other extras, with the respective amounts.

WAGES ADVICE.—SPECIMEN NO. 12.

RETURN OF MEN ENGAGED, RESIGNED, DISCHARGED, PROMOTED, TRANSFERRED OR FINED, AND OF ALLOWANCES AND PREMIUMS,

at _____ Works, for the Week ending _____ 190

ENGAGED

No.	Name.	Occupation.	Rate.	Name and Address of last Employer.

LEFT.

No.	Name.	Occupation.	Remarks.

[*Specimen continued.*

WAGES ADVICE.—SPECIMEN NO. 12—(*continued*).

PROMOTED OR TRANSFERRED.

No.	Name.	Occupation.	From	To	Rate.		Remarks.
					From	To	

FINED.

No.	Name.	Occupation.	Amount.	Fined for

ALLOWANCES AND PREMIUMS.

No.	Name.	Occupation.	Amount.	Premium allowed for	Remarks.

Entered on Pay-sheet by_____ Signature_____

WAGES RATE BOOK.—SPECIMEN No. 13.

No.	Name.	Trade.	Date of Engagement.	Rate.	Advance.		Advance.		Advance.		Advance.		Advance.		Remarks and Date of leaving Service.
					Date.	Rate.	Date.	Rate.	Date.	Rate.	Date.	Rate.	Date.	Rate.	

These returns should be duly entered in a Wages Rate Book (Specimen No. 13), from which book at any period the rate of pay entered in the Wages Book for all or any of the employés can be checked.

Wages Rate Book.

Unless a special book recording the length of the employé's service and of his or her varying rates of pay and other details is kept, the Wages Rate Book may be made to serve such purpose.

If a large number of employés follow the same trade, or if there is a recognised scale of rises on a period of employment basis, it may be well to supplement the Wages Advice (Specimen No. 12) by a return, sent into the counting-house on the first day of each month, showing the names and numbers of those to whom it is proposed during the month to grant increased pay. This form is almost identical with the Wages Rate Book (Specimen No. 13), with the exception that before the columns showing the

Successive advances in rates.

successive advances there should be inserted two columns, the first showing the rate of pay in force, and the second the proposed rate. The "remarks" column should be used for stating the reasons for the advance. The sole utility of this form seems to be that through its use the principal has only to settle the question of proposed increases once a month instead of once a week; and is thereby enabled to make inquiries as to the character and capacity of any employé who is recommended for an increase of pay.

In order to have a further check on the engagement of additional employés, it is often arranged that the names of any men who have been engaged and who increase the number of hands in their particular trade, shall be entered in the Wages Book in a distinctive coloured ink, until the employer has seen, sanctioned, and initialled the entry on the Wages Advice recording his engagement.

Compilation of Wages Book.

It will be seen from the foregoing that the compilation of the Wages Book is not a difficult matter, and that if ordinary care and attention are given to it a clerical mistake should not occur; whilst the number of persons through whose hands the returns pass, each acting as a check on the others, should prevent peculation and fraud.

The specimen ruling of a Wages Book (No. 14) is, we venture to think, applicable in detail to most, and in general to all trades.

This specimen ruling shows columns for the entry of any stoppages or deductions for rent of houses, cottages, looms, frames, troughs, or machinery, where these belong to the employer and are hired to the employé, as also for fuel, sick and provident societies, superannuation fund, or other purposes, but it must be remembered that under the "Truck Acts" no such stoppage or deduction can be made, unless

WAGES BOOK.—SPECIMEN No. 14.

Week Ending_____19 .

No.	Name.	Occupation.	Rate.	Time Made.	Amount.	Overtime.		Piecework Credit Balances.	Premiums or Allowances.	Total.	Fines.	Piecework Debit Balances.	Stoppages. [These columns may be used for the stoppages on account of Savings Bank, Superannuation Fund, Medical Attendance, Fuel, &c.]	Total Deductions.	Total to be Paid.	Remarks.
						Time	Amt.									

SUMMARY OF WAGES.—SPECIMEN No. 15.

Week Ending_____19 .

Trades.	No. of Men.	Amount.	Overtime.	Piece-work Credit Balances.	Premiums and Allowances	Totals.	Fines.	Piece-work Debit Balances.	Savings Bank Superannuation Fund and other Deductions.	Total Deductions.	Total Paid.	Remarks, including average rate of pay, &c.

there is a written agreement or request, signed by the employé, authorising such deduction or stoppage. All employés, therefore, who require such deductions to be made should be requested to sign a Stoppage Agreement Form, or Book, should the latter be the more convenient.

An exceedingly useful "Memorandum upon the Truck Acts," issued for the Home Office on March 31, 1898, and obtainable from His Majesty's printers, sets out the various purposes for which deductions are allowable, provided they are reasonable.

The Truck Acts, of course, do not prevent the practice of "subbing," whereby an employer sometimes permits an employé on special occasions of misfortune to receive an advance, to a limited extent of wages, such advance being without interest and repaid by deduction from the pay-bill each week until extinguished.

If it is necessary to have a permanent record of the character of an employé, as evidenced by the fines imposed or the premiums granted, such information might, by means of additional columns, be inserted in the Rate Book, or special books arranged with reference to trades, as well as to individuals, might be used for this purpose.

Summary of wages.

Whether a separate banking account for wages be kept or not, the employer may find it desirable to have a summary of the Wages Book prepared (Specimen No. 15), showing the number of men and women employed in the various trades, the aggregate of their wages, their average rates of pay, etc. The Wages Book and Summaries of Wages should be filed for ready reference, so that, *inter alia*, the total amount paid during a certain period to any employé, may be ascertained with precision and detail, if required for any purpose under the Employers' Liability or Workmen's Compensation Acts,

or in connection with any insurance fund created by the employer, or any policy of insurance taken out by him, as a provision against claims under that Act.

Before passing from this branch of our subject it may be well to mention that even in large establishments what is in reality a receipt for the wages paid may be obtained from each employé by a process which entails but little trouble. The time or pay clerk (as may be considered the more expedient) would write out on a slip of paper, ruled and printed for the purpose, the date, the employé's number, and the amount receivable. These forms can be distributed by the various foremen to their subordinates prior to the pay. Each employé presenting himself at the pay-table will hand in this "Pay-slip" to the pay clerk. These receipts can be compared with the Wages Book.

Receipts for wages.

If instead of a Wages Book pay sheets or bills are used, the receipts might be obtained on the original documents by distributing them in the different shops, but this would involve considerable labour as compared with the procedure first described.

In all cases where men do not present themselves at the pay-table in ordinary course the pay clerk should make an entry in a book specially provided for that purpose, showing the man's name, the date, and the amount of his pay (Specimen No. 16).

Unclaimed Wages Book.

A signature should be obtained in this book for the money of each employé, who obtains his or her wages in any way other than at the pay-table on the ordinary pay-day.

By means of this book also the principal may at once see what wages have not been claimed, and can give instructions as to the disposal of such amounts as have

been so long outstanding as to render their being claimed improbable.

Where any considerable number of employés are unable,

UNCLAIMED WAGES BOOK.—SPECIMEN No. 16.

No.	Name.	Trade.	Amount.	For Week ending	Date Paid.	Received by

owing to their hours of work, to be at the pay-table at the appointed time, there may be two or more pays, or the employés so absent may empower one of their fellow-workers to receive wages on their behalf (Specimen No. 17).

Payment of wages to deputy.

In cases in which employés are engaged permanently or temporarily outside the factory, a receipt for the wages remitted them may with equal ease be obtained by means of a form ruled and printed in copyable ink (Specimen No. 18).

Payment of wages to employés outside factory.

The amount of expenses to be entered in the 7th column of Specimen No. 18 against the name of the employé are obtained from the Outworkers, Travelling, and other expenses sheet, which are forwarded to the office by the official in charge of the outworks operations, by whom they should be certified. Each item of expense, such as railway fares, lodging money, or allowance for daily maintenance, "walking time," etc., should be separately shown.

As regards the method of paying wages we may point

PAY WAGES NOTE.—SPECIMEN No. 17.

Memo. _____ 190

To the Cashier.

Please pay the bearer, * * * *, my wages, amounting to £ , for the week ending _____ 190 .

Name _____

Occupation _____

No. _____

The Person receiving the amount above named is responsible for delivering the money to the person to whom it is due.

WAGES REMITTANCE FORM.—SPECIMEN No. 18.

_____

_____ 190 .

_____

Dear Sir,

We enclose you herewith _____ amounting to £_____ in payment of wages and expenses during the _____ ending _____ 190 as per details below. Please obtain the receipts on this form and return to

_____

_____

Nos. of Notes_____

„ Postal Orders _____

Name.	No.	Time.	Rate.	Wages.	Overtime.	Expenses.	Deduction on account of Superannuation Fund, &c., as per advice.	Total amount received.	Received in payment as per amount opposite my name.

out that in large establishments it is almost obligatory that, prior to drawing the amount from the bank, the totals of each page of the Wages Book should be analysed, so that such proportions of gold, silver, and copper may be obtained as will prevent the necessity for further change. This is done by means of a cash sheet (Specimen No. 19), which also

Method of paying wages.

CASH SHEET.—SPECIMEN NO. 19.

No. of Page.	Notes.	Sovereigns.	Half-Sovereigns.	Silver.	Copper.

serves as a check upon the addition of each page in the Wages Book, and is further useful, in localising mistakes in the process of counting out the money to be paid to each employé, by assigning to each page of the Wages Book the exact proportion of cash required to pay all the wages entered on that page. The process of distributing wages is generally by means of small tin boxes bearing the numbers by which the workpeople are known, and which of course agree with the numbers of their checks (see p. 16).

These tin boxes are placed in trays constructed to hold 100 each, and arranged in ten squares (Specimen No. 20).

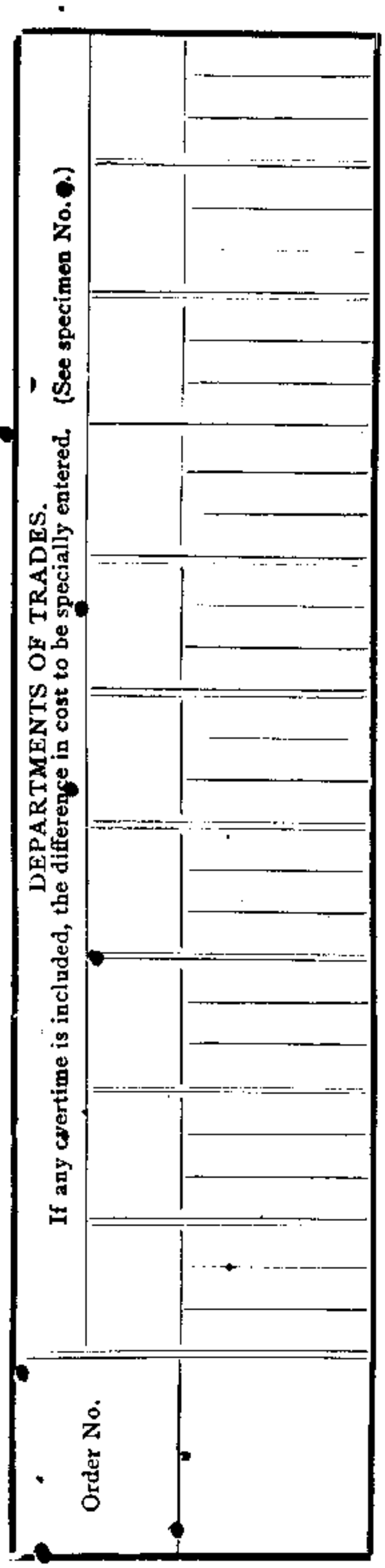
Money trays.

The employés are called to the pay-table by their numbers and in consecutive order, the duties of pay clerk being

MONEY TRAY.—SPECIMEN NO. 20.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

discharged by the cashier, or some official who has not been engaged in the process of counting the money, or in the compilation or checking of the Wages Book, handing to each employé his or her particular tin against the presentation of the receipt form (explained on page 38). Where, owing to the large number of hands, the pay would otherwise take up much time, it may be found expedient to have two or more pay-tables and pay clerks, or there may be variation, one set of workpeople being paid first one week, second another week, or payment may be made from shop to shop, and so forth; but on the whole it is advisable that the process of paying wages should be completed in as few minutes as possible. As a general rule payment takes place after hours, that is, in the employés' time.


ABSTRACT OF WAGES FOR THE WEEK ENDING ____ 190 ●.—SPECIMEN No. 21.

DEPARTMENTS OF TRADES.
If any overtime is included, the difference in cost to be specially entered. (See specimen No. ●.)

Order No.

Insurances against misappropriation by cashiers and pay clerks can be effected with any of the well known Guarantee Societies.

From the Time Allocation Book (Specimen No. 6) the time clerk should make an abstract weekly, fortnightly, or monthly as required, showing the various working or stock orders on which time has been spent. This summary or abstract should show against the various orders the cost of labour during that period in the respective departments or trades (Specimen No. 21).

Wages abstract for purpose of prime cost.

The totals so compiled should agree with that in the Wages Book for the same period. This abstract of wages will form the basis of the debit to the Prime Cost Ledger (see Chapter IV.) for labour expended upon the various operations carried on.

It is evident that the totals so entered on the Abstract of Wages Sheet may easily be traced back to the Time Allocation Book, and that any more detailed information that

may be required can thus be easily and promptly obtained.

In some cases it is found desirable to post these Wages Abstracts in a Wages Journal under the respective Stock, Plant or other orders (to be hereafter described), with cross divisions for various trades, and post the totals of these entries to the respective orders in the Prime Cost Ledger, every quarter or half year as may be considered the more serviceable. In such cases reference for details can, when desired, be made back from the Prime Cost Ledger to the Wages Journal and to the Wages Abstracts, with the records on which the latter is based.

Diagram of books and forms.

The diagram opposite page 46 will serve to show the relation of the various forms and books referred to in this chapter.

Adhesion to factory rules by employés.

It remains to be observed that when a person who has been engaged presents himself at a factory for work, the timekeeper should obtain his signature to a book or form testifying that the rules of the factory have been duly read and noted, as the posting of the rules in conspicuous places in the works is not of itself sufficient to prove knowledge. If any system of fines is adopted, the attention of the employé should be called thereto when engaged, and if agreed to by him a record of such consent should be made. The timekeeper should also obtain the name and address of the last em-

Character book.

ployer, and fill in and forward to the counting-house a character form for transmission to the latter. This form when returned duly filled in should be pasted and duly indexed in a guard book called a Character Book. The address of every employé should be

Address book.

taken when engaged, and should be entered in an Address Book. It is very desirable that

periodically the whole of the employés should be asked for their addresses, and these when obtained compared with the existing entries. In cases in which workpeople may be required on urgent or pressing work it is especially desirable to know their correct addresses, and it may therefore be necessary to impose a fine for not notifying change of address.

The timekeeper should furthermore keep Registers, in accordance with the Factory Acts, of the children, young persons, and women employed in the factory, as well as a record of the cleansing and white-washing, etc., of the shops as required by those Acts. He should also inform some responsible person when any children are engaged, and should see that the necessary certificates as to education are produced, and that the certifying surgeon after making the examination required by the Act duly attests the Register.

Register of women and children.

We have not dealt with the appropriation of fines imposed, or the deductions on account of superannuation, sick, or other funds, or with the occupation by employés of houses belonging to the firm, as these more correctly appertain to the books of the system of commercial accounts, with which it is not our province here to deal. In the last case, should an arrangement be made by which the work-people, in consideration of not paying rent for the houses they occupy, receive less wages than they otherwise would, then the interest on the capital invested in the buildings forms an element in the cost of production, and should be debited to the Prime Cost Ledger as a percentage upon the wages paid or in common with the indirect expenses to be referred to later. In practice, however, it is found that it is preferable to pay full wages, to collect the amount

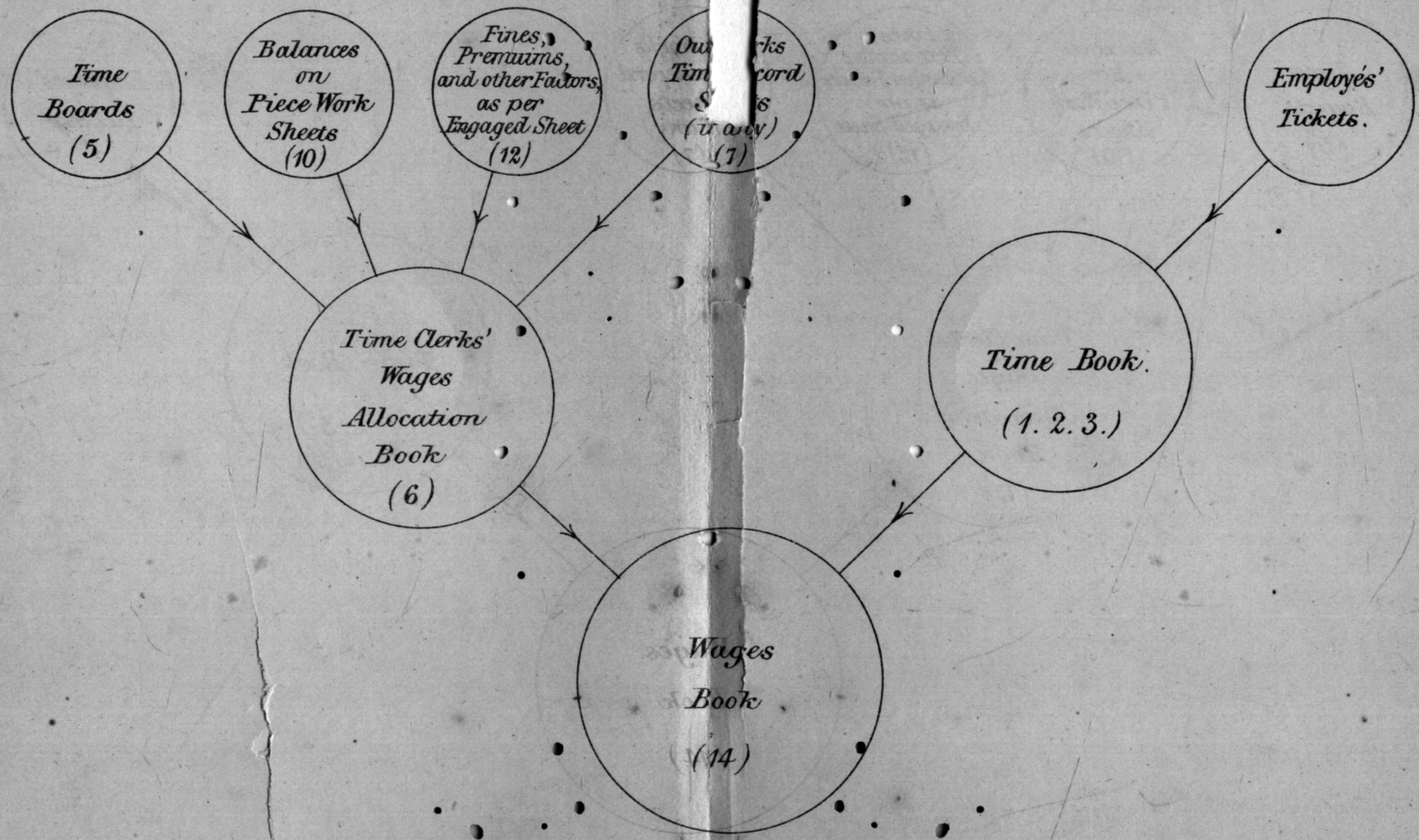
Houses belonging to firms occupied by work-people.

of the rent from the work-people who occupy the houses, such amount being dealt with as revenue, and to enter the particulars of and amounts received from individual tenancies, with records of any premises "void" or unlet, weekly or quarterly on a Rent Roll.

DIAGRAM I.

SHOWING THE RELATION OF THE BOOKS AND FORMS USED IN CONNECTION WITH WAGES.

(*The numbers, where shown, correspond to the specimen rulings.*)



[Between pp. 46 and 47.

CHAPTER III.

STORES.

ONE of the first points to be considered in a review of the accounts of a manufacturing or trading concern is necessarily the question of the purchase of the materials or commodities which are essential to the carrying on of the business, whether the articles obtained are to be used as plant, or are for the purpose of manufacturing, or simply to be retailed. We aim, therefore, in this chapter to show the wants to be provided for in order to insure economy in the purchase and consumption of material, and to suggest those forms by which an employer may assure himself that the raw materials of his trade are being bought in the cheapest market, and economically and properly used.

Purchase of materials.

The initiative in the purchase of materials must necessarily be taken by those more directly engaged with the details of manufacture, such as the foreman or overlooker. The storekeeper, having found either that he has not a supply of the required or similar material, or that his stock is low and needs replenishing, enters a record of his requirements in a Stores Requisition Book, which can be periodically submitted to the principal, whose province it is to determine when, and in what quantity, it is desirable to purchase material.

Initiatory stage.

If there are numerous branches the Requisition Book would be entered up in the counting-house, daily or weekly as the exigencies of the business require, from the forms sent in by the heads of the several departments. These requisitions may be as shown (Specimen No. 22). The Stores Requisition Book should contain columns for entering in the date of requisition, a description of the goods, the department or purpose for which they are required, and the name of the firm to whom it is proposed to give the order. Columns showing the rate at which the goods are to be supplied, the quantity in stock, the last purchasing price, and the name of last supplier, may also be provided for the guidance of the principal. When the entries in the Requisition Book have been examined and allowed, an order for the articles would be issued. The advantage of all orders for the purchase of goods emanating from one centre, instead of each department being able to supply its own individual needs, is that the principal of the business is not only able to control in a very large degree the character and amount of the consumption, but is able to contract far more favourably for the supply of the goods required than could otherwise be the case. Even if by this concentration a little delay in obtaining supplies is caused, it need not lead to inconvenience, as the requisitions can, in the majority of cases, very well be made in anticipation of the demand arising.

Stores Requisition.

Should the principal determine to contract for the supply of certain goods over a period of time, it is desirable that the invitation-to-tender forms issued by him should be uniform, and should state clearly and concisely the conditions on which the goods will be purchased and paid for. This form should also state when and where the patterns or samples may be seen, and the date on which tenders will be received and opened.

It is desirable also that a Stores Contract Book be kept, that particulars of each contract should be entered therein, with the date of the various supplies, so that the position under the contract may be rapidly and easily ascertained.

If the contract or order is to supply to pattern or sample, the storekeeper should keep a Pattern or Samples Register, showing dates on which duplicates (which usually bear some identifying seal or mark), were forwarded or handed to suppliers, and a record of the place of deposit of the originals.

Specimen ruling No. 23 shows the heading of a Stores Requisition Book, which will probably suffice in most cases, but the other headings referred to would also be found useful.

The date and amount of the invoice can, of course, only be inserted at the conclusion of the transaction and when the goods are delivered, but their entry gives a useful record, and is valuable as a check.

STORES REQUISITION.—SPECIMEN NO. 22.

No.____ _____ Department. 190 .

A supply of the undermentioned articles is required.

Article.	Purpose.	Date of last supply.	Quantity last supplied.	By whom supplied.	Rate of last supply.	Present Stock and Remarks.

STORES REQUISITION BOOK.—SPECIMEN No. 23.

Date of requisition.	Goods required.	Wanted by	Purpose.	To be ordered from	Order.		Invoice.		Remarks.
					No.	Rate.	Amount.	Date.	

It having been decided to order the material requisitioned, there should be made out from such requisitions the order to the vendors. These orders should specify the conditions as to delivery, carriage and packing, on which the goods are ordered, the route by which they are to be sent, the place and time at which they will be received, the mode of testing quality, the terms and date of payment, including the cash discount, if any, which will be deducted, and instructions as to acknowledging receipt of order, sending advice notes, invoices, and statements of account.

Order Form.

If there is any arrangement as to payment of penalty in case of delay in delivery, or defects in manufacture, the clause or condition of the order should state that it is as by way of liquidated damages.

In some cases, contracts are entered into for supplies extending over a period, and the conditions are either embodied in correspondence, or preferably in the clauses of a formal contract. These contracts should be summarised in a Contracts Register. It is desirable, however, that orders for deliveries of portions of these contract supplies should be made on the ordinary order forms, any necessary

alterations being made thereon. This mode permits of the same procedure in other respects being observed with contracts as with orders.

In the case of purchases of small value through Petty Cash, the cashier should advise the storekeeper monthly as to nature, quantities, and values of goods so purchased, the storekeeper should nominally pass an order for the goods, as if the cashier were an independent supplier, and the debits to the working orders would thus find their way into the books in the usual manner.

In some cases orders to supply goods may be contained in a letter or a series of letters, or in some cases of emergency goods may be ordered orally. In these instances it is desirable for reference and other purposes, as well as for facilitating dealing with the invoices, that *pro forma* orders should be sent to the suppliers, even if it is only possible to do so after the goods have been delivered.

The order forms should be numbered consecutively for reference by the ordering department, and subsidiary references, by initial letters, symbols, or numbers, might appear as numerators over the order number, or be interwoven therein, so that the department or person requisitioning, with the number of the requisition, can be clearly traced through the order number, and a great deal of inter-reference thereby be saved.

It is sometimes considered that if the order forms have counterfoils, or are press-copied, and signed by a responsible person, the necessity for a Requisition Book is not very apparent. It will be found, however, in practice that while the work required to keep such a book is but slight, the facilities it affords for reference, and for noting the orders when executed, present very great advantages. It is a question of the relative value of labour, and it is often

more economical for a clerk to give regularly a portion of his time to certain work than for an employer to have occasionally to give a few minutes.

Different systems obtain in different trades of dealing with the registration of invoices for goods supplied.

Registration of invoices.

Many firms stipulate for invoices in duplicate or triplicate to be distributed among, and dealt with by, the departments concerned. In almost all cases it is stipulated that an advice note of the dispatch of the goods should be sent to the officer in charge at the place to which the goods are sent, and it is generally desirable that the supplier should be requested to send a duplicate to the ordering department. In such cases the officer in charge may be requested to send to the head office daily a Stores Received Form ruled to show the species of goods, from whom and whence they have been received, the weight, measurement, number, remarks as to condition, and having a column for the initials of the clerk at the head office, who compares this Stores Received Form with the invoice, and makes on each the necessary numerical cross references to the other. Among the advantages of this method may be mentioned the retention of the original invoice at the head office, with the consequently lessened liability to loss, or delay, and, in cases where it is desirable, the easier restriction of information as to price or other conditions of the order. A system much in vogue is that of making one invoice perform all functions. When this plan is adopted the vendor of the goods should be requested to send the invoice direct to the counting-house, notwithstanding that in pursuance of directions the goods are delivered at the works or elsewhere accompanied by a delivery note. Immediately on receipt of the invoice it should be examined with the view of ascertaining whether the general condi-

tions of the order have been complied with, and whether the price charged is as stipulated. If the primary request to quote the order number is not complied with it is desirable to return the invoice to the suppliers forthwith without further examination so as to prevent a recurrence. Should the invoice be found correct, it should be numbered and sent to the storekeeper, foreman, or other person to whom the goods have been delivered, for him to certify as to the correctness or otherwise of their quantity and quality; and it can also be signed by the works manager as to quality if an additional check is thought necessary. After comparison the counterfoil or copy of the order should be so

INVOICE REGISTER BOOK.—SPECIMEN No. 24.

No. of Invoice.	From whom received.	Nos. of Orders.	Folio in Requisition Book.	Amount of Invoice.	Date sent to Storekeeper.	Date returned by Storekeeper	Date handed to Bought Day Book clerk.

STORES RECEIVED BOOK.—SPECIMEN No. 25.

Date.	No. of Invoice.	Supplied by	Articles.	Dimensions.	No	Weight.			Rate.	Amount.		Account to be charged.	Stores Ledger folio.
						Cwts.	Qrs.	Lbs.					

STORES LEDGER.—SPECIMEN No. 26.

Minimum Quantity.

Article

Issued

Received

Dr.																		Cr.																	
Date.	Folio.	Firm's Name.	Description.	No.	Quantity.					Rate.	Amount.					Total.	Date.	Folio.	Description.	No.	Quantity.					Rate.	Amount.					Total.
					Tons.	Cwts.	Qrs.	Lbs.													Tons.	Cwts.	Qrs.	Lbs.								

marked or ticked as to show that the invoice has been received. It may be advisable, if the number of invoices is large, to enter them on receipt in a Register Book (Specimen No. 24). The storekeeper in turn enters the invoice in a Stores Received Book (Specimen No. 25), and marks on it the folio on which it has been entered in that Book.

Stores Received Book.

The entries in the Stores Received Book are in their turn posted in the Stores Ledger to the Dr. sides of the accounts to which they belong. These two books bear the same relation to materials that the Dr. side of the Cash Book and the Cash Account in the Commercial Ledger bear to the cash.

Stores Ledger.

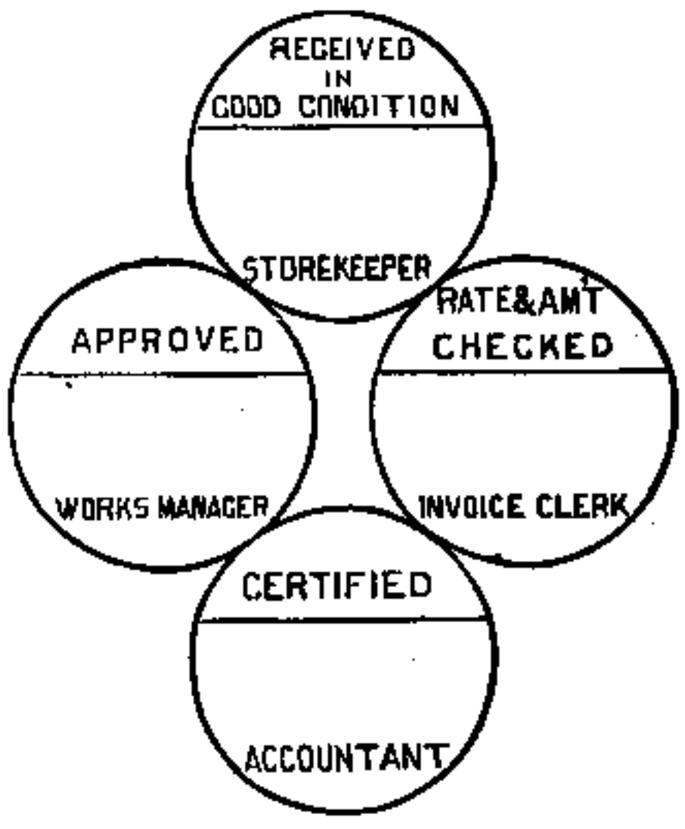
The accounts in the Stores Ledger vary widely in different factories or works. In engineering, building, and many other

trades, metals and timbers are naturally, under their various subdivisions, the chief among a number of other important headings. The many uses of this book will be more fully explained as we proceed with our subject, and particularly in the chapter on Surveys. It will suffice at this stage to mention that it is the duty of the clerk keeping the Stores Ledgers to see that the store of certain commodities never falls below the minimum quantity named by the principal.

Certification of invoices. References to the various records in connection with the purchase of material, and the certificates as to the quality of the goods purchased and of the correctness of the quantity and rate can be shown on the invoice itself by means of india-rubber stamps typed as shown below (Specimen No. 27).

INVOICE ENDORSEMENT.—SPECIMEN NO. 27.

Invoice Register	No.____
Stores Requisition Book	Fol.____
Stores Received Book	Fol.____
Invoice Allocation Book	Fol.____



Invoice Allocation Book. Upon being returned to the counting-house the invoices are entered in an Invoice Allocation or Bought Day-book, from which the items are posted in the aggregate in the Commercial Ledger to the debit of

Stores, and in detail to the credit of the vendors of the goods. As these are counting-house books we do not show specimen rulings.

It will be obvious that by these means the debit to the General Stores Account in the Commercial Ledger, on account of material purchased, will agree with the aggregate of the special accounts posted from the Stores Received Book to the Stores Ledger.

Cases arise in which materials or tools are purchased, and for convenience are stored at the sellers' works or elsewhere, or are waiting forwarding instructions at a carrier's wharf or railway shed. If the vendor's invoice is dealt with prior to the goods passing through the Stores, the goods represented by the invoice should be debited to a "Stores at Out-Stations Account" and not to the General Stores Account.

The result of the periodical survey of the stores (or stock-taking) would under this system agree not only with the Stores Ledger in regard to the particular classes of materials, but should also agree collectively with the Stores Account in the Commercial Ledger. This is a matter of paramount importance in securing accuracy in factory accounts, and in removing one of the principal elements of uncertainty in a balance-sheet.

Result of stock-taking.

So far we have only traced the records it is advisable to make in connection with the purchase and receipt of materials. We have now to consider the routine appertaining to the withdrawal of material from store for the manufacture of stock, or for any other purpose.

Consumption of materials.

The initiative in the expenditure of material should, in

the case of a manufacturing concern, take the form of an instruction from the principal or manager of the business to the manager of the works to make for stock the required commodities, and authorise for that purpose the withdrawal from store, by the methods to be described, of such material as may be thought necessary. This instruction would probably take a form such as that shown (Specimen No. 28), and might be with two counterfoils, or, by means of carbonised sheets, with two duplicates.

Estimate to precede manufacture.

Before any order to manufacture is given it is advisable, as tending to produce greater economy in cost of production, that the designer, draughtsman, or other person best acquainted with its processes and details, should, on a properly ruled and headed form, estimate the probable cost to be incurred in wages and materials in the production of the articles in question. This estimate should be a minimum rather than a maximum one. The works manager or foreman should be supplied with a complete specification of all material and parts included in the estimate. The storekeeper should also be furnished with the same particulars, and should not without special authority issue more material for the order than is estimated. There is always a tendency for more time and material to be spent in manufacture than are absolutely necessary, and the probability is that when once a surplus quantity of material has been withdrawn from store, instead of being returned undiminished, it is in great part, if not entirely, lost in wasteful processes or in other ways; or the effective localisation of cost may be hindered by foremen exchanging material with each other without the exchange being properly recorded.

The foreman having received instructions to proceed with the manufacture, should draw upon the storekeeper for

material to the estimated extent by means of a requisition, which for technical distinction may be called a Stores Warrant, and may either have a counterfoil as shown (Specimen No. 29), or be written in duplicate by means of carbon sheets; or on a single sheet printed in copying ink, so that the form itself, as well as the entries written on it, may be copied by means of a press.

Stores Warrant.

INSTRUCTION TO FOREMAN OF WORKS.—SPECIMEN No. 28.

Date_____	Date_____	Date_____
Stock Order No.——	Stock Order No.——	Stock Order No.——
To_____	To_____	To Mr.____
Particulars of Order.	Particulars of Order.	Please make for Stock to the above number the undermentioned articles, and for that purpose employ labour, and withdraw material from Store as per accompanying estimate, No.——

Foreman_____

Date of completion_____

The storekeeper should enter all materials issued by him in compliance with warrants, in the Stores Issued Book (Specimen No. 30), which in due course is posted in the Stores Ledger to the credit of the respective accounts.

Stores Issued Book.

Some little difficulty may be experienced both by the storekeeper and the clerk keeping the Prime Cost Books

Numbering Stores Warrants.

referred to in the next chapter, unless some arrangement is made by which all warrants are numbered consecutively. When they all emanate from one centre they may be consecutively typed

STORES WARRANT.—SPECIMEN No. 29.

No.—— No.—— Entered in Stores Issued Book, fol.——

Requested from Store, Requested and received from Storekeeper,

190—— ———— 190——

Article	No. of Order.	Purpose.	No.	Article	No. of Order.	Purpose.	No.	Weight. cwt.	Weight. qrs.	Weight. lbs.	Rate.	£	s.	d.

in the books when printed, but when they emanate from foremen of several departments or leading hands in various shops, it will be found advantageous for the storekeeper to be provided with a numbering machine, with which to type all warrants as they reach him. The warrants from the

STORES ISSUED BOOK.—SPECIMEN No. 30.

Date.	No. of Warrant.	Supplied to	Articles	Working No. or Purpose.	Dimensions.	No.	Weight. cwt.	Weight. qrs.	Weight. lbs.	Rate.	Amount.	Ledger Fol.	Remarks.

different shops or departments may be printed on differently tinted papers.

All labour and material expended in manufacture of goods should be booked to the Number (which for convenience may be called the Stock Number, as distinguished from the Working Number referred to on page 21, and which is assigned to orders for expenditure other than that incurred in manufacture for stock) appearing on the order given by the principal.

Stock Order Nos.

The Stores Warrant when entered in the Stores Issued Book, should be forwarded to the counting-house, where it would find its way into the Prime Cost Book, and the stores account in the Commercial Ledger. The Stores Warrants may, as will be shown in the next chapter, be posted direct into the Prime Cost Ledger, or it may in some cases be found desirable to post them in a Stores Journal, under the respective Stock, Plant or other orders (to be hereafter described) with the necessary information as to material, weight, number, rate, and cost fully entered therein, and to post the totals of these entries to the respective orders in the Prime Cost Ledger every quarter or half year as may be considered the more serviceable. In such cases reference for details can, when desired, be made back from the Prime Cost Ledger to the Stores Journal, and eventually the Stores Warrant.

Prime Cost Book.

Before leaving the subject of the stores books, however, it is necessary to explain that materials returned to vendors are entered in a Stores Rejected Book (Specimen No. 31), which, in its purpose, is co-extensive with the Stores Issued Book.

Stores Rejected Book.

The entries in this book are based upon the credit notes received from the vendors for the goods returned. The storekeeper should on returning any goods to the

STORES REJECTED BOOK.—SPECIMEN No. 31.

Date.	No. of Credit Note.	Returned to	Articles.	Dimensions.	No.	Weight.			Rate.	Amount.			Account to be Credited.	Stores Ledger Folio.
						Cwts.	Qrs.	Lbs.						

vendors enter the transaction in the Stores Rejected Book, leaving only the spaces for the number and date of credit note, and the rate and value of the returns blank, until he has received through the counting-house the credit note from the vendors. The office is advised of the rejection of goods either by an entry on the invoice or by means of a Stores Sent Away form.

This Stores Sent Away form may require registration in the counting-house in the same way as an invoice, and the book records will be similar. If it be thought inadvisable to open a credit note register, the notes may be registered in red ink in the Invoice Register Book and the words "credit note" might be added. The credit note may bear references corresponding to those impressed on the invoices by means of an india-rubber stamp. Specimen ruling No. 27 will equally apply in this case, save in the titles of the books referred to, which would be:—

Registration of credit notes.

Credit Note Register No.————————
Stores Rejected Book Fol.————————
Goods Returned Outward Book Fol.————

It will probably be found that in many cases a reference

to the Stores Requisition Book can be dispensed with on the credit note. If, owing to the nature of the business, or of particular stores used in manufacture, the rejections are at all numerous, it may perhaps be desirable not only for the storekeeper to keep a Stores Rejected Book, but to advise the office of defects in material by means of a Stores Rejected Note, and to send with it the original invoice duly

STORES DEBIT NOTE.—SPECIMEN No. 32.

No.——

Sent into Store,——

190 .

No.——

Dept.—— Entered in Shop Returns Book, fol.—

Sent to and received by Storekeeper ——, 190 .

Article.	No. of Order.	Purpose.	No.	Article.	No. of Order.	Purpose.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.

cancelled. This note should specify the reason for rejection, either as regards non-compliance with terms of the order or quality of material. It is desirable that examination of stores should be made as promptly as possible after receipt, but that right of rejection should be reserved with regard to those Stores defects in which can only be observed when they are worked up or worked upon.

In addition to the process of receiving, examining, and, if need be, rejecting stores supplied by vendors, and of

Return to store of surplus material.

issuing material for manufacture, the storekeeper will receive from the foremen or overlookers material which has been drawn out in excess of the quantity required, or the scrap material from some manufacturing operation. It is not unusual for material drawn out of store in excess of requirements to remain in the factory, and be used for the next similar stock order, but this procedure is open to serious objection, and the desirability of sending the material back to the store with a Stores Debit Note (Specimen No. 32) cannot be too strongly urged. Not only does the direct return of material to store prevent waste or improper appropriation, but it conduces to the localization of the cost of manufacture. If the surplus material is not so treated, the stock order, in respect of which it has been withdrawn, will appear at a higher cost than it should,

Stores Debit Note.

SHOP RETURNS BOOK.—SPECIMEN NO. 33.

Date.	No. of Stores Debit Note.	Returned by	Articles.	Order No. or job for which Articles were withdrawn.	Dimensions.	Weight.			Rate.	Amount.			Stores Ledger Folio.
					No.	Cwts.	Qrs.	Lbs.		£	s.	d.	

while the work upon which such material is used without warrant will have the benefit without being charged. In either case the records of cost of production are fallacious, and loss may thus be incurred.

The old material, or "Shop Sweepings," which cannot be credited to any particular Stock Order, should be re-

turned to the stores with a Stores Debit Note crediting it to one or more of the series of numbers or standing orders allotted to maintenance of machinery. It is desirable to pass all saleable material through the stores in this manner, whether it is sold forthwith, or remains till a quantity has accumulated, or prices have risen. In the case of the sale of all such material, it is usual to stipulate for payment when price is accepted, or before delivery. Material spoiled in working, or defective products or "wasters" should also be returned to, or passed through, the stores by means of a Stores Debit Note, the working or other order number should be credited with the full cost of the material and the work done on it, and the difference between such cost and the value of the product should be debited to a Complaint or Mistakes account, which should be so analysed that each shop or department, and each employé who has contributed to the result may be reminded in due of the cost of carelessness. In some trades, such as foundry and pottery, a certain percentage of defective products of a normal factor in production. In these instances the same procedure may be adopted, and will tend to prevent any increase in the percentage, and in some cases to reduce it, owing to detailed information leading to inquiries as to causes.

The Stores Debit Note having been posted by the storekeeper in a Shop Returns Book (Specimen No. 33), is forwarded to the counting-house, where it is dealt with as recording a factor in the prime cost, as will be explained in the following chapter.

Shop Returns Book.

The entries in the Shop Returns Book are (as shewn in the Diagram II.) posted to the Dr. side of the Stores Ledger.

There is another source from which a storekeeper may

receive goods, viz., from the warehouse of the firm. These cases are likely to be exceptional, and can be more fully and conveniently dealt with in the subsequent chapter on Stock. At present it suffices to say that the departmental adjustments of accounts, as between the warehouseman in charge of the manufactured commodities or stock, and the storekeeper in charge of the raw material of trade or stores, are made by means of a Transfer Book. The nature of this book will be explained later, and it is necessary to anticipate the subject at this stage only to the extent of stating that, so far as the storekeeper is concerned, the items in the Transfer Book are posted in the Stores Ledger to the Dr. side of the respective accounts in the same way as other receipts of material.

Transfers between store and warehouse.

The storekeeper may sometimes have sent into store material which has been recovered from plant and buildings, or parts of machinery which is no longer serviceable. In these cases the stores accounts will be debited in the usual manner, by means of a Plant Recovered Note. These transactions in relation to the capital account of the business will be dealt with in the chapter on Fixed Capital (Chapter VI.).

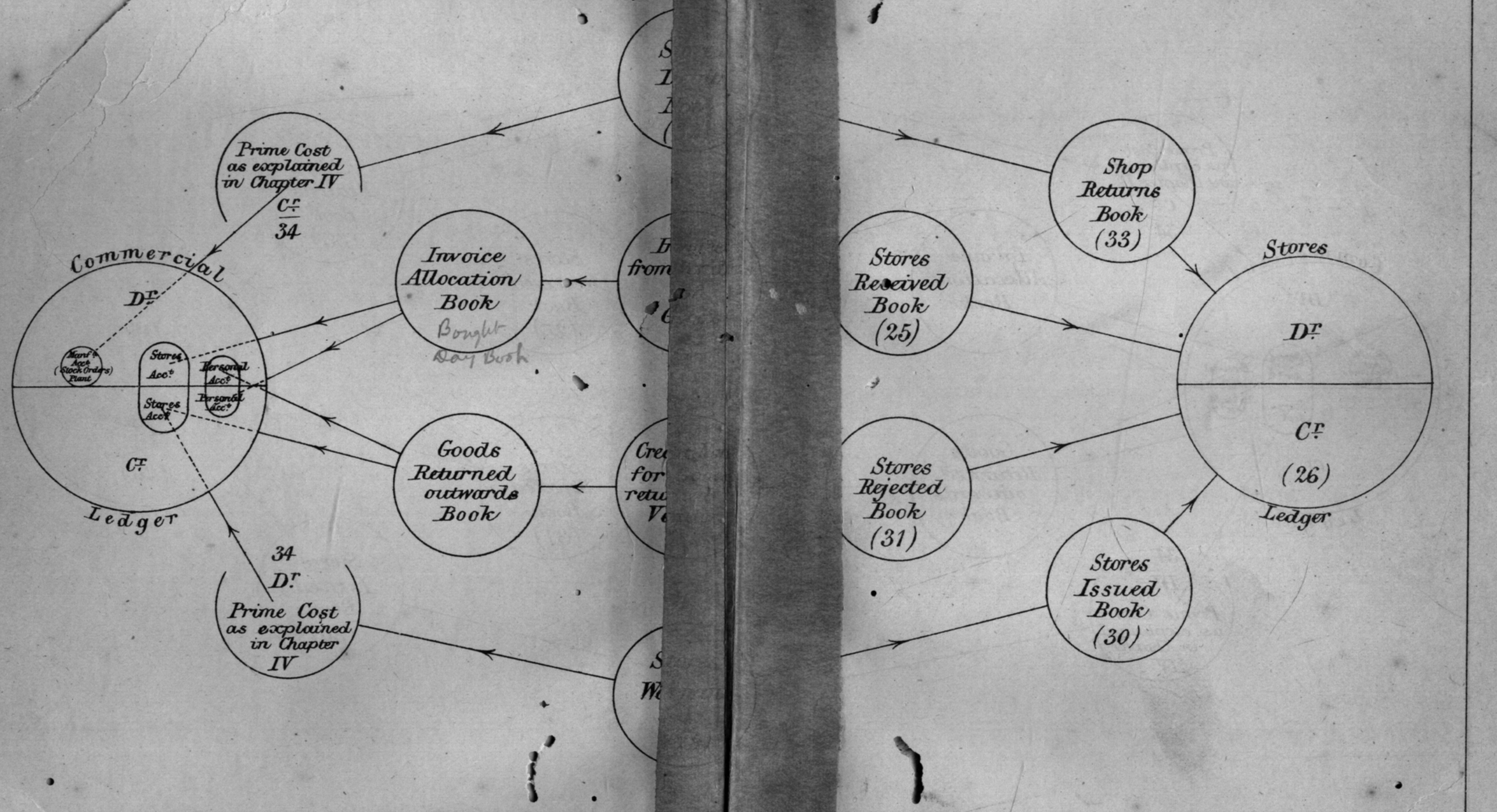
Diagram II. gives a complete view of the books and forms mentioned in this chapter, and their connection with each other, and we would refer to the remarks in the Introductory Chapter to the effect that the books are suggested more for the purpose of showing what the transactions are than to give stereotyped forms which shall be applicable to every case without modification. It will be manifest that provided the principles are not lost sight of, there is every scope for further division, or greater concentration, as may be required.

The procedure referred to in this chapter, as well as other chapters in this book, is in principle, and with but slight modification in practice, applicable to ascertaining and recording the cost of processes, per ton, per thousand feet, or other unit of weight or measurement. In some trades two or more qualities of the same article or residual or bye-products may be produced at the same time. In such cases all items of cost that can be allocated to the various productions should be so allocated, whilst items of which the direct incidence is not known, like motive power, can be distributed over the various products on a percentage basis, the scale on which such percentage is based generally having the time taken by the various products as the main factor.

D

SHOWING THE RELATION OF THE BOOK … SED IN CONNECTION WITH STORES.

(*The number… where shou… he specimen rulings.*)



The Transfers between Warehouse, Plant, a… …een Store, Warehouse, and Plant, being contingent and purely departmenta… not shown on this diagram.

[Between pp. 66 and 67.

CHAPTER IV.

PRIME COST.

he two preceding chapters we have dealt with the ne appertaining to the payment of wages and to the

pitula- receipt and issue of material. We now propose to indicate the manner in which these two so ndependent factors may together with other, but sub- ry, items of expenditure be united, with the view of ining a record of the prime cost of production.

s we shall deal with the distribution of commodities in next chapter, we do not here refer to the question of k, except in so far as it has a bearing upon the question ores and cost of production generally. It is, however, at the outset to explain that, so far as the manufacture ommodities is concerned, we regard it as axiomatic that rticles, whether produced in pursuance of an order re- ed from outside or in anticipation of future demand, ld be booked as if they were intended to constitute part he standing stock in trade.

his method of describing as stock all articles manu-

nction een and s.

factured necessarily involves a clear distinction being drawn between material used in manufacture, and the manufactured article which is produc of the expenditure of labour and material, or ther w rds between stores and stock. The utility may

not be at once apparent of passing through the Stock Books, as distinguished from the Stores Books, commodities manufactured to supply a definite order, and which are not likely to form part either of the normal, or of the exceptional, stock in hand of the business, but it will be evident that there is a distinct advantage in treating all orders to manufacture in the same way, whether they be of a special or of a standard nature. Confusion necessarily arises if part of an order for articles made in the factory is treated as if supplied from stock, and another part as if supplied from stores. We recommend therefore that all material and parts required for purposes of manufacture should be withdrawn from store and charged to their proper stock orders. If the article has in reality been manufactured in execution of a customer's order, it should be withdrawn from the warehouse, and credited to the stock accounts, by the process described. The importance of uniformity in the treatment of the orders to manufacture is particularly exemplified when the cost of any article which has not previously been made, or made only to a very limited extent, is to be taken as the basis of calculations for more extensive transactions. A simple illustration will make our meaning clear. If a customer orders a suite of furniture to be made, we maintain that instead of the expense of executing that order being debited to one account, the several pieces making up the suite should be made to separate stock orders. In this way, while the cost of each individual piece would be known, the cost of the suite would be ascertainable by aggregating the costs of all the pieces, whereas, if the whole of the labour and material required for the production of the complete suite had been indiscriminately charged to one account, it would be difficult to determine the cost of any one piece, should it be required to be re-

placed or to be manufactured more extensively. It is well to exclude all probable sources of error, and this is largely promoted by clearly recognising the distinction we have drawn between materials and manufactured goods.

Initiatory stage of manufacture.

It having been decided to manufacture certain commodities, the instruction referred to in the preceding chapter (Specimen No. 28) will be issued. One part of the form will convey to the manager or foreman instructions to manufacture; the other is for the use of the clerk keeping the Prime Cost Ledger, and will be taken by him as an advice of what orders are in hand and as a guide to the folios to be reserved for such orders in his Ledger. The counterfoil, to which the forms can be attached upon the completion of the order, will be retained by the principal.

Cost of each separate process.

It is important not only to know the cost of each individual article produced, but equally so to ascertain the cost of any particular part, or of any particular process of manufacture. Localization of cost should be carried as far as possible, so that the varying rates of realizable profit on parts may be known, and the pressure to minimise cost of production be applied in the right direction. The tendency to the specialization of labour has grown, and is growing, with the extension of the factory system, and the economy thereby induced can only be rendered thoroughly effective by a complete analysis of cost. As a well-known writer on this subject has said, "One of the first advantages which suggests itself as likely to arise from a correct analysis of the expense of the several processes of any manufacture is the indication which it would furnish of the course in which improvement should be directed. If any method could be contrived of diminishing by one-fourth the time required for fixing on the heads

of pins, the expense of making them would be reduced about thirteen per cent.; whilst a reduction of one-half the time employed in spinning the coil of wire out of which the heads are cut, would scarcely make any sensible difference in the cost of manufacturing the whole article. It is therefore obvious that the attention would be much more advantageously directed to shortening the former than the latter process."*

The fact that since this passage was written the process of manufacturing pins has been shortened and cheapened in the way referred to, serves to bring into clear relief the truth of the principles enunciated by the writer.

A similar change has taken place in the production and in the cost of matches. *Engineering* in a recent article pointed out that the introduction of machine methods had decreased the cost of manufacture to one-eighth the cost in 1844. In the machine process there are ten operations against four by hand, machines being used to cut the wood into splints, to place them in the dipping frame, to dip them in the sulphur and composition, and to remove them from the frame, and even to put them into boxes. All these operations are done for 1,440,000 matches in less than eight hours, and then the packing done by six females takes twenty-one hours forty-two minutes. Obviously, says *Engineering*, a packing machine is needed, for of the labour cost for making the matches—about 1s. per 100,000—9d. goes for packing and only 3d. for the actual work of manufacture. The cost of making the matches by hand was, in 1844, about 7s. 6d. per 100,000, or nearly eight times more.

A description, from a politico-economical point of view,

* "On the Economy of Machinery and Manufactures," by Charles Babbage. 4th edition. London: John Murray.

of the advantages arising out of the division of labour does not fall within the scope of this treatise. These advantages have been ably expounded by Mr. Babbage, by Professor Alfred Marshall and Mary Paley Marshall, and other writers.*

The principles applied in these pages to recording the cost of production of any article are equally applicable to recording the cost of any or all of the parts of that article. Either subsidiary stock orders numbered consecutively may be passed, or the stock orders for parts may be denoted by the number of the original stock order and a letter of the alphabet. Upon the completion of all the component parts, the accounts in the Prime Cost Ledger of the various stock orders could be grouped, so as to constitute in the aggregate the cost of the complete article.

Nomenclature of parts.

For the purpose of booking the expenditure upon small parts with the minimum amount of labour a nomenclature enabling every detail to be accurately and concisely defined by a symbol is exceedingly desirable. It would, on account of the labour involved, be an obstacle to the attainment of the object in view if the size, purpose, and relative position of every separate piece had to be expressed in ordinary language. We reproduce, therefore, a paper by Mr. Oberlin Smith,† in which is suggested a symbolic nomenclature of the kind required, if the system of taking out prime cost is to be applied to small parts.

Expenditure other than for manufacturing purposes.

As all labour and material are not directly spent in the manufacture of articles, but are partly devoted to the maintenance, repair, or renewal of buildings and plant, and to other objects, it becomes necessary to record the expenditure upon the

* "The Economics of Industry," by Alfred Marshall and Mary Paley Marshall. London: Macmillan.

† See Appendix A.

subsidiary purposes, and to provide for its distribution over the various manufacturing operations or orders.

Whilst the cost of setting tools and machinery to perform certain operations may be charged directly to the stock order on which the expenditure is incurred, labour or material spent in the erection of additional, or the maintenance, repair, and renewal of existing machinery, cannot be apportioned directly to any particular stock order, as the cost of the use of machinery in every case is mainly dependent on the life of the machine. The considerations which should determine the amount to be debited to any stock order on this account will be most conveniently referred to, and will be considered in connection with the question of the charges to be made for the use of machinery, in the chapter on Fixed Capital. Another direction of expenditure lies in the maintenance, repair, and renewal, extension, or erection of workshops, warehouses, stores, and other buildings. All such expenditure may be recorded under general or various sub-headings in the Prime Cost Ledger, or preferably in separate Plant and Buildings Ledgers. The utility of these separate ledgers will be more apparent after a perusal of the chapter already referred to. The re-

Localization of maintenance expenses.

curring items in the maintenance of machinery and buildings, and the renewal and replacement of tools may so as to insure the maximum amount of localization of cost, receive a distinctive series of numbers or standing orders, and thus the cost for each floor, or wing of a building, may be ascertained. For expenditure on such recurring items, the manager of the works may receive standing instructions, but expenditure on special items of maintenance, or of additions to fixed capital and loose plant and tools should be estimated for, and author-

ised in the same way as the execution of Stock Orders (pages 57-8). When in order to proceed with a certain stock order it is necessary to make special tools to enable the work to be done, it will be convenient to charge all time and material spent on their production to a tool order bearing the same number as the stock order number to which the goods are to be made. The cost of these will be recorded in the same way as the cost of other tools, but the number to which they are made serves to identify them, and as they have been made specially, and may or may not be again required, their cost must be considered in the determination of the selling price of the articles, the manufacture of which necessitated their production.

The same general principles are also applicable for recording the cost of machinery or apparatus sent to the works for repairs or alterations. If such cases are not numerous it may suffice to introduce some letter or numeral in the Stock Order Number, to show that the order is not a manufacturing, but a repairing or jobbing one. In other cases it may be desirable to start a series of what are often called "Jobbing Orders," and to record the costs in a special Jobbing Ledger, which would be supplementary to the Prime Cost Ledger. This latter course is certainly convenient where a "Jobbing Shop" is constituted in a special part of the works.

Other channels of expenditure, such as the cost of the drawing office, and the wages of foremen, gatemen, time-keepers, and others who are engaged in supervision, or in the distribution of stores, in keeping time records, or in any similar work, may be recorded either under a special heading for General Charges in the Prime Cost Ledger, or in a Factory General Charges Book. As will be explained in a subsequent

Factory general charges.

PRIME COST LEDGER.—SPECIMEN No. 34.

Order No.

Dr.

Date.	Particulars.	War. No.	Number or Weight.			Rate.	Material.	Wages.	Other Disbursements.	Total.
			No.	cwt.	qrs. lbs.					

Cr.

Date.	Particulars.	Debit Note No.	Number or Weight.			Rate.	Amount. £ s. d.
			No.	cwt.	qrs. lbs.		

paragraph, these expenses may be summarised at any period for the purpose of distributing their incidence, and a ratio established between them and the total amount of the wages expended on the various orders during the same period.

We are now able to consider the functions of the book in which the prime cost of any manufactured article is aggregated and recorded, with a view of obtaining the cost of production. This book is the Prime Cost Ledger, in which are summarised the allocation of wages spent on manufacture, alluded to in Chapter II., and the various warrants for stores used in manufacture, alluded to in Chapter III. In addition to these two channels of expenditure it will be observed that the Prime Cost Ledger (Specimen No. 34) provides a column for sundry disbursements which are allocated to the respective working or stock orders, from the Petty

Prime cost ledger.

Cash Book or its equivalent, or from any similar source. The items of sundry disbursements thus charged are of course debited to manufacturing account in the Commercial Ledger, a process which is facilitated by means of inserting in the Petty Cash Book a column showing the accounts to which the items in question are chargeable.

These records having been made, the clerk keeping the Prime Cost Ledger will periodically draw out the total of his debits for the given period, under the various heads for the several items of wages, materials, and miscellaneous disbursements. He will see that in the case of wages the total agrees with the amount of the wages account in the Commercial Ledger, which also coincides with the totals of the Wages Book for the corresponding period. He will also see that in the case of materials his totals agree with the credits to the stores account in the Commercial Ledger for stores issued, cognizance being taken of the credits in the

STOCK DEBIT NOTE.—SPECIMEN No. 35.

No.	No.
Sent into warehouse ___ 190	Sent to and received by warehouseman _____ 190 Stock Received Book folio _____

Article.	No. of Order.	No. or Weight. No.	Cwts.	Qrs.	Lbs.	Article.	No. of Order.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount. £	s.	d.

Sent into warehouse by _____ Received into warehouse by _____

Prime Cost Book; the corresponding debits to stores represent the materials drawn out to a given number but not consumed on that job, and therefore returned to store, as explained later. As regards petty cash, the totals should agree with the debit through the commercial books to sundry disbursements on manufacturing account.

Before explaining the credit side of the Prime Cost Ledger it will be well to give a specimen of the form called a Stock Debit Note (Specimen No. 35), which is made out concurrently with the sending of commodities into stock.

Stock debit note.

STOCK RECEIVED BOOK.—SPECIMEN No. 36.

Date.	No. of Stock Debit Note.	No. of Order.	Article.	Dimensions.	No.	Weight.			Rate.	£ s. d.	Stock Ledger folio.
						Cwts.	Qrs.	Lbs.			

This form, which may have a counterfoil, or be copied by means of carbon sheets, emanates from the leading hand in the shop. The monetary column is filled in by the prime cost clerk from such data as he has in his Ledger, and the contents of the note are entered by him on the credit side of that book. The warehouseman or other person in charge of the manufactured goods will, in his turn, make the necessary entry in the Stock Received Book (Specimen No. 36), which bears the same relation to stock that the Stores Received Book, explained in Chapter III., bears to stores.

Stores Received Book.

STOCK LEDGER.—SPECIMEN No. 37.

Article. Reserve Stock.

Cr.

Date.	Folio.	No. of Order.	Description.	No.	Weight. Tons.	Cwts.	Qrs.	Lbs.	Rate.	Amount.	Total.

Issued.

Dr.

Date.	Folio.	No. of Order.	Description.	No.	Weight. Tons.	Cwts.	Qrs.	Lbs.	Rate.	Amount.	Total.

Received.

Stock ledger.

The entries in the Stock Received Book are posted in the Stock Ledger (Specimen No. 37).

Besides the Stock Debit Note there are posted to the credit side of the Prime Cost Ledger the credit notes (referred to in Chapter III.) for surplus or scrap raw material returned to the store.

Balancing prime cost ledger.

By abstracting the credit side of the Prime Cost Ledger periodically, it will be seen that it agrees with the amounts passed through the commercial books to the debit of stock account (and credit of stock orders account) for stock sent into warehouse, and with the debit to the stores account (also credited to stock orders account) for surplus or scrap material returned from the workshops. The amounts standing to the debit of uncompleted stock orders in the Prime Cost

Ledgers will represent the cost price value, *pro tanto*, of the goods in course of manufacture, and will agree with the balance on manufacturing account in the Commercial Ledger.

Balances on stock orders.

It is evident that (in the event of any of the articles made to a Stock Order being appropriated before completion of all) unless the pricing of the Stock Debit Notes for articles sent into the warehouse is deferred until the whole of the order is completed, which would involve needless inconvenience, some element of error may enter into the calculations made by the prime cost clerk as to the cost at which the commodities are being manufactured. This contingency will only arise where it is found inexpedient to proceed concurrently with the manufacture of all the articles comprised under the Stock Order No. to which labour and material are being booked. That is to say, while all materials required for the manufacture of a given number of articles may have been withdrawn from store, it may be found necessary to complete and consign to the warehouse a smaller number of the articles first, instead of proceeding, *pari passû*, with the manufacture of all. But this difficulty is more apparent than real, inasmuch as any debit or credit balances which, upon completion of an order, may be found to exist, can be adjusted by the commodities last produced to that order being taken into stock at prices slightly reduced or increased to the extent of the difference; or the balance may, if preferred—and must necessarily if all the articles comprised in the Stock Order are disposed of—be at once carried to the debit or credit of trading account, or the sales account of any particular branch.

The total of the balances remaining on the various Stock

Orders will of course represent at any given time the expenditure on work in progress at that date, whether in execution, or in anticipation, of a customer's orders. Further confirmation of the accuracy for balance sheet purposes of this compilation, may be obtained by the works manager being required to certify that he has in process work of the value shown on each order.

Allocation of factory general charges.

Having shown that all the direct channels of expenditure can be summarised in the Prime Cost Ledger, it remains for us to show how the incidence of the shop expenses capable of direct apportionment, and the cost of factory superintendence, may, by means of a Prime Cost Journal, be fairly distributed over the various manufacturing operations.

In some establishments the direct expenditure in wages and materials only is considered to constitute the cost; and no attempt is made to allocate to the various working or stock orders any portion of the indirect expenses. Under this system the difference between the sum of the wages and materials expended on the articles and their selling price constitutes the gross profit, which is carried in the aggregate to the credit of profit and loss, the indirect factory expenses already referred to, together with the establishment expenses and depreciation, being particularised on the debit side of that account. This method has certainly simplicity in its favour, but a more efficient check upon the indirect expenses and more accurate data as regards cost would be obtained by establishing a relation between the indirect and the direct expenses. This may be done by distributing all the indirect expenses, such as wages of foremen, rent of factory, fuel, lighting, heating, and cleaning, etc. (but not the salaries of clerks, office rent, stationery and other establishment charges to be referred

to later), over the various departments or shops specifically, and in turn distributing the departmental or shop totals over the various working and other orders as a percentage, either upon the wages expended upon the jobs respectively, or upon the cost of both wages and materials. If, for example, the aggregate wages expended in manufacture during the year amount to £10,000, and the materials consumed to £6,000, while the indirect factory expenses amount to £800, then if the latter are to be distributed in proportion to the wages paid, the cost of each job would be increased by 8 per cent. of the labour expended upon it; or if the indirect expenses are to be distributed in proportion to the first cost in wages and materials, each job would be increased 5 per cent. of the amount of its prime cost. In some cases this shop "oncost" is distributed by two percentages, the one being based on the wages paid, the other on the value of the material used. In the majority of undertakings it will prove a sounder method to charge the indirect expenses as a percentage upon the *direct wages* only, and not upon the material, for the prices of some raw materials fluctuate so very widely that the other method described would render the cost comparisons of one year with another to some extent misleading.

In foundries these indirect expenses are as a matter of practice generally distributed in proportion to the weight of the castings, and not on the wages. In this class of work there is not great variety in the material used, or large variation in the prices thereof, and the foregoing objection is thereby somewhat mitigated.

Skilled and unskilled labour.

In referring to the allocation of factory expenses in proportion to the labour expended upon the articles manufactured, we have taken the *amount* of wages paid as one of the factors in the equa-

tion, but it is quite conceivable that the wages paid for skilled and for unskilled labour respectively may vary so largely as to make such an equation fallacious in particular cases, though quite correct in the aggregate; and that a relation based upon the *time* during which the labour is employed, instead of upon the *amount* of the wages paid, would be more accurate. For instance, unskilled labour of a given amount is employed during a much longer period than skilled labour of the same cost, and it does not appear quite reasonable that it should bear only the same proportionate charge for superintendence, lighting, fuel, and similar expenses, the amount of which is greater or less according to the time the workmen are employed. In some cases this is met by ascertaining at the completion of each job the number of hours at individual rates of pay spent thereon, and charging for such number of hours an hourly "oncost" rate, estimated on a basis which will at balancing periods cover the cost of these charges. When dealing with the question of the depreciation of plant, we shall have occasion to describe in some detail a method of distributing the incidence of a charge for the use of plant over a variety of objects upon the time basis.

The charge for this use is on the basis of a machine hour rate. Each machine is debited with its direct cost of running and maintenance, as well as with its proportion of factory general charges, such as lighting, heating, and power. The charges so made to the Plant or Machinery Ledger (Chapter VI.) would correspondingly reduce the amount of factory general charges, to be otherwise dealt with, and would permit of a more detailed analysis of cost. An accurate allocation of the cost of using machinery is as important as an accurate allocation of the cost of labour and material, and may often be the determining factor in

deciding if hand labour or machine power is the cheaper instrument of production for some particular part or process. The utility of such records does not cease with the substitution of machine power for hand labour, as they show the comparative costs of the use of machines of different types or powers for the same or similar processes.

Before passing from the question of the allocation of shop "oncost," it may be mentioned that in some, but a diminishing number of cases, employers consider that sufficiently accurate results are obtained by taking the average rate paid for direct labour in each shop or department, and by adding thereto such a percentage rate as would, over a series of transactions, equate the amount charged to the "oncost" account.

Depreciation.

The item of Depreciation may, for the purpose of taking out the cost, simply be included in the category of the indirect expenses of the factory, and be distributed over the various enterprises in the same way as those expenses may be allocated; or it may be dealt with separately and more correctly in the manner already alluded to and hereafter fully described.

Establishment expenses.

A large proportion of the expenses of the drawing office can be charged to the various working orders, the statement sent in by the chief draughtsman at stated periods, of the work done in the drawing office and the time spent thereon, forming the basis of the charge through the Prime Cost Journal. The establishment expenses and interest on capital should not, however, in any case form part of the cost of production. There is no advantage in distributing these items over the various transactions or articles produced. They do not vary proportionately with the volume of business. A large increase in the value of orders received would not necessi-

tate a like augmentation of the office staff, nor would a sudden and serious falling off in trade enable a firm to effect an immediate or proportionate reduction of general expenditure. The establishment charges are, in the aggregate, more or less constant, while the manufacturing costs fluctuate with the cost of labour and the price of material. To distribute the charges over the articles manufactured would, therefore, have the effect of disproportionately reducing the cost of production with every increase, and the reverse with every diminution, of business. Such a result is greatly to be deprecated, as tending neither to economy of management nor to accuracy in estimating for contracts. The principals of a business acquainted with its details can always judge what percentage of gross profit upon cost is necessary to cover fixed establishment charges and interest on capital.

Owing to the diversity of methods of dealing with the matters under review, it has not been thought advisable to complicate the Prime Cost Ledger (Specimen No. 34), by the addition of one or more columns to meet the requirements of any particular mode of allocating the indirect expenses, especially as no difficulty will be experienced in adapting the book to suit any system of taking out the cost that may be decided upon, provided the methods of booking the cost of labour and material, wh[illegible] in the previous chapters, be adhered to. [illegible]ver, it will suffice simply to enter the perce[illegible]actory expenses and depreciation at the [illegible]t in the Prime Cost Ledger. The latt[illegible]g any items of indirect expenses, sho[illegible] Ledger; but to avoid [illegible] adhered to the term P[illegible]

Specimen prime cost ledger.

book so referred to registers cost of production and not merely prime cost.

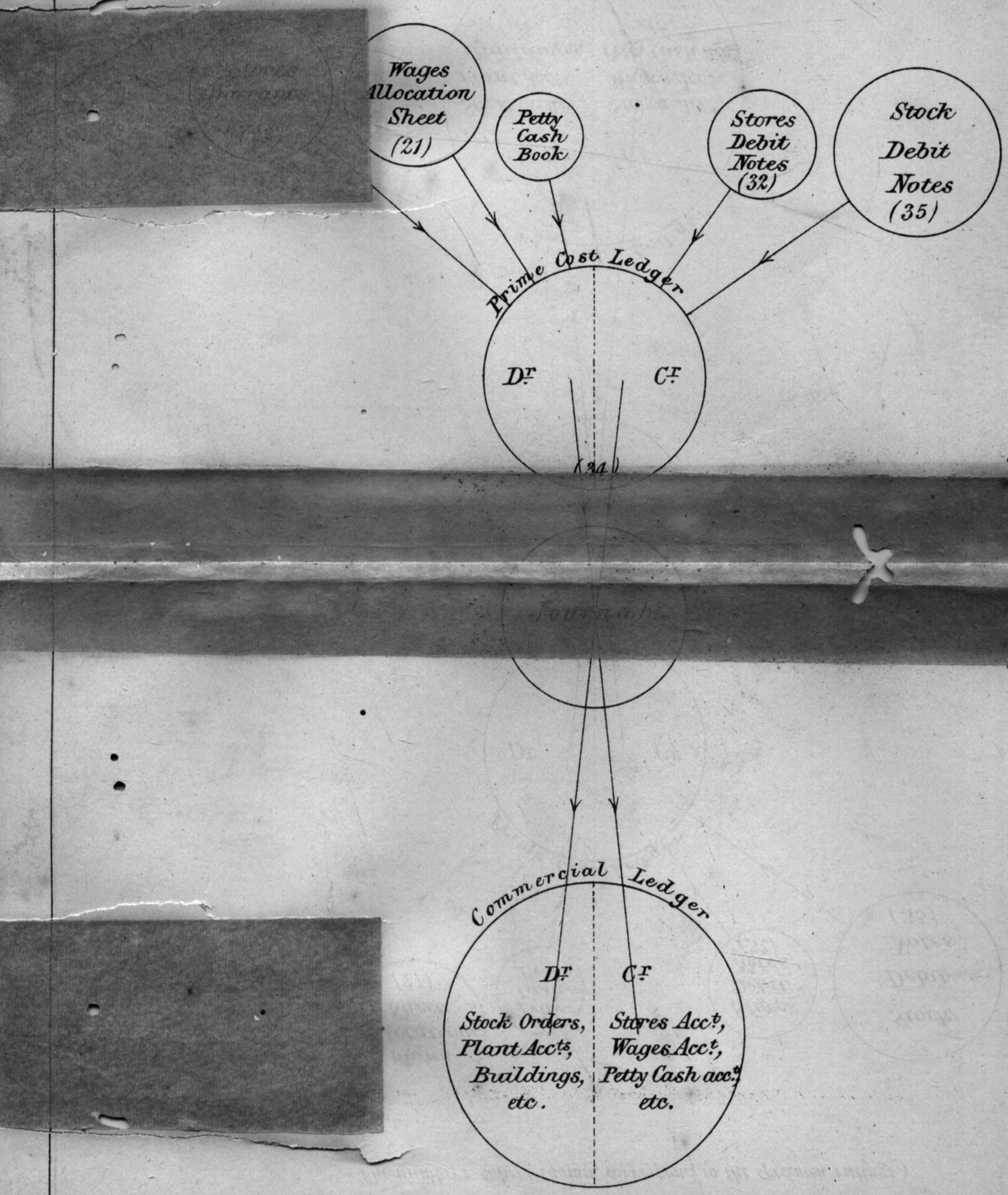
To ensure consideration of the question of what economies are practicable in construction or manufacture, the heads of the designing and manufacturing departments should be advised of the cost of each order when it is completed in such detail as permits of a comparison being instituted between the actual and estimated cost. As a matter of convenience the estimate forms may include columns for the actual costs to be inserted when known. The employer should be advised of the differences between actual and estimated costs in such detail as he may require. It is also desirable that a Comparative Cost Register should be compiled showing the difference in cost of making the same or similar articles under differing conditions of time, material, parts, or quantities. This Register will be specially serviceable in preparing estimates and quoting for orders, and permits of the necessary adjustments in quotations consequent upon the increase or decrease in the market price of material.

Should the multiplicity of the manufacturing operations, or the extent of the business, involve departmentalisation on a scale which renders separate departmental Prime Cost Ledgers necessary or desirable, the totals o those Ledgers might be transferred t lger under the respective Order Nos., rtmental Transfer Book, which fulfils tween the various manufacturing de Transfer Book already alluded to pe Stores and Stock. In the ould give in summarised aggr rious departments of the nt p hilst the Departmental

DIAGRAM III.

SHOWING THE RELATION OF THE BOOKS AND FORMS USED IN CONNECTION WITH PRIME COST.

(*The numbers, where shown, correspond to the specimen rulings.*)



Prime Cost Ledgers would give all such detail as might be required to elucidate any differences between actual and estimated costs in any department of any process or part. If in the Departmental Prime Cost Ledgers the standing or establishment charges of the department are apportioned over the orders, transfers from one department to another of finished parts or worked up material will be on the basis of cost of production. If it be thought desirable that departmental transfers should be on a profit basis, the procedure with regard to Stock Orders as previously described is applicable. A profit basis may in some cases be necessary to kindle departmental emulation, but there is in its operation a latent risk of stock values being eventually increased to more than the aggregate cost of production in the different departments, and profits not yet realized by the sale of the article manufactured being to some extent anticipated.

In the diagrams, as in the text, we have shown how the Prime Cost Ledger converges into the General or Commercial Ledger. The detailed totals in the Prime Cost Ledger or Ledgers can thus be taken in verification of the totals of the generic accounts in the Commercial Ledger, or *vice versa;* or if it is thought desirable to apply the self-balancing principle, a "Prime Cost Ledgers Account" can be opened in the Commercial or General Ledger, and a "General Ledger Account [illegible] Prime Cost Ledgers. These accounts would nat[illegible] balance each other, and each set of books would be s[illegible]f-balanced.

CHAPTER V.

STOCK.

WE are now prepared to consider the final stage of the book-keeping appertaining to the production and disposal of commodities. In the preceding chapters we have endeavoured to show as comprehensively as the limits of this treatise admit, the manner in which the multifarious transactions relating to the expenditure of labour and material are recorded in the factory books, and how those books assimilate to the commercial accounts of a manufacturing business.

Résumé.

In the second chapter we have dealt with the employment of labour and the payment of wages; in the third, with the purchase and consumption of materials or stores, and in the fourth [redacted] of the manufactured article called stock.

In this chapter we propose to trace the records which [redacted] connection with the realisation or distribution of the manufactured commodities. This branch of our subject embraces, so far as book-keeping is concerned, four distinct classes of transactions:—

Manufactured commodities. Four classes of transactions.

1st. The transfer of the finished article called stock from the factory into the warehouse.

2nd. The return of some articles from the warehouse to the factory for the various reasons which will be mentioned.

3rd. The sale or distribution of stock or manufactured articles.

4th. The return to the warehouse of stock issued, or of stock which was originally sold, but has been rejected or returned by the purchaser.

All these transactions have to be traced into both the stock books and the commercial books, and in the case of the sale of stock, and in that of the return or rejection of the stock issued or sold (the third and fourth classes respectively), the book-keeping is complicated by the fact that each transaction has to be brought into the Commercial Ledger at two different prices. That is to say, when an article is sold it is taken out of stock at the price at which it stands in the Stock Ledger, and, in the case of an absolute sale, it is invoiced to the customer at a higher price. As a consequence, a sale will appear in the Commercial Ledger to the debit of a customer, and to the credit of trading account, at the invoice price; whilst by a corresponding but independent process of book-keeping, the same transaction will appear at a lower or the cost price to the cre[dit] and to the debit of trading account. [e] the case when stock is taken back [d] sent into the warehouse, the price a[d] to a customer's account not gener[ally being the same] as that at which it is deb[ited to stock. This] is way the stock account i[n the Ledger always] shows the aggregate cost value of th[e stock in trade, the] personal accounts, the amount rece[ived, or to be received], by the firm in respect of the goods [sold, while the trad]ing account

Two prices for same article.

Stock Books.

(which is debited with the items representing the value of goods issued from stock, and credited with the sales debited to personal accounts) will bring out the difference between the cost price and the selling price, which will be carried to profit and loss account, as the gross profit or loss. This process is effected by entering the sales in two separate books corresponding to each other, the one dealing with the invoice prices, the other with the cost prices, and likewise by entering the stock returned to warehouse in two books which perform similar functions for the cancelled sales. The two books in the first of these cases would be respectively the customary Sales Day Book, often called Invoices Outward, containing records of the invoices rendered, and the Sales Analysis Book, containing records of the stock requisition forms (Specimen No. 43) for stock issued. In the case of the return of stock the two books would be respectively the Sales Cancelled Book, containing records of the credit notes sent to customers, and the Stock Returned by Customers Analysis Book, containing records of the Stock Returned Debit Notes (Specimen No. 44). The advantage of carrying out the suggestions made in the introductory chapter as to distinguishing books by their bindings will be manifest in the case of these four books. The Stock Issued Book and the Stock Returned Book are kept by the warehouseman, whilst the corresponding books, viz., the Sales Analysis Book and the Sales Cancelled Analysis Book, are kept in the counting-house.

In giving notes to some of these books we do so primarily with the desire to indicate their functions, and, as already stated, the forms suggested must be taken to meet the transactions which it is necessary to register rather than the outlines of the records.

Titles of books

The four counting-house books are posted to the Ledger; the Day Book individually to the debit of personal accounts, and collectively, by means of the Journal, to the credit of trading account; the Sales or Stock Issued Analysis Book to the credit of stock account and to the debit of trading account; the Sales Cancelled Book, the converse of the Day Book, individually to the credit of personal accounts, and collectively to the debit of trading account; and the Sales Cancelled or Stock Returned Analysis Book, being the converse of the Sales Analysis Book, to the debit of stock account and to the credit of trading account. (See Diagram IV.)

Posting of stock accounts in Commercial Ledger.

We can now proceed to a detailed examination of the book-keeping relating to this branch of our subject.

The first class of transaction is, as before stated, the transfer of the finished article from the factory to the warehouse. The form by means of which this transfer is effected has already been referred to as the Stock Debit Note (Specimen No. 35).

First class of transactions: Factory to warehouse.

This debit note is entered by the warehouseman in the Stock Received Book (Specimen No. 36), and posted to the debit of the Stock Ledger.

Stock Received Book.

Upon reaching the counting-house the Stock Debit Note is entered to the credit of the Prime Cost Ledger, as explained in the preceding chapter, and the total debits to stock, in respect of articles finished, are journalised month by month to the debit of stock account in the Commercial Ledger.

Stock Debit Note.

With regard to the return of articles from the warehouse to the factory, which constitutes the second class

Second Class of transactions: Warehouse to factory.

of entries, it may be remarked that although the articles made for stock may all have been manufactured under the personal supervision of those who will more or less be connected with their sale, and questions as to the rejection of goods

Rejected Stock.

are not likely to be nearly as numerous as if the articles had been made by an outside contractor, still the question of the return to the factory of finished articles, either on account of bad workmanship or alteration of design, may arise and must be provided for in the book-keeping. In all such cases it will be desirable to send into the store, at the time the finished article is refused as stock, a Transfer Note (warehouse debit to store).

In Specimen No. 38 this Transfer Note is shown with a counterfoil; but a duplicate, by means of carbonised paper, can be substituted.

The articles rejected as stock having been sent into store, it will remain to be determined what alterations, if any, are to be made. Should further labour or material be required to be expended, a new stock order will be issued, and the recording of the expenditure will follow the routine laid down for the manufacture of commodities.

The adjustments as between warehouse and store are best recorded by the warehouseman and storekeeper

Transfer Books and Notes.

entering the transfer notes in a Transfer Book. The warehouseman will, of course, enter on the credit side of his Transfer Book the credits to his stock for the finished articles forwarded by him to the store. On the debit side of his Transfer Book he will enter the debit notes received by him from the storekeeper for articles transferred from store to warehouse. The latter class of entries arise

Retail transactions.

out of transactions of a retail character, which

TRANSFER NOTE (WAREHOUSE TO STORE).—SPECIMEN No. 38.

Returned from Stock to Stores, _____ 190 _____ No.

Article.	Why transferred.	Original Order No.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.	Article.	Why transferred.	Original Order No.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.	Folio.

Returned by _____ Warehouseman. Received by _____ Storekeeper.

STORE TRANSFER BOOK.—SPECIMEN No. 39.

oods transferred from stock. By the undermentioned goods returned to stock. *Cr.*

Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.	Folio.	Date.	Transfer Note No.	Article.	Supplied by	Why returned.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.	Folio.

in the case of a manufacturing concern may be taken to be exceptional, but as the existence of such a combination is possible, the concluding part of this chapter will be devoted to its consideration.

With regard to the Transfer Books, the entries made by the storekeeper will, naturally, be the reverse of those made by the warehouseman, and the store will be credited with all articles forwarded to, and debited with all articles received from, the warehouse. The two Transfer Books will therefore always balance. It will be necessary to post the items in the Transfer Books to the Stores and Stock Ledgers respectively, so as to bring out the correct balances, not only as between these Factory Ledgers in the aggregate, but also as between the individual Stores and Stock Ledger accounts.

The specimen ruling of the Store Transfer Book (No. 39) will, with necessary alteration of headings, apply equally to the Warehouse Transfer Book of which it is the counterpart.

Whilst we think it necessary to state in full detail the principles to be remembered in dealing with these transfers, it must in any individual case be left to the accountant to determine whether the circumstances of any particular business admit of the functions of the two Transfer Books being adequately performed by one book.

The tra n store and warehouse, and *vice versâ* and extent of the transactions w rwarded to the counting-house, be fer Analysis Book, and the Journal e cial books be based on the amo nts he transactions are few they ca re nsfer Notes into the Journal direct.

ORDERS RECEIVED BOOK.—SPECIMEN No. 40.

Date of Order.	Order No.	Customer's Order No.	Ordered by	Nature of Order.	Delivery Requested by	Date Supplied.	Date Invoiced.	Remarks. Enter in this column route by which goods are to be sent, also marks for cases, and any special instruction.

The book-keeping in relation to the sale of commodities may be said to be initiated by the receipt of an order, and

SPECIMEN No. 41.

Stock Requisition and Advice to Warehouseman——190——No.——

Please forward the undermentioned Articles to—— at—— per—— Marking Cases ——

Customer's Order No. or Reference——
Stock Requisition Book, fol.——
Sales Analysis Book, fol.——

Article, with Full Description.	No.	Weight. Tons.	Cwts.	Qrs.	Lbs.	Rate.	Amount.			Remarks.

Ready for dispatch——190
——Warehouseman.
Approved——

Sale of commodities.

as regards the factory, will hold good whether received direct from a customer or through an agent. The questions of discount or commission which present themselves in the latter case are transactions which it is necessary to deal with in the commercial books only. The principal of the firm, if he accepts the order, when it is

found to be in proper form with regard to price, terms of payment, drawings or specification, date of delivery, penalties (if any) as to time of completion, cost of carriage, and mode of delivery, will probably initial it by way of authorising its execution. Should the stock of the commodities ordered be exhausted, or should the articles require to be specially manufactured, an order to manufacture the given or a larger number of similar articles for stock, should, as already explained, be passed concurrently with the acceptance of the order.

Orders Received Book.

The customer's order having been accepted may be registered in an Orders Received Book (Specimen No. 40). The order may then be passed on for execution to the warehouseman, who should have received a standing instruction to return all orders to the counting-house when completed. If it be thought unadvisable to pass the original order (which may contain references to the terms of payment, commission, or discount, etc.) to the warehouseman, he may be provided with a copy or with extracts from the Orders Received Book, or a special form of advice may be sent to him.

Advice to warehouseman.

The advice may take the form shown in Specimen No. 41.

Stock Issued Book.

The form could also be made to serve the warehouseman as a Stock Requisition, and it would, in that case, be entered in the Stock Issued Book. In cases in which the goods are ready for shipment, and further instructions have to be given concerning them, the form would be sent to the counting-house, and if the dispatch of the goods be approved, the requisition could be returned to the warehouseman with the information inserted thereon. It is necessary to follow

this routine if, as is sometimes the case, it is not possible for the customer to give complete instructions as to forwarding when placing the order, or if special arrangements as to payment before, or on, delivery have to be made.

In some cases it is desirable to supplement the Stock Requisition by a "Forwarding Note," issued on the request of the warehouseman. This note not only gives the warehouseman the final instructions as to shipment, but also attaches to the signatory the responsibility for the final tests or examinations of the apparatus having been made.

Should the original order be sent to the warehouseman

STOCK ISSUED BOOK.—SPECIMEN NO. 42.

Date.	Sale Order No.	Article.	No.	Weight.			Rate.	Amount.	Ledger Fol.
				Cwts.	Qrs.	Lbs.			

the stock may be drawn from the warehouse, according to the conditions of the business, either by posting the o[illegible]k Issued Book (Specimen No. 42), or b[illegible]quisition Form (Specimen No. 43).

Stock Requisitions.

The requisition would [illegible]posting in the Stock Issued Book. B[illegible]t book would require, for purposes of r[illegible]nal column for the No. of the Stock Re[illegible]k Issued Book will of course in turn b[illegible]dit side of the Stock Ledger.

Where there is a great variety in the articles sold, or multiplicity of transactions, it may be desirable that the counting-house should be kept regularly informed of the stock issued each day. This can be done either by alternate Stock Issued Books being kept, so that the previous day's record of stock issued may be always at the counting-house and the current day's record in the warehouse; or the warehouseman may send in every morning a Stock Sent Away Form, showing all stock that has been issued during the previous day, giving in each case the Order No., so that the clerk invoicing may immediately turn to the Orders Received Book and see the stipulations and conditions on which the order was accepted.

Daily return of stock issued.

It is also desirable that the amount of the stock requisitions should, in the counting-house, be entered and analysed in a Stock Issued or Sales Analysis Book. This book (of which we do not give a specimen ruling, as it pertains to the counting house) should be so ruled that the various items entered from the Stock Requisitions may be analysed under the various branches of the business. The aggregates of the totals of such branches would necessarily agree for any given period with the totals of the stock requisitions for the same period and necessarily also with the totals of the warehouseman's Stock Issued Book.

Stock Issued or Sales Analysis Book.

The fourth class of transactions referred to at the outset of this chapter involves the procedure to be adopted in the factory with regard to stock which is rejected or returned, after having been sent out for inspection or approval, on loan, hire, or exhibition.

Fourth class of transactions: Stock back to warehouse.

STOCK REQUISITION FORM.—Specimen No. 43.

No.—— No.—— Entered in Stock Issued Book, Fol.——

Requested from Warehouse_____190 . Requested and Received from Warehouse_____190 .

Article.	Sale Order No.	No.	Weight. Cwts.	Qrs.	Lbs.	Article.	No. of Sale Order.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.	Stock Issued Book Fol.

Requested by—— Received by——

STOCK RETURNED DEBIT NOTE.—Specimen No. 44.

No.—— No.——

Stock returned to Warehouse_____190 . Stock returned to Warehouse_____190 .

Article.	Sale Order No.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.	Article.	Sale Order No.	No.	Weight. Cwts.	Qrs.	Lbs.	Rate.	Amount.	Fol.

Returned by—— Received by——

Stock Returned Debit Note.

The warehouseman on receipt of such goods will make out a Stock Returned Debit Note (Specimen No. 44).

Stock Returned by Customers Book.

These Stock Debit Notes will be duly entered in a Stock Returned by Customers Book (Specimen No. 45), which will be posted to the debit side of the Stock Ledger.

STOCK RETURNED BY CUSTOMERS BOOK.—SPECIMEN NO. 45.

Stock Debit Note.	Article.	Sale Order No.	No.	Weight.			Rate.	Amount.	Stock Ledger Fol.
				Cwts.	Qrs.	Lbs.			

Stock Returned Analysis Book.

The Stock Returned Debit Notes are in the counting-house entered and analysed in a Stock Returned by Customers Analysis Book, which is the converse of the Sales Analysis Book already referred to. As an instance of the possibility of

Concentration of Books.

concentrating the books, while adhering to the principle laid down, it is well to mention that in an establishment where there is little variety in the articles sold, or where the sales are not numerous, the stock requisition might form the basis on which goods are invoiced from the counting-house. In such cases the Sales, or Day Book, (debit to customers), should be provided with a column in which the stock price of the article as shown on the requisitions could be entered against the respective invoices. It would thus be possible to obtain by the same process of addition the total

amount of the invoices rendered, and the value at stock prices of the articles so invoiced, thus obviating the need for a Stock Issued (or Sales) Analysis Book.

Equally the Stock Returned Debit Note for goods returned by customers might be treated as the basis for the credit note to the customer, and the Sales Cancelled Book (credit to customers) might be so ruled as to show the invoicing, as well as the cost rates of the stock invoiced and returned, thus obviating the need for a Stock Returned Analysis Book. This concentration of books does not prevent an analysis being made either of the invoices or credit notes, or of the corresponding stock requisition or stock debit notes, under departmental or other heads.

Goods on loan.

In the case of articles sent out for inspection, on approval, or on loan, it is very desirable that while a *pro forma* invoice, at the normal selling price, should accompany them, the articles should, until an order is received or a definite sale effected, be dealt with in the Sales or Day Book at their stock prices as the invoicing rates. We cannot too strongly insist on the great disadvantage of treating loaned goods in any other way. The system of showing book profit on these transactions is most fallacious, and so misleading that fortunately it cannot be resorted to extensively, or for any length of time, without causing serious embarrassment. It is evident that the stock loaned is not likely to be a constant quantity or of fixed value, and that if treated precisely the same way as goods sold the profit and loss account for any period is unduly increased at the expense of other periods.

Recapitulation.

It will be manifest that the entries in the Stock Ledgers consist of debits for stock received from the factory and for stock returned from customers, and of credits for stock sold to customers and stock trans-

ferred to store and that the balances under the various headings will show the number and the value of the various articles on hand, and the aggregate of such balances the total value of the stock, which should of course agree with the total value shown by the Commercial Ledger, and with the results of the surveys.

It will also be obvious that, as regards the counting-house, the various items in the Day Book and the Sales Cancelled Book being posted respectively to the debit and credit of the various purchasers, the sum of such items will in the case of the Day Book give the total credit to trading account for invoices rendered, and in the case of the Sales Cancelled Book the debit to trading account for stock returned by customers.

The total of the Sales Analysis Book gives the amount which through the Journal is debited to trading account and credited to stock, and the total of the Stock Returned by Customers Analysis Book gives the amount which through the Journal is debited to stock and credited to trading account.

When these entries have been made the trading account will show with absolute exactness the gross profit realised, and the balance of the stock account (after journalising the debits to stores and credits to stock on account of transfers) will be the value of the stock ready for sale. The relation of these various transactions one to another will be made manifest by Diagram IV.

Further notes on retail transactions.

In an earlier part of this chapter we alluded to the possible combination of a manufacturer not only distributing the commodities he manufactured, but also, in exceptional cases, acting as a retailer of goods produced by others.

It must not be overlooked that there is a fundamental

distinction in these transactions. If a manufacturer acts to any extent as a retailer, it will be well to draw a clear line of demarcation between his two branches of business. In the retail branch, which is an ordinary buying and selling, and not a manufacturing, business, the book-keeping is such as properly pertains to the counting-house. In an extensive business where this combination obtains, it may be desirable to establish a separate retail warehouse as distinguished from the warehouse which is the repository of the manufactured stock.

Retail warehouse.

If, however, the retail transactions are exceptional, and their volume does not warrant in practice any absolute division from the manufacturing portion of the business, the articles which are bought merely for reselling, and on which neither time nor material are expended in the factory, can be dealt with either as stores or, as we think preferably, as stock.

If they are dealt with as stores, the procedure followed is that described in Chapter III. for the receipt and withdrawal of material, save that the store warrants for articles withdrawn for sale, when they reach the counting-house, should be entered in a Stores Sold Analysis Book, the items in that book being posted to the debit of a stores sold, retail trading, or other similar account in the Commercial Ledger, the credit to that account being the total of the invoices rendered to customers for goods retailed, and the balance representing the gross profit or loss on that branch of the business.

Store method.

If articles for retailing be treated as stock, the invoices from the vendors can be passed to the warehouseman, the procedure being similar to that for invoices for stores purchased and which is fully described

Stock method.

in Chapter III. In this case the invoices would be debited in the counting-house to stock account; and the withdrawal of the articles from the warehouse would entail a credit to the same account, and a debit to a retail trading account; this latter account being credited with the value of the invoices rendered to customers. So far as the factory is concerned, the invoice for goods purchased would pass through the Stock Received Book (Specimen No. 36) into the Stock Ledger, and the Stock Requisition (Specimen No. 43) would pass into the same ledger through the Stock Issued Book (Specimen No. 42).

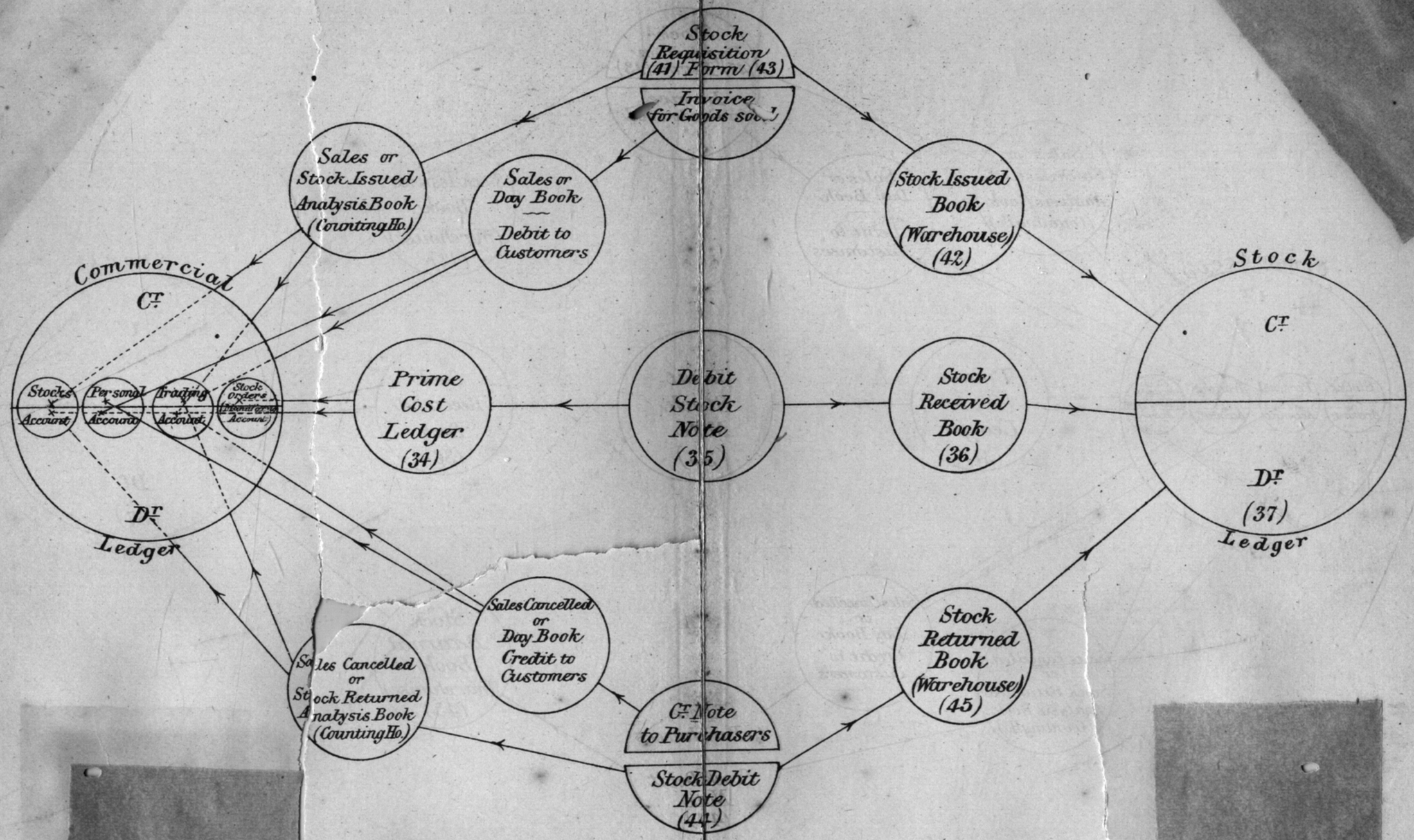
An equally effective and probably more simple method would be to pass all such exceptional items from store into stock by means of the Transfer Book (Specimen No. 39). By these means all invoices for goods purchased would pass through the commercial books to the debit of one account, namely, that of stores, and conversely all invoices for goods sold would pass through the same books to the credit of the trading account, the debit to this account arising from the stock value of the goods.

We have already referred to the desirability of localising the cost of articles, and shown that the cost of parts of articles can be ascertained by following the routine described, but in concluding this chapter it will be well to refer briefly to those cases in which parts complete in themselves but subsidiary to the manufacture of other articles, are produced in greater quantity than is required for the manufacture of the articles of which they form part. This increased production may be due to certain parts being of a more permanent type than others and added to stock with less risk of obsolescence, to their greater production at one time cheapening the cost, to their being parts which may be required for renewals or repairs, to there being a dearth

Diagram IV.

Showing the Relation of the Books and Forms used in connection with Stock.

(The numbers, where shown, correspond to the specimen rulings.)



The Transfers between Warehouse, Plant, and Store, and between Store, Warehouse, and Plant, being contingent and purely departmental adjustments, are not shown on this diagram.

of work in any particular branch o
special causes.

Whatever be the reason for their pro
ture on them should be recorded as in th
facturing or stock order, and the routine d
be followed. As the parts made in excess
required for the manufacture of the finished a
have been charged to stock by means of the S
Note, those intended for sale will remain in the w
and be duly recorded in the Stock Books, while thos
intended for future use in manufacture will require t be
transferred to the store by means of the Transfer Books,
and will be drawn out of store by means of Stores Warrants
like all other material required for manufacture.

* Chapter III., p. 58.

CHAPTER VI.

FIXED CAPITAL.

IN this chapter we purpose dealing with the accounts pertaining to instruments of production of a more or less permanent character. These, as Mill pointed out,

Definition of fixed capital.

"produce their effect, not by being parted with, but by being kept; and the efficacy of which is not exhausted by a single use. To this class belong buildings, machinery, and all or most things known by the name of implements or tools. The durability of some of these is considerable, and their function as productive instruments is prolonged through many repetitions of the productive operation. . . . . Of fixed capitals, some kinds require to be occasionally or periodically renewed. Such are all implements and buildings; they require, at intervals, partial renewal by mea[illegible] of repairs, and are at last entirely worn out, and cannot [illegible] of any further service as buildings and implements, but fall back into the class of materials. In other cases, the capital does not, unless as a consequence of some unusual ac[illegible]dent, require renewal; but there is always some outlay nee[illegible]dful either regularly or at least occasionally, to keep it up."*

* "Principles of Political Economy." J. S. Mill. Book I., chap. vi., par. 1. Longmans, [illegible]

Inasmuch as the profit or loss of an undertaking for any period is not simply the difference between the receipts and expenditure during that period, nor the current value of plant always the amount which has been paid for or expended upon it, the question of the depreciation of factories and of plant must be regarded as a factor of paramount importance in the determination of the lucrativeness or otherwise of a business, and in the valuation of properties. Many different views prevail as to the best way of dealing with these questions, and owing to trades and processes of manufacture varying widely it is impossible to lay down invariable rules. Questions as to the particular practice to be followed in any individual case must, to a large extent, be left to the judgment of those most intimately acquainted with the conditions of the business, for, as has been pointed out by Professor Marshall, "almost every trade has its own difficulties and its own customs connected with the task of valuing the capital that has been invested in a business, and of allowing for the depreciation which that capital has undergone from wear and tear, from the influence of the elements, from new inventions, and from changes in the course of trade. These two last causes may temporarily raise the value of some kinds of fixed capital, at the same time that they are lowering that of others. And people whose minds are cast in different moulds, or whose interests in the matter point in different directions, will often differ widely on the question what part of the expenditure required for adapting buildings and plant to changing conditions of trade, may be regarded as an investment of new capital, and what ought to be set down as charges incurred to balance depreciation, and treated as expenditure deducted from the current receipts, before

Depreciation.

Variety of views on the subject.

Exhaustive examination of subject impossible.

determining the net profits or true income earned by the business."*

A cursory examination of the fundamental principles to be observed, and a review of the chief methods in vogue, in regard to "writing off," will not be out of place in a work dealing with Factory Accounts.

The question of maintenance is very closely associated with that of depreciation, and there are five main factors which enter into the determination of any rule for arriving at the deterioration which has taken place: 1st. The cost of an object, be it a building, machine, or other asset. This may be either the cost price or, in the case of the transfer of an established business, the estimated value of the object. 2nd. Its estimated tenure of life, regard being had to its functions and the conditions under which they are performed. 3rd. The extent and value of the renovation or restoration received by it from time to time. 4th. Its value in use, or its present earning power, relatively and comparatively, to other instruments of production used for similar purposes. 5th. Its residual value, either as scrap or as an implement which, though possibly applicable to other uses, is no longer fit for its original purpose.

Five factors in the determination of depreciation.

Whatever rule is determined upon, it is important that it should be consistently adhered to for a term of years in order to avoid the accounts of particular years being treated abnormally, which, in the case of joint-stock companies, whose shares are constantly changing hands, would lead to much injustice being done to individual proprietors.

Rule adopted should be adhered to.

In many manufacturing businesses the rough-and-ready method is adopted of charging to capital, in addition to

* "The Principles of Economics." Alfred Marshall.

The rough-and-ready method.

the original cost, the cost of all renewals, alterations, and extensions of buildings and machinery; and of debiting profit and loss account in respect of depreciation with a percentage of the total amount in the Ledger under those heads. In few factories, however, could a general rate of depreciation produce accurate results. Rates of depreciation naturally vary with the class and character of the machinery and plant, and their life and residual value. The rates are based on the original cost, or on the yearly reducing balance of the account. In the latter event a higher percentage rate has necessarily to be used. The "Comparative Depreciation Tables," compiled by Mr. Lawrence R. Dicksee, set out the equivalent rates side by side, and in practice are of considerable use. In some cases even the current repairs are charged to capital, in which case a proportionately larger percentage should be written off annually for depreciation.

Repairs charged to Capital.

In some cases proprietors are content to charge their profit and loss account with an estimated fixed sum yearly for depreciation, and they include under this term repairs and renewals. The amount so charged they credit to a Depreciation Account or Fund, and debit the account with the amount expended in repairs and renewals.

The principle of an annual average charge is defensible on some grounds, but if applied to an account which includes such dissimilar factors as depreciation, renewals and repairs, the ratio of the fixed amount applicable to depreciation will vary with the yearly increase or decrease in the amount actually spent on repairs and renewals. This would be obviated by keeping the Depreciation Fund and the Repairs and Renewals Fund separately. In the case of the latter fund, the cost of repairs and renewals will

naturally be lighter in the earlier than in the latter years, and in these years a credit should be arising on the account, owing to the cost not amounting to the fixed sum charged. Unless repairs and renewals are wilfully postponed in order that the account may be kept in credit, the sufficiency or otherwise of the charge under normal conditions, and in the absence of any accident, will manifest itself in the credit balance in the fund.

Depreciation and current expenditure.

In some undertakings no cognizance is taken of depreciation in the accounts. In the case of most railways, for instance, the deterioration of the plant is taken to be adequately and fairly provided for by the current expenditure upon repairs and renewals which is debited to revenue account. This practice is defended on the ground that by the very nature of railway property the repairs and renewals must be at least equivalent to the depreciation, and that an effectual check against any starving in maintenance is furnished by the certificates which the heads of the spending departments periodically give as to the condition of the permanent way, plant, tools, buildings and rolling stocks. Such a system may possibly prove unobjectionable when, an undertaking having been in operation for a number of years, a relation has been established between the expenditure and the deterioration; but there is always a danger that during its earlier years, when expenditure for repairs, renewals, and extensions is not so imperatively called for as after some years of working, the profit and loss account is not adequately debited with depreciation; and even if this be done, there is nevertheless the risk of the accounts of particular years being prejudiced. It is doubtful, also, whether the desire to maintain dividends and to show an average expenditure per mile does not lead, in the

case of railway companies, to only such work being done during the half-year as will approximately cost the average amount. In the case of water companies likewise, the item of depreciation forms no part of the accounts. But water companies are allowed by Act of Parliament to place to a reserve fund surplus profits to the extent of one-tenth of the capital, and as renewals are paid for out of profits, it follows that any abnormal charges in respect of deterioration are indirectly met out of this reserve fund; consequently during the first years of working, when renewals and repairs are insignificant, and no reserve fund has been formed, there is a tendency to relieve revenue account of its fair proportion of wear and tear. In general, it may be stated that unless considerable additions and extensions are constantly made, the system of charging to revenue all repairs and renewals, but making no allowance for depreciation, will not in the long run prove satisfactory. Unless adequate provision is made a time must arrive when, owing to some of the machines and tools having become wholly obsolete, or the lease of buildings having expired, an amount will have to be debited to Profit and Loss which should in strictness have been borne by previous years. In this way some years are made to appear unduly lucrative at the expense of others, instead of the depreciation being charged equally over the number of years constituting the life of the object, in direct proportion, if possible, to the actual deterioration incurred in each period. This is always at least approximately possible. In certain cases only can maintenance be said to balance depreciation. "In any particular building, machine, or appurtenance, decay or wear of some sort must take place in the course of time, and repairs, in

Case of water companies.

Distribution of depreciation over life of object.

Only in certain cases that maintenance balances depreciation.

order to compensate fully for the decline in value, must take the form of renewal. This being the case, the absolute replacement of some portion of the plant every year may thus maintain an average aggregate value. In only two kinds or classes of plant, however, can such an exact balancing of loss by repairs and renewals be ventured on; one, where the plant wears out so quickly as to need replacement at short intervals, affording constant proof, by the mere continuance of working, that not only the earning power of the factory is maintained, but also the capital value; and in a second class, that of undertakings so large and permanent as to afford a wide average of deterioration and renewal over the whole plant."* It is worthy of note, that even in the two cases referred to Mr. Matheson speaks with some hesitancy, and alludes to such a mode of procedure as a venture. There is always the risk of plant gradually becoming obsolete, even though kept in good repair.

Other methods in vogue.

In some instances the amount charged to revenue account for depreciation is a fixed sum, or an arbitrary percentage on the book value. In others it varies according to the business effected, or to the balance remaining to profit and loss account, or is regulated by the desire of the firm or its managers, either on the one hand to show a large profit, or on the other to add to the stability of the concern. In comparatively few establishments, however, is the endeavour made to systematically approximate the amount charged to revenue for depreciation to the actual deterioration which has taken place, and still more rarely is it attempted, when the actual depreciation has been ascertained, to allocate it to the various departments in

Only rarely that actual deterioration is charged.

* "The Depreciation of Factories, and their Valuation." Matheson. London. Spon.

which it has been incurred, or better still, to the various operations which have been carried on.

The direct way of determining the depreciation or appreciation of the assets of an undertaking would *prima facie* appear to be by means of a revaluation of all the properties at periodical times. In the case of trades in which the wear and tear of plant is proportionate to the work done this course would have the advantage of charging fairly the deterioration due respectively to a period of brisk trade and to a time of depression, by manifesting in the former period a greater degree of wear and tear due to a larger volume of business, or to time contracts compelling a resort to overtime; while in periods of depression a smaller amount would obviously be chargeable for depreciation, much of the machinery and plant having probably stood idle. But this method would in the majority of trades lead to such enormous fluctuations in the profit and loss account, especially if the periodical valuation was based upon the market price of the properties, and not simply upon their value as integral portions of a "going concern," that, except in a few trades, it would be impracticable. This would especially be the case when raw material, subject to market fluctuations, formed a large proportion of the plant and stock-in-trade. Such a method would often be a fruitful source of confusion and error. In short, to write off only such portion of the cost of the plant as represents the apparent deterioration that has taken place would be fallacious. Although machinery or plant may show no signs of diminished value or loss of earning power, yet its term of life and its value in the market must be lessened by lapse of time. A periodical survey of all buildings,

Periodical valuation the direct method.

Disadvantages of this method.

To write off only manifest deterioration fallacious.

plant, etc., is, however, very important, and would serve, if no other purpose, as a very valuable check upon the system of calculating depreciation that may be adopted.

Profit and loss on capital.

Moreover, a periodical valuation of the assets, as the basis of a depreciation rate, raises considerations of very great significance, such as the question of the inter-dependence of the revenue and capital accounts, and the question of how far a loss or profit on capital account, *i.e.*, a diminution or increase in the realizable value of any of the assets, should affect the profit and loss account. These are points of considerable interest, and deserve to be discussed to a greater extent than the limits of this work will permit. The following observations by a leading authority on the law relating to joint-stock companies are, however, very apposite:—

Opinion of Mr. Justice Buckley.

"Capital may be lost in either one of two ways, which may be distinguished as loss on capital account, and loss on revenue account. If a ship-owning company's capital be represented by ten ships with which it trades, and one is totally lost and is uninsured, such a loss would be what is here called a loss on capital account. But if the same company begins the year with the ten ships, value say £100,000, and ends the year with the same ten ships, and the result of the trading, after allowing for depreciation of the ships, is a loss of £1,000, this would be what is here called a loss on revenue account.

"Where a loss on revenue account has been sustained, there is of course no profit until that loss has been made good either by set-off of previous undivided profits still in hand, or by profits subsequently earned. But until the case of Neuchatel Asphalte Company the question was open whether a company under the Companies Acts, which has lost part of its capital by loss on capital account, can con-

tinue to pay dividends until the lost capital has been made good.

That case showed the true principle to be, that capital account and revenue account are distinct accounts, and that for the purpose of determining profits you must disregard accretions to or diminution of capital. Suppose I buy £100 Consols at 97, and at the expiration of a year they have fallen to 94, is my income £3 or nothing? If nothing, then if at the expiration of the year they had risen to par, my income would by parity of reasoning have been £6, not £3. Is the result affected by the question whether at the end of the year I am or am not about to sell my Consols? Suppose a tramway company lays its line when materials and labour are both dear, both subsequently fall, and the same line could be laid for half the money, and as an asset (independent of deterioration from wear) would cost for construction only half what it did cost. Is the company to make this good to capital before it pays further dividend? If so, then if the cost of materials and labour had risen after the line was laid might not the company have divided as dividend this accretion to capital? Upon such a principle dividends would vary enormously, and sometimes inversely to the actual profit of the concern.

"If revenue account be treated as a distinct account, these difficulties disappear, and subject to the difficulty which must be encountered of discriminating between revenue charges and capital charges, a safe and intelligible principle is arrived at. The creditors of the company are entitled to have the capital account fairly and properly kept; but, they are not entitled to have losses of capital on capital account made good out of revenue. It is no doubt true, that before arriving at revenue at all there are payments which must be made good to capital, on account of capital wasted or

lost in earning the revenue. For instance, in the common case of leaseholds, which are a wasting property, the whole of the rental will not properly be income; in the case of colliery properties, the difference between the price at which the coal is sold, and the cost of working and raising it, will not all be income, for there must also be a deduction made in favour of capital representing the diminished value of the mine by reason of its containing so many less tons of coal; in the case of a tramway company, you will not have arrived at net profit before you have set apart a sum to make good deterioration. But when all proper allowances have thus been made in favour of capital, the balance is revenue applicable for payment of dividend."*

We take it that the practical view must be that, if at a given period the realizable value of all properties, after liquidating all liabilities, is in excess of the amount of subscribed capital, such surplus, whether the gain has been made on capital account or revenue account, constitutes profit; while the amount by which realizable assets fall short of the liabilities including the subscribed capital must be considered as loss. So long as a business is a going concern, it would probably be inadvisable for the revenue account to serve the purpose of an index of the fluctuations in the market value of the constant or fixed assets essential to the carrying on of the business, for in such a case the revenue account would oscillate perhaps from a large profit one year to large loss in the next, although the nature, volume, or lucrativeness of the current business may have remained without abnormal change. With a view, however, to providing against an eventual loss in the

The practical view of the matter.

Profit and loss account.

Sinking fund.

* "The Law and Practice under the Companies Acts." H. Burton Buckley. London: Stevens and Haynes.

realization of an asset the value of which tends to decrease, it would probably be judicious to establish a sinking fund by debiting the revenue account annually with a fixed percentage to cover all contingencies. This would also apply to plant which is not worn out before it is replaced by improved machines. Similarly, if the asset is improving in value we do not recommend that the increment should be placed to the credit of profit and loss account, but that it be debited to the account of that asset and credited to a reserve fund opened to provide for any future diminution in its market value. If there is a sinking fund, the amount might be placed to its credit.

Reserve fund.

Although it does not seem practicable to lay down a universal rule* that a loss on capital must be made good before further dividends, if earned on profit and loss account, can be distributed, there are cases in which it is obviously necessary that this set-off should be made. In the case already referred to of the Shipping Company with ten ships, one of which is uninsured and is lost, inasmuch as the profit and loss account has not—from what must be assumed to be motives considered as economical—been charged with the cost of insurance, and the risk of loss has been undertaken, that account must therefore bear the loss when it is incurred. Thus the account named would bear the total loss of one ship and the depreciation of the remaining nine. Indeed, a loss which might have been provided against by insurance, or one which underwriters will not insure, except at a premium so high that the firm prefers incurring the risk to

Insurance against losses.

* In the case of Verner *v.* General and Commercial Trust, Ltd. (1894, 2 Ch., 239), it was held that depreciation of fixed capital need not, but that of circulating capital must, be charged to profit and loss; and the judgment in the more recent case of the National Bank of Wales *v.* Cory does not run counter to this decision.

paying the cost of insurance, seems always a fair charge to profit and loss account if it has not been provided for by the creation of a reserve fund. The question whether or not the properties of a firm are insured against fire has always to be considered in estimating the liabilities of a concern, and the few notes in the Appendix on the law relating to Fire Insurance will probably not be considered out of place. There are many points connected with effecting an insurance, the non-observance of which may invalidate the policy, and that a firm may, by omitting to carefully examine the conditions of their fire policies, find when part of their buildings or stock has been destroyed by fire that they are not entitled to indemnification by the insurers.

Income Tax Acts.

The Income Tax Acts also have an important bearing upon the depreciation and valuation of assets, and no method of dealing with large assets of fluctuating value should be decided on without due regard being had to the provisions of these Acts. Under these Acts everything in the nature of property, which produces, or is capable of producing, or itself consists in, an annual income or revenue, is subject to income tax. It is not, however, in all cases necessary that a profit shall in any one year actually be made out of property, in order that its owner may become liable to the duty in that year. Under Schedule D dues are charged in respect of any trade, manufacture, adventure, or concern in the nature of trade not contained in any other schedule of the Act, and the duty is (save in a few exceptional cases) computed on a sum not less than the full amount of the balance of the profits or gains upon a fair and just average of three years.

Any increase in the value of an asset, if credited to profit and loss account, would be subject to assessment, but it by no means follows that the converse holds good, and that

losses will be allowed. For this reason a firm may suffer appreciable loss, to the extent of the duty paid, by their profit and loss account reflecting the variations in the value of their assets. A firm may for one or more years, as a result of a general rise in prices, have realised large surpluses on their properties, and although they may have paid full duties in respect of such gains, it is not certain that in the event of a reaction of prices, and their losing as much as they had gained, or more, such loss would be allowed to form a factor in the determination of the average profit. It is hard to say what is an allowable deduction from profit, inasmuch as the statutes for the most part define the term negatively by enumerating the deductions *not* allowed. In Appendix B will be found a synopsis of the sections of the Income Tax Acts bearing upon the matters here discussed.

An almost ideal way of arriving at a depreciation rate is to take the *life* of a building or machine as the basis of the rate, modified by the other three before-mentioned factors, viz., original cost plus interest, renovation, and residual value. This method, however, is attended with some difficulties in the case of properties whose tenure, unlike that of leases, is not well defined, and also in the case of a newly established business, to which the experience of other establishments has but little application. Should the nature of any particular business be such that the life of the appurtenances can be estimated with tolerable accuracy, this plan will be found to be the most scientific in its operation; for although the life of an asset may vary with the surrounding conditions, in the same way as the life of a horse depends, *cæteris paribus*, upon the character of the work it performs, yet, if once the life

The life of an object the best basis.

Difficulties of this method.

Advantages of this method.

of an asset has been determined—and a manager of a business which has been established a year or two should be able to frame at least an approximate estimate of the durability of the various implements he employs—there will be no difficulty in allocating the depreciation to the various processes. If, for example, it is settled by experience that the life of a horse employed in drawing an omnibus is three years, and that the number of journeys performed per diem is ten, then $\frac{1}{365 \times 10 \times 3}$ of the cost price, less the residual value of the horse (the cost of maintenance being charged to running expenses), will be the charge per journey for depreciation, and the same rule applies if, instead of horses, steam engines are employed, or if rolling stock and plant are dealt with.

Example of the method.

Leases for a definite number of years, or in perpetuity (leases renewable from time to time at the option of the lessee may be regarded as leases in perpetuity) afford a very appropriate illustration of the rule of basing the depreciation rate upon the life of the object. In Appendix E is reproduced a table recommended by Mr. Pixley,* which will be found useful in calculating the amount to be set aside annually in order to amortize a lease, and the table is also applicable to other properties, the life of which has been determined. Inasmuch as the table takes cognizance, and correctly so, of interest at the various rates shown, the Ledger account of the asset in question should be debited each year with interest at a given rate and credited with the corresponding amortization rate shown in the table, until, at the expiration of the tenure of the lease or other object, the whole of the amount at which it

Leases afford good illustration.

Amortization table.

* "Auditors: their Duties and Responsibilities." By F. W. Pixley. Third edition. London: Effingham Wilson.

stood in the books has been exhausted. The hypothetical **Example.** Ledger account (Specimen No. 46) of a five years' lease from the time of its purchase to its expiration will serve to elucidate the table referred to. The purchase price of the lease is taken at £4,500, and interest is calculated at 5 per cent. per annum, which is of course debited to the lease account, and credited to profit and loss account, a correspondingly larger amount being debited to that account in respect of amortization.

The amount which is debited each year to profit and loss account by way of amortization, is arrived at by dividing the amount of the purchase price, £4,500, by 4.329, the latter being the number in the 5 per cent. column of the table on the line corresponding to five years, that being the number of years over which the amortization is to extend, and crediting the account each year with the amount so written off.

The question of the liabilities of lessees for dilapidation and waste of premises calls for some consideration in reference to the matters here referred to. If, under the conditions of the lease, dilapidations require to be made good upon its expiration, provision for the necessary outlays should periodically be made, preferably through a sinking fund. A convenient summary in tabulated form of the law relating to dilapidations will be found in Mr. Fletcher's book on the subject.*

Dilapidations.

In many businesses it may be found advisable, for the purpose of estimating depreciation, to divide the objects into classes, for although the general result of the business operations during a given time may be normal, yet by dealing separately with the depreciation of each class of appurtenances it may be found that some of the departments

* "Dilapidations." Banister Fletcher. London: Batsford,

LEDGER ACCOUNT, SHOWING THE AMORTIZATION OF A FIVE YEARS' LEASE.

(See page 107.)

SPECIMEN No. 46.

DATE.	DR.	£	s.	d.	DATE.	CR.	£	s.	d.
Of purchase .	To Cash, Purchase price . . .	4500	,,	,,	End of 1st Year	By Profit and Loss Depreciation .	1039	10	,,
End of 1st Year	To Interest at 5 %	225	,,	,,		By Balance . .	3685	10	,,
		4725	,,	,,			4725	,,	,,
End of 2nd Year	To Balance . .	3685	10	,,	End of 2nd Year	By Profit and Loss	1039	10	,,
	,, Interest at 5 %	184	5	6		,, Balance . .	2830	5	6
		3869	15	6			3869	15	6
End of 3rd Year	To Balance . .	2830	5	6	End of 3rd Year	By Profit and Loss	1039	10	,,
	,, Interest at 5 %	141	10	3		,, Balance . .	1932	5	9
		2971	15	9			2971	15	9
End of 4th Year	To Balance . .	1932	5	9	End of 4th Year	By Profit and Loss	1039	10	,,
	,, Interest at 5 %	96	12	3		,, Balance . .	989	8	,,
		2028	18	,,			2028	18	,,
End of 5th Year	To Balance . .	989	8	,,	End of 5th Year	By Profit and Loss	1038	17	4
	,, Interest at 5 %	49	9	4					
		£1038	17	4			£1038	17	-

Classification of assets.

show abnormal results. A general rate of depreciation may lead principals to neglect what may, comparatively, be more profitable operations; or to push a department of the business which, if it bore its full proportion of depreciation, would yield less than the average rate of profit.

Fixed plant and loose plant.

This separation of departments is the more desirable as the same method of allocation will obviously not apply to *loose* plant and tools and to plant and tools which are fixed.

Although it is theoretically possible to frame a scheme which would enable the cost of the loose plant and tools to be allocated to the various working orders, it would generally in practice be found not worth while to carry it out. The cost of these tools is comparatively small, even in a large establishment, and under ordinary circumstances the depreciation of loose plant, tools, and patterns on any one working order so slight, that it simply suffices to book all these implements out to a loose tools and plant account for each shop or department. In many cases it is usual at the end of the year to allocate this account to profit and loss, and in others, to make an inventory of the tools and their value at that period, and to write off to profit and loss account through a shop expenses or similar account 25 to 35 per cent. of the total of the book value of the loose tools and plant in use. It is evident that, if desired, some percentage ratio could be established between this loose tools and plant account and the amount spent on wages, and thereby the cost be allocated to any given working number; or the loose plant and tools might be re-valued annually, the difference in value being carried to profit and loss, and the cost of their repair during the year charged direct to profit and

PLANT LEDGER.—SPECIMEN No. 47.

Description _____ No. _____ Supplied by _____

Dr. Date.	Details of Charge and Folio.	Cost and Interest.	Renovation.	Total Debit.	Date.	Details of Depreciation Charges and Folio.	£ s. d.	Total Credit.	Balance Value.	Cr.

loss account. In either of these cases the amount charged to profit and loss could be allocated in common with the indirect factory expenses as a percentage upon wages as previously explained.*

Kits of, or additional, tools supplied to out workers should be charged out to the employés responsible for their custody, who should periodically certify as to the character, quantity, and condition of the tools in their charge, any difference in value being charged in the same way as the difference found to exist in the similar account at the factory.

The more valuable of the loose tools when not in use, may be kept in the custody of the foreman, who, when issuing them, should record such issue and obtain a receipt in a Loose Tools Register. When lockers are provided at the benches for storing the loose tools usually used by the workmen, a card should

* Chapter IV.

be placed in the locker from time to time, giving the contents. The value of the loose tools in the shops will not, under normal circumstances, vary very widely at stock-taking periods, and any large mistake should be discovered by comparison. If the store system suggested in previous chapters is adopted, the mistake of loose plant being sometimes included in the stores surveys, and thus at times, when the loose plant is either not surveyed or incorrectly appraised, unduly increasing the profit earned, cannot arise.

The same methods are applicable to the patterns account, save that it may be desirable to place a heavier depreciation rate on some patterns, as a provision against their becoming obsolete. Patterns made for a special order, which is not likely to be repeated, or repeated only after a considerable interval, should be taken at a merely nominal value, and the balance of the amount spent on them should be transferred to the stock order, for the execution of which the patterns were made. The rates of depreciation on patterns will vary very widely, and it is desirable that as far as can be done, the patterns should be classified.

With fixed plant and machinery the case is different.

Plant Ledger. Each distinctive object should be numbered, and its value, together with a description of the machine, a record of its loose parts, and the name of the supplier, be entered in a Machinery or Plant Ledger (Specimen No. 47).

All material issued for, or time spent on, any machine or implement belonging to this category, whether for running, maintenance or renewal, should be duly recorded in the

Expenditure on Plant. same way as the materials and wages consumed in the manufacture of stock are booked (see Chapters II., III., IV.). The expenditure on Plant may be carried direct to the Plant Ledger, in which case

the total amount of wages, material, and sundry disbursements in the Commercial Ledger would, for any given period, agree with the totals under similar heads debited to the Plant Ledger and the Prime Cost Ledger combined, or the expenditure may appear in the Prime Cost Ledger to the debit of the respective Plant Working Nos. Instead, however, of the latter accounts in the Prime Cost Ledger being credited by a transfer to stock, as in the case of a Stock Order, they would be credited by a transfer to plant—a Plant Debit Note (Specimen No. 48) being the

PLANT DEBIT NOTE.—SPECIMEN NO. 48.

Machines at Work in _____ Shop on _____ 190 .

No. of Machine.	Employed on Order No.	Time Working ..between.	To be filled in by Time Clerk or Machine Checker.		
			Time Working.	Rate to be Charged.	Amount.

medium. In either case the cost of, or expenditure upon, plant is carried to the debit of the Plant Ledger, and the process by which the amount written off in respect of depreciation is credited to the Plant Ledger, and debited to the Working Orders, which are to bear a proportion of the depreciation, is as follows. The time clerk or an assistant, or in a large establishment a machine checker, should obtain each day from the foreman of the shop an account of the time during which each machine was working, and to what order number the work was done. At the end of each

Plant return.

week, or other convenient period, a Plant Return (Specimen No. 49), should be compiled and sent to the counting-house.

Original cost and life of object.

The life of a machine, or, in other words, the number of working hours a machine will last, being known, the principal or some other competent person would establish a ration per hour between the original cost of the implement (modified by maintenance and residual value) and such working hours or life of the implement. On this basis a voucher would be prepared in

PLANT DEBIT SUMMARY.—SPECIMEN No. 49.

Return of Machinery at Work and Charges to be made for —— ending —— 190 .

No. of Machine.	Order No.	Order No.	Order No.	Order No.	Order No.	Order No.	Total for each Machine.
Total for each Order							

the counting-house for passing through the Prime Cost Ledger the debits to the various working orders, and the credits to machinery accounts under the various numbers of the machines; or, in place of these vouchers, it may be found convenient to enter all the details through a Plant Journal. When the machine is worn out, it should be sent into Stores with a Plant Recovered Note showing its estimated realizable value, at which amount it becomes a credit to capital. Any credit or debit balance that remains on the book value of the machine may, as thought desirable, either be carried to

Plant Journal.

Residual Value.

the profit and loss account or to a reserve fund, should one have been opened to provide against loss on plant. Should it be found that the machine is likely to have a longer life, or to give more working hours than was expected, the rate per hour may of course be diminished, so that future working orders may not be debited at a higher rate than is necessary, and equilibrium on the debit and credit sides of the Plant Ledger be produced.

This system of charging depreciation on the basis of the life of a machine and its cost would equally apply to the apportionment of the cost of engines and boilers and of the fuel used in them. The total number of hours the machinery is running will, the life and cost of the engines and boilers having been ascertained, enable working orders to be charged with their proportion of cost. Similarly, the aggregate number of hours the machinery is in use being known, the division of the fuel account for that period by this number will give the cost of fuel per hour for each working order.

Cost of fuel.

When depreciation is thus allocated to the various processes in the carrying out of which the plant has been deteriorated, it will not, of course, appear as a separate item in the profit and loss account, but will diminish the gross profit by increasing the cost of production of the articles manufactured, instead of showing larger gross profit only to be reduced by a general charge for depreciation, as is the case when a lump sum is charged to profit and loss account in respect of such depreciation.

Effect on profit and loss account.

The explanation of the prime cost system given in Chapter IV. was not complicated by a reference to the subject of depreciation, which, at that stage, would have been inconvenient; but no difficulty will be found in as-

Prime cost and depreciation.

similating this method of charging depreciation with that of recording cost as described in that chapter, and thus ascertaining cost of production.

Depreciation of good-will, patents, &c.

It should be mentioned that there are items in the books of a private firm or joint-stock company to which no general rule of writing off is applicable. Such are the cost of good-will, patents, trade marks, copyright designs, etc.; for although, as in the case of patents, the life of the asset is clearly defined, the incidental advantages derived from the possession, for a term of years, of a valuable monopoly do not necessarily cease upon the expiration of the term of the patent. On the contrary, the value of the good-will may increase although the term of the patent is expiring. Whether there is a patent or not, good-will generally increases with age if profits are proportionately maintained, or are expanding. Assets such as those should be considered as having a combination value, differing altogether from their value *per se*. The obvious rule, therefore, is that in the balance-sheet such assets should appear at their cost value, and need not be written down unless their realizable value as integral parts of a going concern falls below their cost value. It is, nevertheless, desirable to create gradually special reserve funds against such values as a provision against change of conditions. Any estimated increment may be accounted for by the creation of a special fund, as explained on p. 115, but until such estimated increased value is realized it should not be considered as an element of profit.

CHAPTER VII.

SURVEYS.

THE most obvious utility of the Stores and Stock Ledgers, kept in the manner described in the preceding chapters, is that by their means the store-keeper, warehouseman, and others concerned, are able to ascertain what is the quantity of any particular commodity on hand at any given time, without the delay and expense involved in the process generally known as "taking stock." The ability to obtain this information in an accurate and speedy manner has a very wide and important bearing upon the general accounts of the firm. Unless it is at command it is impossible, in undertakings of any magnitude, to determine, even approximately, what the result of the business is until a survey has been made. It is claimed for the system of accounts we have explained in these pages, that one of its chief advantages lies in the fact that it obviates the necessity of taking stock simply for the purpose of drawing up a balance-sheet. The economic value of this advantage to principals whose business is liable to many vicissitudes, can scarcely be overrated, for it removes one of the most powerful obstacles to the frequent closing of the books and ascertainment of the results of the

Utility of Store and Stock Ledgers.

Stock-taking for Balance-sheet.

business. There is no doubt that save for a survey being a very troublesome and expensive matter, balance-sheets would be made up much more frequently than is usually the case, and that proprietors would be kept more fully *au courant* with the tendency of their business than can be the case when the books are closed only at long intervals of time. Under the methods of book-keeping here advocated, a survey, indeed, would simply serve the purpose of substantiating the results deduced from the books of account, and it is this feature which, perhaps more than any other, distinguishes a proper system of Factory Accounts from the methods generally adopted. Factory books, when kept, are often for the most part of the nature of memoranda, being simply methods of book-keeping by single entry, and lacking both in coherence and continuity, inasmuch as they are merely disconnected entries, which can be verified and assimilated only by means of the periodical surveys.

Many Factory Accounts mere memoranda.

Unless Stores and Stock Ledgers are kept in some such way as described, it is imperative that the survey of all articles, if it is to answer any useful purpose, should be made at one time, for, in the absence of factory books, the only comparison of which the result of the survey admits is with the totals of the stores and stock accounts of the Commercial Ledger; but even this comparison can only be one of book values and not of quantities or measurements, and an effective verification of the details of the survey is altogether out of the question. If the survey is simultaneous it is necessary either to suspend for the time the issue and receipt of materials, or to make subsequent additions and subtractions in respect of materials received or issued during the period of stock-taking. Disorganization

Survey and Commercial Ledger.

Surveys and disorganization.

generally reigns during this period, and to such an extent is this the case that it is often found necessary and convenient to suspend business while the process is going on. While pointing out the inconveniences attending periodical and simultaneous surveys of all properties, we do not wish to detract from their importance upon occasions of general audit, or change of partnership, or at any other periods when the verification of the balances of the Stores and Stock Ledgers may be required.

Surveys by degrees.

The existence of the Stock and Stores Ledgers enables surveys to be taken by degrees, and at times when the state of business is such as to minimise the disorganization and attendant loss of profit. There is reason to believe that storekeepers and warehousemen would be more vigilant if they knew that, instead of a periodical survey, an inventory of any of their stores or stock might be called for at any time and without warning, and that they would be required to explain any differences between the Survey and the Ledger accounts. A further advantage of the Stores and Stock Ledgers is, that by their means any excess or deficiency of commodities shown by the surveys can be localised and easily traced.

Standard of efficiency.

It is to be regretted that there does not seem to be in practice any absolute standard of efficiency in regard to stock-taking, and that the term is often applied to a superficial review of the articles, and to an estimate of what is, or, worse still, to a guess at what should be, the value. In an efficient survey every record should be based on "handling," and nothing should be estimated or taken for granted, while the pricing of the articles should be based on the principles which will be hereafter referred to.

The results of the survey should be epitomised on survey sheets, of which Specimen No. 50 shows a ruling that will

be applicable to most trades. These sheets should be so arranged as to admit of comparison with the corresponding accounts in the Ledgers.

STOCK SURVEY SHEET.—SPECIMEN NO. 50.

Stock of _____ at _____ on _____

Description.	Supplied by	No.	Weight.			Rate.	Value.		Remarks.
			Cwts.	Qrs.	Lbs.				

If the system suggested in these pages be adopted, the result of the surveys would show an agreement between the number and weights or measurements of the articles according to the inventories and those standing as balances in the Ledger, and also between the aggregate money value of the articles and the balances of the respective accounts in the Commercial Ledger. It is desirable that the Ledger Balance and the Survey Sheet totals should be tabulated for comparison in detail, so that excess or deficiency in any particular item may be noted, and any undue discrepancy in excess of the margin of error in waste or weight be inquired into. According to the system just described the surveys would theoretically be divided between three main departments. The storekeeper would be responsible for the store of raw and old material and such articles, other than manufactured commodities and plant, as may for the time be in his charge. The next divi-

Agreement of survey results.

Stores.

sion would be that of the warehouseman, who would have the custody of the stock of manufactured goods; and the third division would only exist where the system of registration of plant described in the chapter on Fixed Capital had been adopted, and would comprise all fixed and loose plant and tools. As has already been pointed out, however, there is no objection in principle to the two departments of Stores and Stock being amalgamated, so far as the situation and custody of the same are concerned, provided the important distinction in the book-keeping explained in previous chapters is preserved. When this is done there will be no necessity to draw any fundamental distinction between these two departments for the purpose of surveys beyond such mechanical divisions as may suggest themselves in particular cases with the view of facilitating the preparation of the inventory. If that method is properly carried out, it will be found to be purely a matter of convenience in any business what divisions are made in the arrangement and disposition of the various articles. In the same way as the books, when properly kept, will bring out the correct quantity and value of the plant wherever the machines and tools constituting the plant may be located, so they will also show the value of the stores and stock, no matter where these may be distributed. It is quite evident, however, that the quantity of stores and stocks on hand may be of such magnitude as to render the division of responsibility a matter of absolute necessity. It will then probably be found advisable, in addition to carrying out the three main divisions before suggested, to give distinctive names, numbers, or letters to the different subdivisions of the stores and warehouses, and to identify those distinguishing signs with the headings of the corresponding accounts in

Stock.

Plant.

Mechanical divisions and aids.

the Ledgers. Each floor, room, or section could be under the charge of one man, who should be responsible for the accuracy of the records of the articles in that place, and should have a place for everything, and have everything in its place. He will be much assisted in his work if the store or warehouse is fitted with such bins, racks, shelves or other receptacles as are most suitable for the materials or articles dealt in, and by those of the same species being stored near to each other. Each of these species may also be advantageously referred to by numbers, and the sizes or other variations therein, either by letters conjoined with the numerals, or by further numerals used as a denominator. A Store or (as the case might be) a Stock Register, would thus permit of the identification of each article by name and numbers, and also record their location in the building. The custodian saves himself trouble, and avoids confusion, by placing on all large articles, and on the lockers or partitions containing the smaller ones, labels describing the articles, and giving in the case of raw materials the name of the supplier, and in the case of manufactured articles the number of the stock or manufacturing order, the date of receipt, and, if thought advisable, the price of the article marked either in cyphers or in plain figures. The utility of indicating the price is not confined to surveys, but enables the issuer of material or stock to immediately mark on the Stores Warrant or Stock Requisition the price of the article he has issued without referring to the Ledger. The

Essential of stores and stock system.

essence of the satisfactory working of a stores or stock system is that articles should not be issued without the issuer receiving a formal requisition for them from some authorised person. The articles he has in charge should be to the storekeeper or warehouseman what cash is to a cashier. No one ex-

pects a cashier to part with money save as against a cheque or receipt, and no one, not even excepting the principal, should expect a warehouseman or storekeeper to part with goods save as against a written requisition or receipt. Should either the storekeeper or warehouseman feel that he has not a sufficient control over articles in his charge, owing to their not being in the magazine or warehouse, or for any other reason, the articles may be chained, padlocked, sealed, or otherwise distinguished in such a manner as to show that they are still either "stores" or "stock." In this connection it may be well to point out that in establishments where large numbers of workpeople and others pass through the gate, the watchman or gatekeeper should have instructions not to allow any raw material or manufactured goods to be taken outside the factory either by employés, or in carts or other vehicles, without the necessary permit from the storekeeper or warehouseman. The watchman or gatekeeper should also be instructed to look at the contents of carriers' carts when leaving the works, after delivering goods, so that material may not be improperly taken out of the works by these means.

Although the distinction between Stores and Stock is fundamental, and is not likely to be lost sight of by the reader, it is well to point out the desirability of the storekeeper having a general knowledge of the nature and quantity of stock in the warehouse, and of the warehouseman being equally well informed of what material is in store. When parts of an article are both used in manufacture and sold, there will be a supply both in the warehouse and in the store, and any sudden or abnormal demand on either of the departments can be met by the one department transferring its surplus to the other, in order to meet the emergency. An idle or

Excess Supply.

excessive supply is not wanted in either branch, and although the articles common to both are not likely to be numerous, the rise or growth of such excess could be easily checked by the warehouseman being supplied at intervals with a schedule of the articles in store, which could, if necessity arose, be transferred to him as stock, and by the storekeeper being provided with similar information as to the stock. It is evident also that an equally efficacious check could be applied in the counting-house, where both the stock and store of any article would be known, and whence no order to manufacture would proceed until it was shown that the number on hand was not sufficient to meet the demand.

Survey Prices.

The principles which determine the question of how materials and manufactured articles are to be priced at a survey admit of much discussion, but we cannot here do more than indicate the general axioms which should be observed in a valuation of Stores and Stock. It is obviously unsound to base a valuation one year upon the cost of production of an article, and another year upon its estimated or even ascertained market value; but, nevertheless, it is to be feared that this is not unfrequently done. The course adopted by most of the best manufacturing firms is to value the stores at the net cost or invoicing price to them, and the manufactured articles on hand at their cost of production, without any addition for profit, or for standing charges as distinguished from factory charges. In the case of material or articles laid down for seasoning or maturing purposes, the invoicing price is sometimes increased *pro rata* to the amount which may have been charged to the account in the Commercial Books, as representing interest on the capital expended in the purchase of material not ready for use. The same pro-

cedure, but only up to the limits of normal or average price, is probably justifiable when, owing to some special circumstances, such as a forced realization, or sale by auction, stores or material have been purchased at less than cost price. Profit which may eventually arise from the use or sale of specially low purchases should not be anticipated, but it would not seem unreasonable to charge interest on the dormant capital, but subject to the limits already referred to. The practice of including in the valuation of Stock a percentage for establishment expenses or standing charges is one which cannot be too strongly condemned, if on no other ground than that a business which is really the reverse of profitable might, by the simple device of manufacturing and accumulating a large stock, be made to appear for a time as at any rate self-supporting. That is to say, a business might be made to appear flourishing, while as a matter of fact it was becoming less solvent, by reason of its cash and other available assets being converted into manufactured stock which may never be realizable, and by the standing charges (if these are included), which in the absence of *bonâ fide* business transactions would represent losses, being made to figure in the balance-sheet as good assets in the shape of stock on hand.

Book values should not include establishment charges.

The right principle undoubtedly is that in a manufacturing business a profit should not be considered to have been made until a sale has been effected, or until a contract for the delivery at a future date of goods already manufactured has been entered into. But in the case of the production of raw materials and in those exceptional cases in which the stock of manufactured articles could be put upon the market and realized at their normal price, a modification of this principle would seem to be necessary;

Profits are latent.

for in that case the product is generally saleable at an ascertained market price (or, at any rate, at an approximation to it), and it does not seem incorrect to say that the profit which that price leaves has been earned on the production of the commodity and not on its sale. Nevertheless, even in this case, it would probably in the long run prove to be more judicious to price the commodity in the books at its cost, and only to credit profit and loss account with the profit when sales have been effected. In the exceptional case of the market price being lower than cost, the market price should be taken.

In the majority of cases manufactured stock has to be kept till a demand for it arises and orders are received, and in the meantime it may deteriorate or the price may fall, and the system of valuing at cost has the additional advantage, when stocks are held for any length of time, of obviating the necessity for periodical alterations of the valuation and consequent adjustment of the profit and loss account owing to fluctuations in the market price of the commodities. A valuation based upon cost of production (not including in the term standing charges and interest on capital) would hold good for a long period of time; so long, in fact, as the article was preserved in its pristine condition, unless improved processes or other causes should so reduce the cost of similar articles as to render a corresponding reduction of the valuation of the old stock necessary in order to establish the proper relation between it and the new price that would probably rule in the market. Any deterioration which the goods on hand may undergo should, of course, be periodically written off, and when stocks become entirely obsolete they should be reduced to their scrap value. But inordinate reduction in the value of assets is not always a proceeding deserving un-

qualified approval. It is quite conceivable that by taking undue advantage of facilities and opportunities which may exist at particular periods for writing down the value of assets, the firm or company may be placed in the position during subsequent years of making book gains which would not be realized but for the previous artificial reduction in values. In this way the accounts of the business are apt to prove misleading, and it is well that this effect of excessive reductions in value should not be overlooked. Indeed, its dangers appear to have been recognised by the Legislature, for, under the Companies Act, 1887, reduction of paid-up capital is limited to the amount which, according to the affidavits of responsible officials, has been lost, or is unrepresented by available assets. The old material on hand should be taken in a stores survey at the market value of such old material, or at the price at which similar old material was last disposed of, unless such price be higher than the market price, in which case the lower value should be taken. It is desirable that in both the Stores and Commercial Ledger old material should be kept in an account distinct from new material.

The amount by which stock is to be written down in respect of ascertained depreciation may be debited to profit and loss or subsidiary trading account, and credited to the Stock account in the Commercial Ledger through the Journal. The warehouseman would pass a stock requisition through the Stock Issued Book to the credit of his Ledger accounts in the same way as if the amount represented withdrawal of stock; and the same procedure applies in the case of reduction in the value of stores.

Loss on Stores and Stock.

CHAPTER VIII.

CONCLUSION.

Subsidiary Factory books.

IT remains to refer to some subsidiary books in use in factories and warehouses, and also to some matters which, although they have an important bearing on Factory Accounts, do not properly fall under any of the preceding chapters. We have studiously avoided special reference to these ancillary books and matters, so as not to detract from the main issues of our subject; and we do not now refer to them with the view of attempting to exhaust the catalogue of account-books for which a practical use may be found in a factory. Such an attempt would be altogether futile by reason of the conditions and requirements of individual businesses varying too widely to warrant anything more than a general statement being made of the fundamental principles underlying the economy and routine of a factory—principles to which all details, to be of service, must conform.

Summary of Chapter.

In this chapter we shall first describe the method of bookkeeping to be adopted in the case of plant or machinery acquired on terms of deferred payments, and mention a few considerations bearing on the subject of the accounts of Government and municipal factories, and on those of the workshops of railway and similar undertakings where expenditure and production are of the nature of auxiliary operations and have not for their

primary object the raising of revenue or the making of profit. We shall then deal with a few of the books employed to record transactions with regard to such matters as cartage, van, waggon, and craft traffic, packing, and fuel. In conclusion we shall pass under review some of the economic aspects of the systems of piecework or payment by results, and of overtime, and in this connection state the views of some of the leading authorities upon labour questions as to the possible development of the modern factory system in the direction of the general adoption, or at least recognition, of the principles underlying industrial partnerships and co-operative production.

Purchase Hire System.

Inasmuch as the practice of purchasing plant on what is known as the purchase hire system is becoming more general,—there being in some circumstances an economy in the acquisition of new plant, machinery, waggons, etc., on terms of deferred payments,—it will be necessary to consider the entries which should be made in recording such transactions. It has been suggested that a simple and safe method of dealing with the book-keeping pertaining to this system is to ascertain what will be the "ultimate" value of the object—when the various instalments have been paid, and to divide this "ultimate" value by the number of the instalments, and credit the product to capital each time an instalment is paid, the remainder of the instalments being debited to profit and loss account. For example, it is suggested that in the case of a waggon purchased for £60, payable in twenty instalments, the ultimate value being £40, that as each instalment is paid £2 should be charged to capital and £1 to profit and loss account. The method suggested is undoubtedly a simple one, and in many cases it is probably as

correct as the circumstances require. In the illustration given we presume, though it is not stated, that the "ultimate value" of the object—after the payment of all the instalments—covers an amount for depreciation during the time it has been in use; but in any case we think it would be well that the amount charged under the various heads should be more fully specified. The difference between the cost value to the purchaser of an object acquired upon terms of deferred payments and its "ultimate," *i.e.*, ordinary value, is the product of two factors, viz., interest on the deferred payments, and the natural or normal depreciation in the value of the object during the period of hire. We submit that these factors are so essentially different that they should be separately recorded. The one bears a close relation to, and has to be considered in conjunction with, the capital account of the business, and the rate of interest borne by that account; the other is a trade expense which is regulated by the volume of business, and the corresponding wear and tear of the object and its tendency to obsolescence. An article after being acquired on the purchase hire system, should be debited to plant or other appropriate account at its value as if purchased for prompt cash, and the difference between that value and the aggregate amount payable under the purchase hire agreement should be taken to an interest on deferred payments account, the whole of the liability being carried to the credit of a personal account with the vendor of the article.

As the instalments are paid, cash account would be credited, and the personal account with the vendor would be debited, with the amounts of the instalments. The amount debited to plant or other account would be written down in accordance with the principles of book-keeping applicable to fixed capital, and already discussed, whilst the

amount standing to the debit of interest on deferred payments account would be distributed over the period of hire. This is on the assumption that all the instalments are paid and the purchase of the article ultimately completed but should this not be the case and the article be returned after an interval of hire, the personal account with the vendor would be closed by being debited with the balance standing to his credit, which would *pro tânto* be credited to the plant account and the interest on deferred payments account. Any remaining balances on these latter accounts, representing as they would the loss on the non-completion of the purchase, would be passed to profit and loss. A further advantage of the method we recommend is that it enables the article purchased on this system to be treated from the outset as if it were actually the property of the intending purchaser, and this, it will be recognised, is the only sound view to take of the transaction. If the purchase should not be completed, the accounts will show exactly what sacrifice is involved; and they would moreover show the position of the transaction at any stage of the period of hiring.

Factories not working for profit.

There is necessarily greater simplicity in recording expenditure in those cases where production is not for profit, and articles are made or repaired only for the sole and incidental use and benefit of the concern, as, for instance, in arsenals, dockyards, and other national and municipal workshops, railway, gas, tram, and water companies, than in a factory working for profit in competition with other producers. The principles of the Factory Accounts explained in this volume are, in all such cases applicable.

Whilst the requirements of a Government arsenal, however, are not those of factories working for profit, which

have to be conducted on lines enabling the proprietors, in the face of keen competition with other manufacturers, to supply the demands of the public at a profit to themselves, it may, in passing, be mentioned that an ingenious and elaborate system of recording the expenditure in Government workshops by means of cards, on which the entries are made by symbols, has been described by Captain Metcalfe,* and has much to recommend it, but it does not very well admit of the assimilation of accounts with a view of drawing up periodical statements showing the profit and loss on all the operations and the actual financial position of the concern. This is, in fact, admitted by the author himself, when he says: "I have vainly tried to find some simple current method of reconciling the cost sheet with the cash accounts, since this would establish the aggregate truth of the cost sheet before the highest court of audit known to military accountability. I am convinced not only that this is impossible, unless either the papers are very much complicated, or unless substantial truth is neglected for the sake of striking a balance; but I also believe that the same result is indirectly attainable by other means already described." The defect referred to seems to us inherent in any system of recording expenditure on and by means of cards passing through a number of hands and performing a variety of services both in the factory and in the counting-house.

Use of cards instead of books.

Other writers, who have recently advocated a card system, have considered that the difficulty referred to by Captain Metcalfe would be obviated by showing on a cost sheet, at regular intervals or balancing periods, the total amounts

* "The Cost of Manufactures." Captain Henry Metcalfe. New York: Wiley. 1885.

shown by the cards as expended on all orders in progress at that date, as well as the amount expended on orders finished between that date and the last preceding date on which such entries were made. It is claimed for the card system that it is a labour-saving device, reducing the volume and cost of clerical labour employed in recording the expenditure of labour and material. This claim, if substantiated, has further to be considered in relation to the more detailed attention which has to be given by a manager or principal to the examination of costs recorded on a number of cards, than he has to give to costs recorded in a book in which the entries follow consecutively. This objection is partly met by the institution of a system of "comparison cards," but as the preparation of these cards means a summarising and recording of the contents of a large number of cards each recording one item only, the saving of clerical labour is not very apparent.*

Cartage books.

In almost every manufacturing business the item of cartage is a more or less serious factor. If the cartage be for the conveyance of raw material from different parts of the factory the charge is one on manufacturing account, and should be allocated to the various orders. If it be for the delivery of goods sold to customers an attempt is sometimes made to recoup the cost by debiting the customer with a charge for carriage; in other cases the expense, in view of the vexation and trouble which any other course generally produces, is borne absolutely by the firm and regarded as a charge against the profits of the business. In any event the item is one ad-

* Interesting particulars of methods adopted under cards systems are to be found in a paper on "Workshop Administration," by Mr. David Cowan, published in the "Transactions of the Institution of Engineers and Shipbuilders in Scotland," and in the "Complete Cost Keeper," by Horace Lucian Arnold (Henry Roland). "Engineering Magazine."

mitting, by a proper system of registration, of large economies. If cartage be done by an outside contractor, the necessary records for checking his accounts should be kept by the employé (generally the warehouseman or storekeeper), by whose orders the work is done. The contractor would receive an advice (Specimen No. 51), which should be attached to the account when rendered.

If it be thought necessary, a further check may be obtained by instructing the gatekeeper to record the times at which carters enter and leave the factory, any delay in loading or unloading being noted. If the horses and vehicles are the property of the firm the purchase price of the horses should be debited to a horse account, and that of the vehicles to a vehicle account, and each account should periodically be debited with interest on the amount of the capital sum.

Horses and vehicles.

SPECIMEN No. 51.

Cartage advice, _____ 190 .

To Mr. _____

Please supply me with the undermentioned.

No. of Horses.	Description of Vehicle.	Time Required.	Time Arrived.	Time Returned.	Time on Job.	Order to be charged.

Ordered by _____ Signature of Carman _____

The carters should send in weekly a return of the work done by them, and this should be summarised in a Cartage Book. A cartage account should be opened, to which should be debited the wages of the carters, stablemen, the cost of forage, stable expenses, etc., and at regular intervals an amount for depreciation from the horse account and the van account. The cartage account will of course be credited with the journeys performed at such rates as will equal the amount charged to it. It is only through keeping some such account that the employer can ascertain accurately whether it pays him better to purchase and keep horses and carts than to employ a contractor.

Freight book.

In view of the need that often arises of giving quotations for goods inclusive of free delivery, and of checking the rates charged by the railway companies, it is very desirable to record the quotations obtained, or rates paid, for freightage. Under the various Railway (Rates and Charges) Order Confirmation Acts passed in 1891 and 1892, consequent upon the Railway and Canal Traffic Act of 1888, the maximum tolls and charges for various classes of traffic over the various railways have been prescribed. In checking the accounts or the rates quoted, the classification of the traffic should receive primary consideration. Having regard to the varying conditions of the traffic, it is very desirable to compare the actual rates charged with the maximum authorised, and this can best be done by means of a book ruled as shown (Specimen No. 52). The goods should be delivered to the railway company on a "Consignment Note," prepared by the senders. If a form prepared by the railway company is accepted for use, it should be carefully examined to see that none of its clauses create a special contract with regard to owner's risk or other matters, and

that the railway company are not by any of its clauses released from their special or general liabilities.

An exceedingly useful manual, assimilating, comparing, and explaining the Confirmation Acts, together with the scale of maximum rates and charges worked out to 600 miles, has been compiled by Mr. M. B. Cotsworth, and published by Messrs. Bemrose.

Railway sidings.

In the case of firms enjoying the advantages of a railway siding a special book should be kept on the same principle as that applied to the Cartage Book just described. If a yearly rental is paid for sidings and trucks, this rental and any incidental items should be debited to an account to which is credited any receipts from this source. If the siding is on land belonging to the owner or occupier of the works, and if it has been laid or is maintained by such owner or occupier, the railway rate charged him, either for the receipt or forwarding of goods, should not contain a charge for the provision of such terminus, although the railway company may have a right to make a charge for services rendered at or in connection with private sidings. The Association of Traders known as "The Mansion House Association on Railway and Canal Traffic," carefully watch all proceedings in connection with private sidings and other matters which come before the Railway and Canal Commission Court, and from time to time notify their members of the decisions of that Court in test cases, and through this channel manufacturers can obtain much information enabling them to check the accuracy in principle of the constituent items in the railway rates charged them. If the trucks are owned by the firm, then their purchase price, together with interest, should be debited to a trucks account, which should be credited each year with an amount for

SPECIMEN No. 52.

PARTICULARS OF RAILWAY RATES, for _____, from _____

To.	Route.	Rate.	Mileage.				Details of Division of Rate.								Remarks.
				Over Other Systems.			Charge for Haulage.					Terminal Charges.			
			Over Railway receiving Consignment.				Rate for Conveyance.			Total Rate for Conveyance.	Allowance for Provision of Trucks.	Haulage Rate.	Amount.	Details of Services, &c.	
						Total.	Over Railway receiving Consignment	Over Other Systems.							

SPECIMEN No. 53.

STATEMENT OF TRIPS MADE BY, AND EARNINGS OF WAGONS AND VANS DURING THE MONTHS OF _____

	Number of Wagons and Vans working.	Number of Trips made.	Average Number of Trips per Wagon and Van.	Total under repairs.	Number repaired on Railway.	Earnings.			Average earnings per Wagon and Van.	Tonnage carried.	Average earnings per Ton.	Demurrage charged.			Remarks.
						£	s.	d.		Tons.		£	s.	d.	
Month of 189															
Wagons															
Vans															

depreciation, the amount so credited being charged to an account which would in turn be credited with any amount received for the hire of trucks.

A Wagon and Van Book should also be kept, showing under the number of the wagon or van, the date it was dispatched, destination, load, date of return, and number of days' demurrage incurred, if any. The book should be so ruled as to permit of the earnings of the wagons and vans being ascertained, and the results tabulated monthly in a form convenient for comparison, as shown in Specimen No. 53.

When wagons or vans belonging to manufacturers or merchants have to be repaired on the railway company's sidings by a wagon-repairing company or by the railway company's workpeople, it is advisable to keep a record of such repair in a Wagon Journey Repairs Book (Specimen No. 54).

SPECIMEN No. 54.

WAGONS REPAIRED BY _____

No.	Dates.		Station or siding.	Materials sent.	Nature of Repairs.	Carriage on Materials.	Charges.
	Advised.	Repaired.					

It may also be serviceable to allude briefly to the desirability where steam lighters or barges are used, of recording the work done by each lighter or barge, so that full advantage may be taken of any possible economies in cost of transit.

SPECIMEN N . 55.

TIME SHEET FOR { LIGHTER. BARGE. BOAT.

Name of Craft.	Date and Time of leaving Works.	Loaded with	Quantity.	Destination.	Date and Time of Arrival at Destination.	Date and Time Discharged.	Date and Time started Return Journey.	Date and Time of arrival at Works.

The captain or hand in charge of each craft should be given a Time Sheet (Specimen No. 55).

The Time Sheet may be so ruled on the back as to permit of the recording thereon of any back freights, return cargos, towage, or other services performed, and will, when the journey is finished, form the voucher on which payment will be made by the cashier of the amount due to the crew.

This Time Sheet should be recorded in a Craft Register (Specimen No. 56).

SPECIMEN NO. 56.

THE . . CAPTAIN .

Date Loaded.	Where Loaded.	Destination.	Time Sheet No.	Date Arrived.	Time Occupied on journey.	Particulars of Discharge.	Date of Return.	Time Idle.	Material Carried.	Particulars of Payment.

This Register may also usefully contain a record of the earnings of the craft whether from the carriage of raw material to, or finished products from, the factory, the carriage of goods on return journeys for other manufacturers or persons, or from the towage of other craft on the waterways navigated. It is desirable that the class of earnings as well as of expenditure should be kept distinct.

In dealing with the question of transit of goods, it will be well to point out that cases, tarpaulins, and sheets for the packing or covering of goods should be considered as stock, and should be registered. The cases, tarpaulins, and sheets should be made to a Stock Order No., and credited to stock in the same way as any other articles, and should bear distinctive and consecutive numbers. Thus a cases or sheets account respectively would be debited with the cost of each case or sheet sent out, and credited with all charges made to customers under these heads. If any allowance be made for the return of a case it should be put into stock at a figure not exceeding the amount so allowed, and the process would be repeated until it was no longer of value as a packing case but merely as old material.

Packing accounts.

It is further desirable that the warehouseman should keep an "empties" or "cases" book, showing the cases sent out and those received back, in order to keep an effectual check upon, and prevent the loss or too rapid multiplication of packing-cases.

This register should always be open to the inspection of the head of the packing-case makers' department, or he should be advised daily by the warehouseman of the packing-cases that have been returned. It is also necessary that the storekeeper should carefully record all the packing-cases received by him from suppliers, and the dates on

which they were returned. In the case both of Stores and Stock the cost of coverings should be kept distinct from the prices of the raw material and the finished goods. Provided records are kept of their receipt or manufacture, and return or issue respectively, the articles themselves can be considered as constituents of Stores or Stock, and dealt with on the same principles as regulate transactions in other articles.

Coal Book.

There are many other subsidiary books of a similar character the need for which will arise in every factory, but a detailed description cannot be attempted. Such are the Coal Books, for recording the contracts for coal and deliveries made, as well as the consumption of coal, when this is systematically charged to each working number, as explained in Chapter VI. If this procedure be adopted, the Coal Book may contain on the debit side the quantity of coal received, which would of course agree with the totals of the bills for coal supplied, and on the credit side an account compiled from the statement (already referred to) showing how the coal has been used, the difference representing the balance of coal on hand. The Coal Book and accounts may usefully be summarised monthly (Specimen No. 57), to show the various elements in the price at which it was bought. The record of the weight of coal received is first made, both as regards gross and net, in the Weighing Machine Book kept at the Weigh House. The weights of all vehicles and goods passing over the Weighbridge are entered in this book, a carbon duplicate being sent to the office. A record should also be kept of all inspections or tests of weighbridges, weighing machines, or weights, whether such tests are made by the proprietor or by a firm engaged by him to maintain and test such

weighing apparatus. Such register of inspection is of considerable service in connection with any proceedings under the Weights and Measures Acts, 1878 to 1892. A

SPECIMEN NO. 57.

SUMMARY OF QUANTITY AND COST OF FUEL RECEIVED DURING THE MONTH OF _____ 190

Date of Purchase.	Colliery or Merchant.	Quality.	Quantity. T. C.	Bought Price.	Discount.	Pit Price.	Wagon Hire.	Boat Hire.	Rates and Tolls.	Net Amount.	Remarks.

somewhat similar service is performed by the Machinery Examination Register, recording the dates on which the various machines should be, and were, cleaned and inspected. There are also Gas and Water Meter Reading Books, which show the readings of the various

Gas and Water Books.

gas and water meters at regular periods, and the consumption during such periods, whilst by the aid of subsidiary meters the consumption in different parts of the factory is obtained and the cost localised. There are also the Brigade or Fire

Precaution against fire.

Hose Book, in which is recorded the periodical examination of the hose and apparatus for the extinction of fire, as also the number and position of the fire-buckets, the names and addresses of the men (usually those resident near the works) who constitute the brigade, and the record of the date of consent of the owners of the street mains to the attachment of the hose pipes in case

of need; the Casualty Book, containing records of acci-
Patterns. dents which happen in the factory; the Pattern Book, containing particulars of patterns received and issued, in which each pattern is referred to by its symbol or number, a constituent therein being the office number of the Drawing, the Patterns Ledger showing the original cost of each set of patterns, and the amounts from time to time written off such cost; the Delivery Books, for obtaining carrier's receipts for goods; the Visitors Book, recording the names of visitors to the works, the dates and purpose of such visits, with, in some cases, a portion of the book set apart for the autographs of distinguished visitors; the Stores Delivery Diary, used for entering the due dates of stores ordered, and by daily examination leading to systematic reminders to suppliers of overdue goods; and a variety of other books too numerous to be enumerated.

There are also a number of books facilitating the work and general oversight of the business by the principal or his assistants, which, although they do not necessarily form part of the system of accounts, afford data for comparisons of expenditure in different periods on general and establishment charges. Among such books may be mentioned the Staff Register, containing the names, addresses, position, and salaries of members of the staff, the Stationery Register, containing a record of the quantities and qualities of the books, forms, prints and papers ordered, with the names of their suppliers, the costs, with the reference numbers, and code letters or symbols appearing on the forms, and thereby enabling the last supplies to be traced; the Catalogues Issued Register, chronicling the various dates of issue of catalogues, and the names and addresses of those to whom they were issued; the Advertisement Contract Register, containing particulars of contracts entered into or orders

given for advertisements, with specimens of the advertisements, and the rates at which they are inserted; the Notices Book, containing copies of all notices issued to the staff or members thereof, or posted in the works, with regard to the conduct of the business; the Licences Books, recording all licences taken out or to be taken out, whether in connection with the storage of gunpowder or other explosives, or inflammable oils, for the employment of male servants as coachmen, or for any purposes for which licences have to be taken out; the Boiler Inspection Book, containing records of the inspection of the boilers, and a copy of the report which, under the Factory and Workshop Act of 1901, has to be entered in or attached to the general register of the factory or workshop, showing the result of such inspection by a competent person.

Provident and other funds.

A reference to books relating to sick, provident, superannuation, and similar funds might be looked for in this chapter, but inasmuch as these are generally conducted by a committee of those interested, a description of the books required does not fall within the limits of this volume. For the convenience of the employés, their subscriptions to these funds may, as described in Chapter II., be deducted from the amounts due to them as wages, but at this point the connection of the funds with the factory books generally ends. The disposal of the amounts deducted from the wages of employés on account of fines rests, of course, with the principal. If, as is generally the case, they form a contribution to the sick fund, the necessary entries are made in the commercial books.

The books which have to be kept under the Factory and Workshop Act also require to be mentioned. We do not, however, consider it necessary to describe them in de-

Books required by Factory Acts.

tail, as all registers, books, forms, certificates, etc., prescribed by the Secretary of State in pursuance of the Act can be purchased ready for use.* The Act deals with the sanitary conditions of factories and workshops, and with the safety of the workpeople, fixes the hours of work and of meals, prescribes holidays, provides for the education of children employed in factories, requires certificates of fitness for employment to be obtained, and contains regulations as to the investigation of the cause of accidents. The Act also contains conditions as to overtime, night work, domestic employment, etc., and special provisions for particular classes of factories and workshops.

It is also desirable that one or more of the responsible officials at the works should be well posted as to the provisions of the Public Health Acts, as also in the bye-laws of the local authorities of the district, particularly those relating to smoke and sanitation. Copies of the local bye-laws should either be posted in the works, or supplied to the foremen or leading hands.

Economic considerations.

There are some considerations with regard to the economic aspects of overtime, piece-work, and kindred subjects which could not well be referred to in that portion of the work dealing with the book-keeping relating to those subjects, but which have too important a bearing upon our subject-matter to be passed over; as, for instance, the relation to fixed capital of the questions of payment for labour according to ordinary time, overtime, and piece.

To pay overtime rate for labour which could be more

* They are published (by authority of His Majesty's Stationery Office) by Messrs. Shaw & Sons, Fetter Lane, London.

As to overtime. efficiently performed at the normal rate is obviously not economical on the part of an employer, who, indeed, seldom resorts to it save in cases of emergency and of time contracts.

As to fixed capital and double shifts. The interest on fixed capital and the provision against depreciation are factors in the cost of production which have a constant tendency to increase, and these, indeed, are to a very large extent independent of the number of hours employés are at work. Full advantage of the economies arising from the use of machinery is not likely to accrue until the principle of working double or treble shifts is more extensively adopted than at present. By the employment of two or three sets of men, each working eight hours a day, considerable benefit would accrue to the community. The objections commonly urged against the system are such as can be, and have been, surmounted; and experience shows that the aversion with which it is regarded by workmen is as transitory as has been their dislike to the system of payment by results, known as piece-work, which is becoming more and more general in trades in

As to piece-work. which individual workmen are able to work independently of each other, and where the piece-work rates can be fairly calculated and the work properly registered. An extensive and successful piece-work system is not, indeed, practicable where the solidarity of labour is so great that each workman cannot do his work independently and without the assistance of others, but where there is much division of labour piece-work is generally possible, although the parts made under that system may require the combination of several workpeople to complete or to adapt them to their final purposes.

Obvious as are the economic advantages resulting from

the adoption of piece-work, it is probable that the quality of the work performed under it is either stereotyped or lowered, and that the greatest advantage can only be obtained by interesting the worker in the quality as well as the quantity of his work. It has been well pointed out that "two equally capable and energetic men, one of whom is working on his own account and the other performing at fixed wages services which have for their object the enrichment of an employer, notoriously present two very different standards of activity. The former is full of enterprise and alacrity; the latter is wont to be slack and unaspiring and disinclined to make any effort bodily or mental not included in the average standard of performance recognised by his fellows. Where piece-work prevails, the above remark ceases to be applicable as far as mere quantity of production is concerned; but the contrast remains as great as ever in respect of the alertness of eye and brain to avoid waste of materials and injury to plant and tools, to suggest reforms in current technical procedure, to improve quality, and, generally speaking, to attain an enhanced commercial result by other methods than piling up a miximum of such work as will only just pass the scrutiny of the examiner appointed to check it. In short, full exertion of bodily and mental powers is obtainable only from men whose own interests are fully engaged in the result of the work to be performed."*

Trades union views.

Some of the trades unions, however, have for one of their objects the limitation of the principle of piece-work, and if possible its absolute prevention. They urge that employers generally base the calculations

* "Profit-sharing between Capital and Labour." Sedley Taylor. London: Kegan Paul, Trench & Co. 1884.

for the piece-work rates upon the standard established by the quickest and strongest workmen, and that by these means the weaker men have, in order to earn the wages necessary for bare subsistence, to exert themselves to an undesirable extent; and that the rate of wages usually paid for piece-work is usually reduced by the employers almost in direct proportion to the efforts of the workmen. The fact that payment by the piece offers inducement to work being done with rapidity, to the sacrifice of finish, probably accounts for the large amount of work which might be done on the piece-work method being still paid for by the day, skilled labour, rather than rapidity of output, being required.*

It has been pointed out by Sidney and Beatrice Webb† that the opposition by Trade Unionists to piece-work in certain trades arises mainly from the difficulty, owing to the character of the operations performed in these trades, of obtaining or maintaining a uniform or standard rate of remuneration if piece-work is introduced, whilst in other trades the standard rate is best maintained by the adoption of piece-work rates. From tables prepared in 1896, it appears that out of 111 principal Trade Unions, 49 insisted on piece-work, 24 recognised in various departments both piece-work and time-work, and 38 insisted on time-work. The society with the largest membership in the third section was the Amalgamated Society of Engineers, whose opposition is, however, now considerably modified. One of the terms of settlement, however, in January, 1898, of the great engineering strike, embraced under the term

* For a full and fair statement of the advantages of the method of piece-work, and of the objections to it, we refer to "Methods of Industrial Remuneration," by David F. Schloss. Williams & Norgate, London, 1892.

† In "The Standard Rate," in "Economic Journal," 1896.

"Conditions of Management" the following clause: "The right to work piece-work at present exercised by many of the federated employers shall be extended to all members of the federation, and to all their union workmen."

In the United States of America the opposition of the International Association of Machinists is by no means relaxed, and its official representative has recently declared that the Association will never be a willing party to the propagation of piece-work. In the States, more than at present in the United Kingdom, the original defects of the piece-work system are being modified by the intensified or differential piece-rate system, and the premium plan of labour remuneration. The incentive to quickened production being diminished by the "dropping" of rates when piece-work balances have been in the opinion of the employer too largely in favour of the employé, some employers have adopted the differential rate system, which "consists in offering for the same job, a high price per piece if the work is done in the shortest possible time and in a perfect condition, and lower prices per piece for slow and imperfect work."* In these cases it is not usual to fix the rate primarily on the records which show the shortest time in which the same or similar work has been done, but on the basis of a calculation by a rate fixer as to the time that the work under ordinary and average conditions would occupy with provision for higher rate for shorter time, subject to there being no deterioration in quality. It is claimed for this system that it maximises output, by leaving to labour the extra reward of skill and application. It has stood the test of time in various works, among others those of the Midvale Steel Company of Philadelphia, where it was introduced by Mr. Fred. W. Taylor, with whose name the system

* "Engineering Magazine."

is often associated. The premium plan, which has been successfully adopted in many works, was the result of much care and thought given by Mr. J. A. Halsey to the problem of reconciling the divergence of interest between employer and employed in quickening production. The basis of this plan is the continuance of payment by time, modified by the expectation of a certain minimum product within that time, with a bonus or premium for lessened time, which is, of course, equivalent to increase of product. The direct labour gain to the employer consists of the difference between the premium and the wages cost saved. The division of the gain as between employer and employé presents, of course, some difficulty. In some cases a certain proportionate part of the gain is allotted to the employé. Mr. Halsey himself adopts the principle of being liberal with the time rather than the premium rate.

The premium plan is in the main identical with the system adopted in many factories and works in the United Kingdom under the name "gain sharing," which has been defined as* "an arrangement under which a fixed or minimum wage is supplemented by a premium proportionate to the efficiency of the workman, so far as this exceeds a specified standard."

With regard to the question of the relative pecuniary value of task-work as against time-work, each and every case must be decided on its own merits; and where the system is adopted tentatively the book referred to on page 30 is especially valuable, as showing whether labour by time or by piece is the more economical.

The regrettable difference of view between capitalists and workmen as to these matters prevents the attainment

* "Profit Sharing and the Labour Question." By T. M. Bushell. London: Methuen.

Conflict of capital and labour.

of the highest degree of efficiency in production, and is therefore to the prejudice of all interests, but it is not possible "to expect any marked improvement in the general economic condition of the country, as long as the production of wealth involves a keen conflict of opposing pecuniary interests. The forces which ten men can exert may be completely neutralised if they are so arranged to contend against, instead of assisting, each other. Similarly, the efficiency of capital and labour must be most seriously impaired when, instead of representing two agents assisting each other to secure a common object, they spend a considerable portion of their strength in an internecine contest. All experience shows that there can be no hope of introducing more harmonious relations, unless employers and employed are both made to feel that they have an immediate and direct interest in the success of the work in which they are engaged."*

Views of authorities on labour questions.

The recognition of this fact by all who have studied the labour question in this country renders it incumbent on employers and accountants connected with industrial undertakings to consider carefully the possible tendency of the modern factory system, and it is therefore desirable in a book dealing with Factory Accounts to mention, however briefly, the views of some authorities—theorists and practical men—upon this subject; especially as whatever the next stage in the evolution of industrial organizations may be, there can be little doubt that the tendency must be more and more to greater detail and accuracy in the preparation of accounts which form the basis of apportionment, as between partners, or as between rival and contending interests. The feeling of conjoint or mutual interests referred to by Professor Fawcett can only

* "Pauperism." Henry Fawcett, M.P. London: Macmillan.

be developed by the employé feeling that he is a participator in due share of the benefits arising from greater exertion, economy and efficiency on his part; and by the employer recognising that in the exercise of those faculties the employés have the power of augmenting old, and creating new, sources of profit. As has been well pointed out by Lord Brassey: "A more complete identity of interest between capital and labour is earnestly to be desired. In so far as that consummation is to be accomplished by the workmen themselves—and they must be active instruments in their own advancement—our hopes for the future rest on co-operative industry. Their efforts must commence with the simplest forms of industrial organization—those which require the least amount of capital, and are most free from the fluctuations so painfully felt in international commerce. In industries which cannot be organized so readily on the co-operative plan, the extended operations of the joint-stock companies will secure the publication of profits, and afford opportunities to the workmen for participation, as holders of shares, in the profits of capital."*

Lord Brassey.

An extension of the principle of joint-stock enterprise, which at present affords the most available opportunities for the investment of small sums, might serve to operate in the direction desired if only the working classes could avail themselves of its advantages; but in this respect there is little encouragement to be gleaned from the past, although the laws which have been in force for some years afford facility for the co-operation of labour with capital. Great expectations have been founded upon the facilities possessed in some cases by working men to become part proprietors in the businesses

Joint-stock enterprise.

* Report of the Industrial Remuneration Conference. London: Cassell & Co.

in which they are engaged, but industrial co-operative associations on a large scale have yet to be established.

It was the opinion of the late Professor Jevons that, "there can be no doubt that the soundest possible solution of the labour question will eventually be found in such a modification of the terms of partnership as shall bind the interests of the employer and workman more closely together." Under such a system the weekly wages would be regarded merely as subsistence money or advances which the employer would make to enable the labourer and his family to await the completion of the interval between manufacture and sale. The balance of the value produced would be paid at the end of the year or half-year in the form of a dividend or bonus, consisting in a share of all surplus profits realised beyond the necessary charges of interest, wages of superintendence, cost of depreciation and capital, reserve to meet bad debts, and all other expenses of production for which the employer can fairly claim compensation. Under the name of Industrial Partnership such an arrangement has been experimentally tried in England, and has been subject to a good deal of adverse discussion."*

Professor Jevons.

This adverse criticism is to a large extent due to the failure of the tentative trials of the system of co-operative production in several cases, but the conditions under which the tests were made were unfavourable, and the circumstances in each case were not such as permit of any general or definite rule being deduced from the result.

Co-operative production in England.

Notwithstanding these unsuccessful attempts in England to establish industrial partnerships it must not be

* "The State in Relation to Labour," chap. x., p. 142. By W. Stanley Jevons. London: Macmillan.

assumed that this country is unable to show any signs of encouragement to the advocates of this principle, and on reference to the tabulated returns of the Co-operative Productive Societies it will be seen that examples of the successful working of the system are not confined to other countries. It is, however, on the Continent that the principle of industrial partnerships has made the greatest strides, and in France, according to Mr. Sedley Taylor, "the principle of participation, organized under a great variety of different forms adapted to differing industrial conditions, has been applied with success to almost every class of undertaking, productive, distributive, or purely administrative."

Industrial partnerships on the Continent.

The system "consists in assigning to the employed, over and above their wages paid at the ordinary market rate, a part of the net profits realized by the concern for which they work," and the material successes achieved are stated to have been little short of marvellous.

The economic basis upon which the principle rests is best stated in the words of Mr. Taylor himself. "The fund on which the participation draws is the surplus profits realized in consequence of the enhanced efficiency of the work done under its stimulating influence. Such extra profit is, therefore, obtainable whenever workmen have it in their power to increase the quantity, improve the quality, or diminish the cost price of their staple of production by more effective exertion, by increased economy in the use of tools and materials, or by a reduction in the costs of superintendence. In other words, the surplus profit realizable will depend on the influence which manual labour is capable of exerting upon production. Evidently, therefore, this influence will be greatest in branches of industry where the skill of the

Their economic basis.

labourer plays the leading part, where the outlay on tools and materials bears a small ratio to the cost of production, and where individual superintendence is difficult and expensive. It will, on the contrary, be least effective in industries where mechanism is the principal agency, where interest on capital fixed in machinery is the chief element of cost price, and where the workmen assembled in large factories can be easily and effectively superintended."*

The methods by which the share belonging to the employés under a system of industrial partnership is determined vary with different trades, and are fully described in the various reports which have from time to time been issued by the Board of Trade, the most recent being the report by Mr. J. Dent, on Workmen's Co-operative Societies (D 698), as also in the annual reports of the "Labour Association for promoting Co-operative Production based on the Co-partnership of the Workers." The three main divisions are—1, Where the workmen's share of profits is distributed in the form of an annual cash bonus; 2, where that share is invested for the benefit of the employés; 3, where part is annually distributed among the workpeople and part invested for their benefit.

More recently the term "industrial partnership" has come to be applied to those cases in which the employed share with the employer in the management of the business, a notable example of this being found in the case of the South Metropolitan Gas Company. Among co-operators this system is often described as one of co-partnership, the term first applied to it by Mr. E. O. Greening, and is defined as a system in which the employés of a "business have, in right of their labour, a substantial share fixed in

* "Profit Sharing." Sedley Taylor, M.A. London: Kegan Paul, Trench & Co.

advance on the profits thereof, and in which they have also an effective share in the capital, control, and responsibilities."

The term "profit-sharing" is now more particularly applied to those arrangements under which, to quote the definition of Mr. F. D. Schloss, "an employer agrees with his employés that they shall receive in partial remuneration of their labour, and in addition to their ordinary wages, a share fixed beforehand in the profits of the business." This definition is substantially in accord with that adopted by the International Co-operative Congress at Delft in 1897, reading, "by a share of profits is meant a sum paid to an employé in addition to wages out of the profits, and the amount of which is dependent on the amount of those profits." *

Obstacle to their extension.

It is the absence of mutual confidence between employers and employed which is the greatest obstacle to the success of industrial partnerships, and so far is this the case in this country that a working man, speaking at the Industrial Remuneration Conference, described profit-sharing "as nothing less than a delusive bait on the part of capitalists to goad the workers on to greater intensify of toil." That this accentuated feeling is not general to any extent is proved by the public utterances on the subject of representative working men, and by the remarks of other speakers at that conference.

Views of representative working men.

The most widely-spread objection on the part of the employés is, that they have no certainty as to an employer's profit, no means of ascertaining its extent without an investigation of the accounts, and even in many cases when information has been required for

* For much interesting information as to the new trend of the co-operative

boards of conciliation or for arbitrators, and where the result would have been communicated by the investigator to an umpire only, such an investigation has been refused.

But this difficulty could of course be overcome by an inspection of the books being confidentially made by a sworn accountant, always provided that, as pointed out in a previous chapter, the groundwork of the system of accounts is such that each employé feels he is contributing to the attainment of accurate records of cost, and has general confidence in the manner in which the accounts are kept.

Influence of proper method of accounts.

The other objections to the adoption of the principle of industrial partnerships, sometimes advanced by heads of firms and founded upon a "dread of the extra trouble of management and account-keeping thereby entailed,"* afford further exemplification of the need of systematic and accurate methods of dealing with Factory Accounts; and of the fact that their principles are so little comprehended as to be considered inapplicable under any new set of conditions. Our contention is that these principles have a scientific basis, rendering them applicable to any condition of industrial organization; that to demonstrate their economic results is peculiarly the province of the accountant, and to the attainment of that end a clear and complete system of Factory Accounts is essential

* "Reports of Her Majesty's Representatives Abroad on the System of Co-operation in Foreign Countries." Blue Book, Commercial, No. 20. London: Hansard.

APPENDIX A.

NOMENCLATURE OF MACHINE DETAILS.

By Oberlin Smith, President of the Ferracute Machine Company, Bridgeton, N.J.

A Paper read before the American Society of Mechanical Engineers, and reprinted by the kind permission of the Author.

That the nomenclature of machinery, and of the tools and apparatus with which it is constructed is, in this country, in a state of considerable confusion scarcely needs demonstrating. If we look from an international point of view, and include the other English-speaking countries,—Great Britain and her colonies —the confusion becomes worse confounded. A reform is destined, in due time, to come, doubtless to be promoted in great degree by such societies as ours. This reform movement cannot be begun too soon, and should aim at giving brief and suggestive names to all objects dealt with,—each object to have but one name, and each name to belong to but one object. A simple method of beginning such a reform would be a common agreement among all our engineering schools to use each technical word in but one sense, and with no synonyms. A lesser field of reform, and one which lies more particularly within the jurisdiction of individual manufacturers, is the comparative designation of a number of sizes or kinds of the same machine. There is now no common understanding whether a series of sizes shall be numbered or lettered from the largest down, or from the smallest up. The latter is undoubtedly the most natural and suggestive method, but usually becomes confused by want of careful forethought (when starting a series) in providing "gaps" for the insertion of future sizes. If a numerical series has been already started, and become commercially established, the only systematic way to insert new sizes

(either at the beginning or through the middle of the series) is to use fractional numbers. This, though awkward in sound and appearance, seems to be the only means of suggesting the comparative size of the article by its name. The use of arbitrary higher numbers between the others is, of course, worse than no numbers at all. The use of a series of letters does not supply this fractional loophole of escape, the euphony of A-and-a-half, K-and-three-quarters, &c., being somewhat doubtful. Another method in much favour is the use of "fancy" names, such as "Diminutive Giant," "Eureka," "Firefly," &c. These are far preferable to confused numbers, as they are not intended to convey any ideas between manufacturer and customer, and admirably succeed in their purpose. All this is a very difficult subject to deal with, and one in regard to which we can scarcely hope for any exact system. We can but point out to manufacturers two general principles to be followed: 1st, of leaving abundant *gaps*—that is, let a regular series run 10, 20, 30, 40, &c., instead of 1, 2, 3, 4, &c.; and 2nd, of using the smaller numbers for the smaller objects. The second is similar in idea to the well-known Philadelphia house-numbering system, which has worked so admirably in practice, and which has been copied by numerous other cities.

The two foregoing paragraphs are intended respectively as but casual allusions to the technical and commercial nomenclature of machinery in general. The subject is too elaborate to be treated at length in this paper, the main purpose of which is to set forth the results of the writer's experience in establishing a system of names and symbols for all the component parts, commonly called "details" of machines, or, in fact, of any manufactured articles.

That some such system is necessary, no engineer who has attempted to manufacture machinery by the modern system of duplicate (or approximately duplicate) parts, will, for a moment, question. The necessity for a specific name for each piece, which name is not, never has been, and never will be, used for any different piece of the same or any other machine, is evident, simply for purposes of identification. This identification is required mechanically at almost every stage of production. The name, or a symbol representing it, should be marked upon the drawings, the patterns, and the special tools pertaining to each piece, and, when convenient, upon the piece itself. Commercially, it is required on time cards and in indexes and pattern lists and cost books as pertaining to production. Pertaining to sales these names or symbols must appear in illustrated price lists, and in orders by and charges

to customers. This, our modern method of repairs, by selling duplicate parts, renders imperatively necessary.

The requisites for a good system of names and symbols are: 1st, *isolation* of each from all others that did, do, or may exist in the same establishment. 2nd, *suggestiveness* of what machine, what part of it, and if possible, the use of said part—conforming, of course, to established conventional names, as far as practicable. 3rd, *brevity*, combined with simplicity. Of the importance of isolation to prevent mistakes and confusion; of suggestiveness to aid the memory; of brevity to save time and trouble, it is hardly necessary to speak.

Regarding the systems now in use in our best shops, this paper will not attempt detailed information. It is understood that the names are more or less scientifically arranged; depending, of course, upon the amount of study and the quality of the brains that have been expended upon them. In cases where symbols are used, supplementary to the names, they usually consist of letters or numbers, or (oftener) a combination of both. Many of them (both names and symbols) fail in symmetry and suggestiveness, because little attention has been paid to the names of the machines themselves, as regards the serial consecutiveness hinted at in paragraph 2nd. The quality of brevity often suffers, severely, because the name and symbol must, in most cases, each have the machine name prefixed, to secure their perfect isolation. The latter quality is rarely dispensed with, simply because the manufacturer's pocket would be too directly touched by the expensive resulting mistakes. A perusal of some machinery catalogues which give detailed lists of parts is very harassing to a systematic mind. They are apt to derive one part name from another, prefixing the latter as an adjective each time, until some such pleasant title as "lower-left-hand-cutting-blade-set-screw-lock-nut" is evolved. If there are symbols provided, they consist of some unknown combinations of letters part way down the list, and then change to arbitrary numbers, or perhaps to nothing at all. It will often be noticed also that no particular order appears to be followed in numerical arrangement, similar parts being scattered at random through the list.

The scheme to be described further on has been evolved gradually from the experience gained in managing a growing machine business. This scheme is far from perfect, and is probably inferior to others which have not been made public; but it seems to answer the purpose aimed at, viz., a comprehensive and elastic system which will accommodate itself to an unlimited

growth and any variation in quantity or kind of goods manufactured. This, the methods we first tried would not do, being too limited in their scope.

It should be here explained that the word "we," as just used, refers to the above-mentioned machine works, with which the writer has long been connected; and the scheme in question will be spoken of as "our symbol system." To further define terms: "machine name" and "machine symbol" refer respectively to the name and symbol of the whole machine—or other article of manufacture; for it will be noticed that the system is applicable to almost any products, except those of a textile or chemical nature. "Piece name" and "piece symbol," in like manner, refer to the separate pieces of which the whole is composed. The terms "detail," "part," and "piece," have so far been used synonymously. It is doubtful which is really the best to establish as a standard, but we have adopted "piece" as best expressing the idea of one piece of material, reduced to the last condition of subdivision. In our practice, exceptions are made to this requirement of homogeneousness in such cases as chains, ropes, belts, &c.,—also material glued or welded together—in short, anything which may (like a man) be called *one piece*, because it is not intended ever to be taken apart. The character for equality (=) will be used to show connection between a name and its symbol. A brief glance at the history of our system shows that at first we (like many others) hit upon the plausible idea of using numbers for machine symbols and letters for piece symbols. The numbers were somewhat "gapped," but not to such an extent as we now should practise. Examples: If four sizes of pumps were symbolled 1, 2, 3 and 4, their barrels might = 1-A, 2-A, &c., and their handles = 1-B, 2-B, &c. If the next product made was a series of lathe dogs, they would probably be symbolled 11, 12, 13, &c. Their frames would = 11-A, 12-A, &c., and their screws, 11-B, &c. This all worked beautifully until the products became so complicated as to contain more than 26 pieces! After tampering a little with the Greek alphabet (which seemed calculated to scare our new workmen), and trying to use a mixture of small and capital letters (which looked too near alike), we fell back upon the clumsy device of repeating the alphabet, with letters doubled or tripled.

When we finally abandoned the above plan, several methods were carefully studied. The next most obvious was to use letters for machines and numbers for pieces. This allowed any quantity of the latter, but limited the machine to 26, even with no gaps

provided. A certain modification of this method is, perhaps, more in use than any other system. In it letters are used for different sizes or styles of a certain kind of machine, and used over again for some other kind, *ad infinitum*. This answers the purpose, because there are not likely to be more than 26 varieties of one machine. It has, however, the fatal objection of requiring the whole machine name prefixed to each symbol, in all cases where the symbol stands alone, and does not happen to be written with the others of the set in tabular form. As the general name of a machine usually consists of at least two words, a complete piece symbol becomes too long for convenience in labelling. Examples: Force pump, K—26; Lathe dog, H—2.

Another system consists in using numbers for the machines and numbers for the pieces. This gives isolation and brevity, but no suggestiveness. A serious objection to it is the danger of blurring the numbers together, or of transposition in writing or reading them; also in the fact that either number cannot be used alone, as it can in the case of letters and numbers.

A similar system to the above consists in the use of letters for both symbols. It has the same disadvantages, and the additional one of a limitation in the quantity of letters at disposal.

Our system, as finally decided upon, is as follows: Machine names and piece names are determined by the designer, in general according with the principles already pointed out, being, of course, made as brief and suggestive as possible, with no two machine names alike, and no two piece names alike in the same machine. In this nomenclature no positive laws can be followed but those of common sense and good English. A *machine symbol* consists of a group of *three* arbitrary *letters*—capitals. A *piece symbol* consists of an arbitrary *number* and follows the machine symbol, connected by a hyphen; thus FPA-2 might symbolise the force-pump handle before alluded to—smallest size. The machine symbol may be used alone when required, as FPA.

As thus described, these symbols fully possess the qualities of isolation and brevity. To make them also suggestive, some attention must be paid to what letters to use. In practice, we aim to make the first two letters the initials of the general name of the machine, and the last letter one of an alphabetical series which will represent the sizes of the machine. An example of this is shown in the symbol for the smallest-sized force pump FPA. If there is any chance of a future smaller or intermediate size, gaps should be left in the alphabetical order. This "initial" method cannot always be strictly followed, because of such duplicates as

FPA for force pump and foot press. The remedy would be to change one initial for one beginning some synonymous adjective, that is, foot presses might be symbolised TPA, assuming that it stands for treadle press. Usually the least important machine should be thus changed. From this it will be seen that, in defining the theory of this scheme, the words "arbitrary letters" were purposely used. The idea is to make the system thoroughly comprehensive. There might be such a number of machines having identical initials that the letters would be almost arbitrary. In practice, the designer can usually succeed in making the symbols sufficiently suggestive.

In considering how many letters to use in a symbol, considerations of brevity advised two, suggestiveness three or four. Two letters did not allow of enough permutations, nor indicate well enough the kind and size of machine. Three seemed amply sufficient in the first respect, as it provided over 17,000 symbols. If, for any reason, in the future four letters should seem desirable, the addition of another would not materially change the system. If three letters hyphened to a number of one, two, or three digits should seem bulky, remember that this symbol can stand by itself anywhere and express positively the identity of the piece. Its comparative brevity is shown by comparing the second and third columns of the following table (*A*). In the different lines an idea is given of the application of the system to a variety of products not usually made in any one shop.

TABLE A.

1st.	2nd.	3rd.	4th.	5th.	6th.
Full name of machine and piece.	Our Symbol for it.	Symbolic name as often used.	Characters in Col. 2.	Characters in Col. 3.	Excess of Col. 5 over 4.
6″ × 4′ Engine lathe, spindle head	ELA—4	Engine Lathe, A—4 . .	4	13	9
No. 4 Power Press, frame	PPD—1	Power Press, D—1 . .	4	12	8
7″ × 14″ Steam Engine, crank shaft	SEG—51	Steam Engine, G—51 .	5	14	9
Buckeye Mowing Machine, left axle nut	MMD—81	Mowing Machine, D—81	5	16	11
No. 3 Glass Clock, main spring	GCC—105	Glass Mantel Clock, C—105	6	20	14
One-hole Mouse Trap, choker wire	MTA—3	Wooden Mouse Trap, A—3	4	17	13

TABLE B.

FPL — No. 3 FOOT PRESS. — Weight.

Piece No.	Same as	Piece name.	Material.	Quantity.	Rough weight.	Finished weight.	Aggregate finished weight.
1	.....	Frame	Cast Iron	1	220	200	200
2	.....	Gib	,,	1	10	9	9
3	.....	Side Bar	,,	1	45	40	40
4	.....	Front Leg . . .	,,	2	30	30	60
5	.....	Back Leg . . .	,,	1	40	40	40
6	.....	Treadle	,,	1	17	15	15
7	.....	Lever	,,	1	85	80	80
8	FPH-8	Lever Weight . .	,,	4	5	5	20
9	.....	Pitman	,,	1	12	10	10
10	FPH-10	Clamp Sleeve . .	,,	2	3	$2\frac{1}{4}$	$4\frac{1}{2}$
21	.....	Lever Pin . . .	Steel . .	1	$2\frac{1}{2}$	2	2
26	FPJ-26	Treadle and Pitman Bolt	Iron . .	3	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$

Table B is a specimen of part of a page of our "Symbol Book," in which are recorded any machines which have arrived at such a state of perfection and saleability as to be marked "Standard" on our drawings.

This table almost explains itself. The piece numbers in 1st column do not have the letters prefixed, because the latter stand at the top of the column. "Same as" means that the piece is identical with a piece belonging to some other machine, and can be manufactured with it. If it is common to several machines in a set, the smallest of the set in which it occurs is given. The "quantity" column tells the number of pieces of a kind required. The last "weight" column, added upward, shows total weight of machine. The piece numbers are "gapped" after each kind of material, and also at the ends of "groups," as described further on. This is to allow for future changes and additional pieces; also that other nearly similar machines having more pieces may in general have the same piece numbers.

The order in which the pieces are numerically arranged cannot follow positive rules in all cases. In our list of instructions (too long to be here quoted) we direct a classification by *materials*. In each class we group pieces of the same general character, in regard to the prevailing work to be done upon them, and in natural "machine shop" order; *i.e.*, first planing, then drilling or boring, then turning. We also aim to place the heaviest and

most important pieces first. Between each group we "gap" the numbers.

Regarding position in naming pieces, we assume a front to the machine (where the operator is most likely to be placed), and define direction tersely as "forward," "back," "right," "left," "down," "up." The adjectives of position prefixed to piece names are, of course, derived from these words, as "upper," "lower," &c. A perpendicular row of similar pieces, say five, would be rated upper, second, third, fourth, and lower. A number of different-sized pieces of similar name may, in like manner, be prefixed smallest, second, third, &c.

Before closing, a brief reference to certain (two) supplementary symbols may not be out of place. One is a small letter after a piece symbol (as FPL-21-a), signifying that the piece is obsolete, the standard FPL-21 having been altered.* After a second alteration, the last obsolete piece would be suffixed "b," and so on. Thus duplicate pieces of old-style machines can be identified and supplied to customers. The other symbol referred to is to indicate the number of the operation in the construction of a piece, and is written thus: FPL-21-1st, FPL-21-2nd, &c. Its use is of great value on detail drawings, time cards, and cost cards. It enables any operation (no matter how trivial) on any piece of any machine to be identified by a symbol alone. An *operation* we define as any work which is done by *one person at one time*, before passing the piece along and commencing upon another.

* In a letter to the authors, Mr. Oberlin Smith writes: "I have not yet changed the system in my own practice, and do not see anything which I think it desirable to change except the first *supplementary* symbol mentioned in the first part of the last paragraph. The principle there mentioned is not strictly logical, as it gives the same symbol to a piece in present use which in a previous year was given to a somewhat different one now obsolete. This matter I intend to modify somewhat, but have not yet had time to do so."

APPENDIX B.

THE INCOME-TAX ACTS

IN THEIR BEARING UPON THE PROFITS OF MANUFACTURE.

THE Income Tax is, as is well known, assessed by boards of local commissioners in conjunction with Government officials, known as "Surveyors of Taxes," according to the provisions of a series of Acts of Parliament. In case of overcharge the most convenient course is to communicate or obtain an interview with the Surveyor of Taxes as early as possible, but as the language of the Acts is in the main very precise, and most of the doubtful points have been interpreted by the decisions of the Courts, there is little discretion left to those who administer them. It is desirable, in preparing and placing accounts before the Surveyors, to bear in mind the principles on which the tax is assessed, and we have, therefore, thought it convenient to reproduce here the exact words of the more important provisions.

The chief Acts are 5 & 6 Vict. c. 35; 16 & 17 Vict. c. 34; 32 & 33 Vict. c. 67; and 43 & 44 Vict. c. 19, but there are many others. By 5 & 6 Vict. cap. 35 (1842) the several properties, profits, and gains in respect of which duties are to be assessed are classified under five schedules, known as A, B, C, D, and E. Schedule A (Landlord's or Property Tax) prescribes the rules as to the assessment of income from lands, tenements, and hereditaments. It is levied on the occupier, but is by him recoverable from the landlord. Schedule B prescribes the rules as to the assessment of income in respect of occupation of land, or of house property if occupied as part of a farm. Schedule C deals with incomes arising from annuities and dividends payable out of public revenues. Schedule D we describe in greater detail after Schedule E, which deals with incomes derived from all public offices and employments of profit.

The schedule with which we are here chiefly concerned is Schedule D, under which duties shall be charged for and in respect of the annual profits or gains arising or accruing to any person residing in the United Kingdom from any kind of property whatever, whether situate in the United Kingdom or elsewhere, or from any profession, trade, employment, or vocation, whether the same shall be respectively carried on in the United Kingdom or elsewhere. And for and in respect of the annual profits or gains arising or accruing to any person whatever, whether a subject of her Majesty or not, although not resident within the United Kingdom, from any property whatever in the United Kingdom, or any profession, trade, employment, or vocation exercised within the United Kingdom, and to be charged for every twenty shillings of the annual amount of such profits and gains. In ascertaining the profits of any person chargeable under Schedule D, it shall be lawful to estimate the value of all doubtful debts due or owing to such person; and in the case of the bankruptcy or insolvency of the debtor, the amount of the dividend which may reasonably be expected to be received on any such debt shall be deemed to be the value thereof, and the duty chargeable under the said schedule shall be assessed and charged upon the estimated value of all such doubtful debts accordingly (16 and 17 Vict. cap. 34, sec. 50).

The Rules under which the said duties shall be assessed and charged are contained in the Act of 5 and 6 Vict. cap. 35, and so far as they concern profits of manufacture, are :—

Full Profits on average of last Three Years.

(*a.*) The duty to be charged shall be computed on a sum not less than the full amount of the balance and profits or gains of any trade, manufacture, adventure, or concern upon a fair and just average of three years, ending on such day of the year immediately preceding the year of assessment on which the accounts of the said trade, &c., shall have been usually made up, or on the fifth day of April preceding the year of assessment, and shall be assessed, charged, and paid without other deduction than is hereinafter mentioned as allowed : Provided always, that in cases where the trade, &c., shall have been set up and commenced within the said period of three years, the computation shall be made for one year on the average of the balance of the profits and gains from the

period of first setting up the same: Provided also, that in cases where the trade, &c., shall have been set up and commenced within the year of assessment, the computation shall be made according to the best knowledge and belief of the person to be assessed (5 and 6 Vict. cap. 35, sec. 100).

On all Persons, Companies, and Occupations.

(*b.*) The said duty shall extend to every person, body politic or corporate, fraternity, fellowship, company, or society, and to every art, mystery, adventure, or concern carried on by them respectively, in Great Britain or elsewhere.

Deductions allowed from Gross Profits.

(*c.*) In estimating the balance of profits and gains chargeable under Schedule D, or for the purpose of assessing the duty thereon, no sum shall be set against or deducted from, or allowed to be set against, or deducted from, such profits or gains on account of any sum expended for repairs of premises occupied for the purpose of such trade, &c., nor for any sum expended for the supply or repairs or alterations of any implements, utensils, or articles employed for the purpose of such trade, &c., beyond the sum usually expended for such purposes according to an average of three years preceding the year in which such assessment shall be made; nor on account of loss not connected with or arising out of such trade, &c.; nor on account of any capital withdrawn therefrom; nor for any sum employed or intended to be employed as capital in such trade, &c.; nor for any capital employed in improvement of premises occupied for the purposes of such trade, &c.; nor on account or under pretence of any interest which might have been made on such sums if laid out at interest; nor for any debts, except bad debts proved to be such to the satisfaction of the Commissioners respectively; nor for any average loss beyond the actual amount of loss after adjustment; nor for any sum recoverable under an insurance or contract of indemnity. If the premises in which the business is carried on are owned by the occupier he is entitled to deduct

from the profits the full annual value of the trade premises as assessed under Schedule A.

Interest to be included.

(*d.*) No deduction shall be made on account of any annual interest, or any annuity or other annual payment, payable out of such profits or gains.

None but Trade Deductions allowed.

(*e.*) No sum shall be set against or deducted from, or allowed to be set against or deducted from, such profits or gains for any disbursements or expenses whatever, not being money wholly and exclusively laid out or expended for the purposes of such trade, &c.

It follows from these stringent provisions that the common practice of deducting from the gross profits of a concern, an equivalent for the current interest on the capital employed, or an allowance for the remuneration of the working partners, or any annual payment to the representatives of deceased partners, or the amount paid for Income Tax, is totally inadmissible for the purpose of Income Tax assessment. Questions will also often arise as to improvements made out of profits, enlargement of premises, purchase of improved machinery, or extra advertising for future advantage. Expenditure under these heads will be liable to be considered as capital outlay, not allowed to be deducted, especially if it is entered and shown separately from the ordinary current outgoings of the business. The Board of Inland Revenue, however, if a claim is made in respect of the introduction of modern machinery into a factory, does allow a deduction from the assessable profits of the year, of so much of the cost of replacement as is represented by the existing value of the machinery replaced. The Board in its memorandum or instruction on this point adds, "Any excess in the cost of the new machinery over the actual present value of the old, is an addition to the capital of the business, and cannot properly be regarded as a charge upon revenue for the purposes of Income Tax assessment." Questions may, and do arise, however, when replacements are charged to revenue and allowed for in the assessment as to any allowance for wear and tear on such plant and machinery.

Depreciation.

An improvement in the management of the tax as to deductions for depreciation of plant and machinery was introduced in 1878. The provision is as follows:—

That the Commissioners shall, in assessing the profits or gains of any trade, &c., chargeable under Schedule D, or the profits of any concern chargeable by reference to the rules of that schedule, allow such deduction as they may think just and reasonable, as representing the diminished value, by reason of wear and tear during the year, of any machinery or plant used for the purposes of the concern and belonging to the person or company by whom the concern is carried on; and for the purpose of this provision, where machinery or plant is let to the person or company by whom the concern is carried on upon such terms that the person or company is bound to maintain the machinery or plant and deliver over the same in good condition at the end of the term of the lease, such machinery or plant shall be deemed to belong to such person or company. Where any machinery or plant is let upon such terms that the burden of maintaining and restoring the same falls upon the lessor he shall be entitled, on claim made to the Commissioners, to have repaid to him such a portion of the sum which may have been assessed and charged in respect of the machinery or plant, and deducted by the lessee on payment of the rent, as shall represent the income tax upon such an amount as the Commissioners may think just and reasonable as representing the diminished value by reason of wear and tear of such machinery or plant during the year: Provided that no such claim shall be allowed unless it shall be made within twelve calendar months after the expiration of the year of assessment (41 Vict. cap. 15, sec. 12).

The cost of leases, or an annual sum set on one side for their depreciation or amortization are not recognised as allowable deductions, nor is anything allowed for depreciation of buildings.

We have already drawn attention (Chapter VI.) to the need of correctly ascertaining the amount to be charged for depreciation. In practice some difficulty may be experienced in inducing the surveyors or local commissioners to permit a sufficient deduction under this head in addition to allowing for repairs actually effected. They rightly attach much weight to the allowance which the proprietors of the concern actually make as among themselves, and it is obvious that careful attention to correct

book-keeping on this point, before the question is raised, will greatly facilitate a settlement. On this ground alone, the accounts should show clearly what is the amount written off for depreciation, not only in the aggregate but in detail, and the cost of repairs and replacements should be kept separately. The manner in which this may be done is fully described in the chapter on "Fixed Capital."

Return of Income Tax.

There is another important provision which is not, especially in the case of small manufacturers, sufficiently utilised because it is not sufficiently well known. It is not exaggeration to say that thousands of pounds could be annually reclaimed from the Government under the 133rd section of the Act of 1842, and the 6th section of the Act of 1865. Thus, if a manufacturer has made £10,000 a year for the last three years, he will be assessed and will have to pay on £10,000 this year. If, however, at the end of this year he has only made £5,000 profit, he will be entitled to recover back the tax, already paid, on £1,666, as well as to have his assessment for next year fixed at £8,333. Too often ignorance of the law leads him to be content with the latter gain only. If his profits still remain at £5,000, he can then again get back the tax on £1,666, and have his future assessment fixed at £6,666, and so on.

These sections provide that if within or at the end of the year current at the time of making any assessment, or at the end of any year when such assessment ought to have been made, any person charged to the duties contained in Schedule D, whether he shall have computed his profits or gains on the amount thereof in the preceding or current year, or on an average of years, shall find, and shall prove to the satisfaction of the Commissioners by whom the assessment was made, that his profits or gains during such year for which the computation was made fell short of the sum so computed in respect of the same source of profit on which the computation was made, it shall be lawful for the said Commissioners to cause the assessment made for such current year to be amended in respect of such source of profit as the case shall require (5 & 6 Vict. cap. 35, sec. 133); no such reduction, however, shall be made unless the profits of the said year of assessment are proved to be less than the profits for one year on the average of the last three years, including the said year of assessment; nor shall any such relief extend to any greater amount

than the difference between the sum on which the assessment has been made and such average profits for one year as aforesaid (28 Vict. cap. 30, sec. 6).

The salient point to be borne in mind is that the profits of the actual year enter into the computation of the three years' average when made, and that the provision is entirely to the benefit of the taxpayer, as should profits increase in the actual year, such increased profits cannot retrospectively be included in the three years' average. In effect, as actual profits for the year are not ascertainable at the time of assessment, the average profits are taken as the basis of assessment, with the safeguard to the taxpayer that if when the actual profits are ascertained they reduce the three years' average, the taxpayer is entitled to a refund of the tax on the difference between the averages arrived at on these two bases.

Exceptions to the Three Years' Average.

The owners of quarries, mines, ironworks, gasworks, salt springs or works, alum mines or works, water works, streams of water, canals, inland navigation, docks, drains and levels, fishings, rights of markets and fairs, tolls, bridges, ferries, and other concerns of a like nature are assessed on their annual value or profit.

The benefits of return of Income Tax on the principles as regards the three years' average referred to in the preceding paragraphs are, however, applicable to these classes of properties. By this means, if the actual profit is lower than the estimated and assessed profit for the one year, the excess is refunded to the taxpayer.

As regards liquidation and alterations in partnerships, it is provided:—

In case any person charged under Schedule D shall cease to exercise the profession, or to carry on the trade, on the profits of which he is assessed, or shall die or become bankrupt, or shall from any other specific cause be deprived of, or lose, the profits or gains on which the computation of duty was made, it shall be lawful for such person, or his executors or administrators, to make application within three calendar months after the end of each year to the Commissioners, and the Commissioners shall

cause the assessment to be amended and give relief. Provided that where any person shall have succeeded to the trade or business, no such abatement shall be made, unless it shall be proved that the profits and gains of such trade have fallen short for some specific cause since such change or succession took place, or by reason thereof, but such person succeeding to the same shall be liable to the payment of the full duties thereon without any new assessment (5 and 6 Vict. cap. 35, sec. 134.)

APPENDIX C.

THE RATING OF FACTORIES CONTAINING MACHINERY.

As, in the words of the preamble of a Bill introduced into the House of Commons in 1885, "Questions have from time to time arisen as to how far machinery and plant is to be taken into consideration in estimating the rateable value of the premises in which the business is carried on," it may be useful to give a brief outline of the present position of this subject.

Questions as to rateability.

The assessments originate with local surveyors and assessment committees, and in practice the greatest diversity prevails in computing them. When there are a few small factories in a district the value of the machinery is often ignored in framing the assessment, which is in such cases based on the estimated or actual net rental value, as with a shop or dwelling-house. In districts in which industry is localised the assessing authorities often take the capacity of production as the guide to the assessment, and base their computations on the spindle, horse-power, or other common factor in the trade,* whilst in many instances the assessors have adopted rules originally intended for very different kinds of property, or formulated entirely

The assessing authorities.

Varying modes of assessment.

* Such an assessment does not take cognizance of the wear and tear of machinery and its tendency to obsolescence, and thus bears unduly and unfairly against those factories which have been longer established than their rivals, and are already burdened with older type machinery. In a pamphlet on the "Incidence of Local Taxation," Mr. Hedley states that in 1883 the Hunslet Union Assessment Committee decided to disregard the law laid down by the High Court (in the Bishopswearmouth case) and resolved to exclude

new modes of valuation. This want of uniformity as between district and district, handicaps certain trades in the one as compared with similar trades in the other district, whilst inequality or uncertainty of allotment is unfair as between individuals trading in the same district, for "it must always be remembered that the real end and object for the assessment of property is not to determine as a mere speculative question the rent at which it might let from year to year, but to bring the particular property down to a common basis, so that the burden of the poor-rates may be equally borne by the occupiers within the parish. This being so, it does not seem unreasonable, when any difficulty arises in ascertaining how a particular property or class of property is assessed, that reference should be made to the rules that prevail in the valuation of ordinary classes of property in the parish. Special properties may require special rules, but where there is no such necessity the occupier of property has a right to have applied to his occupation the principles which determine the rateability of other property." *

Assessment should be on common basis.

That machinery *per se* is not rateable is generally admitted; indeed, any other conclusion would be inconsistent with the Act by which personal property was declared not to be rateable. The question is as to how far in factories or works the machinery is to be taken into account as enhancing the rateable value of the hereditaments. The law on this point, if law there can be said to be, is to be found in the judges' decisions in cases of appeals against assessments, and these decisions have so widely differed that the author of the legal text-book already referred to admits that it is impossible to reconcile them, whilst many factory occupiers believe that certainty and equality in assessment are only to be obtained by legislative definition of what machinery is to be considered in the assessment.

Chattels not rateable.

Legal decisions.

* machinery from the assessment of the works, and to rate all engines at a uniform rate of £4 per horse-power. And he adds, "To rate all engines on a uniform rate of £4 per horse-power, irrespective of whether they are common engines with egg-end boilers and a few feet of shafting, or high-class engines with tubular boilers, super-heaters, and many yards of shafting, is clearly as unfair and unequal as it would be to rate all agricultural lands in the Union at a uniform rate of £2 per acre, irrespective of whether the land is worth £1 or £5 per acre."

The cases referred to extend over the last hundred years, but only four of these need now be taken as landmarks of the subject.

The Phœnix Gas Company case.

In 1866 the assessment of the Phœnix Gas Company was appealed against, but it was held that the steam-engines, boilers, gasholders, retorts, and purifiers at the works and the mains in the public streets added to the permanent value of the freehold, and as such were rightly considered in the assessment.

The Halstead silk factory case.

In the following year, however, in the case of a silk factory at Halstead it was held that looms and other machines merely screwed to the floor came under the category of movable fixtures, and were not to be considered in the assessment.* In 1877-8, however, the late Lord Chief Justice Cockburn, in the case of "Laing and the Overseers of Bishopswearmouth," expressed some doubt as to the decision in the Halstead case, and with reference to the case then before the Court, said: "This strikes me as being a case the principle involved in which is of very considerable importance, in which I should hope there would be a final and binding authority upon the subject, and in which we may have to consider the effect of these cases (the cases quoted in the argument), which perhaps may prove to be somewhat in conflict with one another."

The Laing case.

An important decision.

In this instance it was held that the lathes and machines for planing, drilling, punching, and riveting were properly included in the assessment, as such machinery, though some of it might be capable of being removed without injury to itself or the freehold, was "essentially necessary to the shipbuilding business to which the appellants' premises are devoted, and must be taken to be intended to remain permanently attached to them so long as these premises are applied to that present purpose."

This decision has been the subject of considerable discussion

* Trade fixtures generally (using the term as inclusive of both removable and permanent fixtures) are said to be both theoretically and legally rateable, but the practice of exempting removable fixtures has become almost universal. "The law is that they are part of the premises, and pass under a mortgage, and a tenant is allowed to remove them during his term, not in the same way as he may his carpets, but only because the Courts were induced to relax the strictness of the old rules of law in order that the commercial interests of the country might be enhanced by the encouragement given to tenants to employ their capital in making improvements for carrying on trade, from the certainty of having the benefit of the expenditure secured to them at the end of their term."—"A Practical Treatise on the Law of Rating." E. J. Castle, K.C.

in the press and at meetings of the various Chambers of Commerce. It has been accepted as conclusive of the law by one well-known writer on the subject,* and by another it has been cogently contended that the facts of the case were not clearly or correctly presented to the Court.†

In view of these varying decisions or interpretations of the law, and the uncertainty and want of uniformity in assessments, the

A Rating Bill.

"Bill to amend the Law relating to the Rating of Machinery" was introduced into the House of Commons in 1885. It was proposed to enact that "in estimating for the purpose of assessment to the poor rate, county rate, borough rate, or any other rate leviable upon property rateable to the relief of the poor, the rateable value of any tenement or premises occupied for any trade or manufacturing purposes, the annual value of the machinery in this section specified upon such tenement or premises shall be taken into consideration, that is to say:—

Definition of machinery to be rated.

"1st. Fixed motive powers, such as the water wheels and steam engines, and the steam boilers, donkey engines, and other fixed appurtenances of the said motive powers;

"2nd. Fixed power machinery, such as the shafts, wheels, drums, and their fixed appurtenances which transmit the action of the motive powers to the other machinery fixed and loose.

"3rd. Pipes for steam, gas, and water.

Exemption of other machinery and plant from rating.

"4th. Save as in the last section provided, no machinery or plant, whether attached to the tenement or premises or not, shall be taken into consideration in estimating such rateable value."

This Bill was not, however, proceeded with, it being thought that, if the subject was dealt with at all, it could best be done in a Local Government Bill. A decision has, however, been given in the Court of Appeal ‡ which practically confirms, even if it does not extend, that given in the case of "Laing *v.* the Overseers of Bishopswearmouth."

This decision has been given in a case stated for the opinion of

* "Local Taxation and the Rating of Machinery."—Thomas Fenwick Hedley. Knight & Co., London.

† "Remarks on the Assessment of Rateable Value on Hereditaments containing Machinery."—Joseph Potts, Jun. Spon, London.

‡ The Queen *v.* The Tyne Boiler Works Company, Limited. Court of Appeal, December 1st, 1886.

the Court by the Northumberland Quarter Sessions, who held that the Tyne Boiler Works Company had been rightly assessed to the relief of the poor, the rateable value of their premises being arrived at by ascertaining the gross estimated rental which a tenant from year to year might reasonably be expected to be willing to give for the use of them (inclusive of the machinery and plant), and by making the statutory deductions from such rental. The premises were occupied under a lease from the Corporation of Newcastle-upon-Tyne, and they were described as being rendered suitable for boiler making by their proximity to the Tyne and as containing machinery for boiler-making, part of such machinery being affixed to the soil, but part, such as a hydraulic riveting machine, two hand-power travelling cranes, and shear legs with engine and boiler, was not attached either to the soil or the building but rested by their own weight. There was a boiler set on a brick seating outside the main building, and the main engine was fixed by iron screw bolts to masonry foundations, in which a well was constructed for the fly-wheel, and other machinery was affixed by bolts or brackets to the walls, or to a foundation of stone or cement. As to the machinery that was not affixed to the soil or building, the hydraulic riveting machine rested upon cement or stone foundations, the travelling cranes ran along the whole length of the main building on rails laid on balks of timber resting upon brackets, and the shear legs were placed on the edge of a timber jetty on the river. The main shafting ran along the entire length of the main building, and all the machines were worked by belts from the main shafting. All the machines and plant belonged to the Company, and were arranged and adapted for use upon the premises for the manufacturing and setting up of boilers, but there was no intention of permanently annexing them to the soil or premises. Each of the machines was separate, and was from time to time removed for repairs or otherwise without injury to themselves or structural damage to the premises, the object of the attachment described being to steady the machines when working.

The most recent decision: The Tyne Boiler Works case.

The Divisional Court having confirmed the order of the Northumberland Quarter Sessions, the Company appealed, with the result that the judgment of the Queen's Bench Division was affirmed. The Master of the Rolls, in giving judgment, reviewed the various prior decisions on the subject, and stated that the rule might be laid down thus:—Things which were on the premises to

A rule of rating.

be rated, which were there for the purpose of making and which made the premises fit as premises for the particular purpose for which they were used, ought to be taken into consideration as enhancing the rateable value of those premises. Anything that would come under this category would pass by demise as between landlord and tenant, and would as such be rightly considered in the assessment.*

In 1889 the Chard (Somersetshire) Assessment Committee in assessing lace factories took into consideration the lace-making machinery on the premises. The assessment was appealed against, and the amount thereof was considerably reduced at the Somersetshire Quarter Sessions; the Assessment Committee was ordered to pay the costs. Against the reduced assessment appeals were carried to the Queen's Bench Division and the Court of Appeal, and in these appeals the original question as to the rating of machinery *per se* appears to have become ignored, for the Chard Assessment Committee after a decision in their favour in the Court of Appeal suggested a compromise by which, each party paying their own costs, the sum in dispute should be equally divided. The manufacturers accepted the compromise offered, as they were advised that the reduced assessment would represent the rateable value, quite apart from the question of rating machinery.

In similar circumstances the Gloucester and Sunderland Assessment Committees have, without there being an appeal to the Queen's Bench Division or Court of Appeal, acted on the lines of compromise carried out by the Chard Committee.

The decision criticised.

Throughout the judgments in the Bishopswearmouth and Tyne boiler cases there seems to run an assumption that a hypothetical tenant might give a higher rent for premises by reason of his having the opportunity of taking the

* The case is thus noted in the *Law Times* of December 4th, 1886:—"Poor Rate—Rating of Premises used for a particular purpose—Chattels on the Premises—Boiler Works—Machinery and Plant. In assessing premises to the poor rate, the question whether chattels on the premises are affixed to the soil or not is not an absolute test in determining whether or not they are to be taken into account as enhancing the value of the premises. But things which are on the premises to be rated, and which are there for the purpose of making them, and which do make them, fit as premises for the purpose for which they are used, ought to be taken into account for rating purposes. Therefore the machinery and plant of a boiler works which (whether affixed to the soil or not) is essentially necessary to the carrying on of the business to which the premises are devoted, and which is intended to remain upon the premises so long as they are used for the same purpose, ought to be taken into account as enhancing the value of the premises."

machinery contained therein. This is probably true as regards motive power and the machinery common to most trades, which is generally attached permanently to the premises, and these, on account of being so furnished, let at higher rentals. But specially designed machinery can only increase the probable rental, and therefore the assessment, if the premises are let to an incoming tenant carrying on the same trade as the outgoing tenant, and in that case part of the increased rental would be due to the opportunity of entering furnished premises, and part to the opportunity of acquiring by purchase from the outgoing tenant some of the machinery which he might otherwise remove.*

The decisions referred to will probably so intensify the confusion in the minds of the various rating authorities with regard to what is and what is not to be considered as assessable, as to lead to useful controversy with regard to what should and what should not be assessable, and eventually to legislative enactment on the subject.

Owing to the exertions of the National Society for the Exemption of Machinery from Rating, a Bill was introduced into Parliament in 1893, by which it was proposed to provide "that in estimating for the purpose of any valuation list, or poor or other local rate, the gross estimated rental or rateable value of any hereditament occupied for any trade, business, or manufacturing purposes, any increased value arising from machines, tools, or appliances which are not fixed or are only so fixed that they can be removed from their place without necessitating the removal of any part of the said hereditament shall be excluded.

"Provided that the gross annual value of any such hereditament shall be estimated at not less than the sum at which it might reasonably be expected to let for the purpose for which it is used on a tenancy from year to year void of the machines, tools, and appliances which it might reasonably be expected would be supplied by the tenant, if the tenant paid all the usual tenants' rates and taxes and tithe rentcharge (if any), and if the landlord undertook to bear the cost of the repairs and insurance and the other expenses (if any) necessary to maintain the said hereditament in a state to command such rent.

"Provided also that the terms machines, tools, and appliances

* "Trade fixtures attached to the soil are to be taken as landlord's property, subject only to the special privilege granted to the tenant who has put them up of removing them during his tenure."—"A Practical Treatise on the Law of Rating," by E. J. Castle, K.C.

for the purposes of this Act shall not apply to any machinery, machine, or plant used in or on the hereditament for producing or transmitting first motive power, or for heating or lighting the said hereditament.

"Nothing in this Act contained shall apply to the rating of waterworks or gasworks."

This Bill has been several times before the House of Commons, but was not carried beyond second reading; and pending the issue of the report, in 1901, of the Royal Commission on Taxation, it was not reintroduced in 1900 or 1901. In their report the Commissioners favour an alteration of the law in the sense proposed by the Bill, stating, "We therefore recommend that in estimating the rateable value of any hereditament occupied for trade, business, or manufacturing purposes, there shall be excluded from the assessment any increased value arising from machines, tools, or appliances which are not fixed, or are only so fixed that they can be removed from their places without necessitating the removal of any part of the hereditament, but the value of any machinery or plant used on the hereditament for producing or transmitting first motive power, or for heating or lighting a hereditament should be included."

In the present year (1902), the Bill was again introduced, and at the time of writing it has passed its second reading.

Pending settlement of the question it may be serviceable to enumerate some of the points to be considered before agreeing to or dissenting from assessments.

Checks on assessments.

The basis of assessment on factories rented from year to year is naturally the actual net rental value. Questions only arise where the occupier's interest is that of a freeholder or a lessee for a term of years, and where machinery has been erected by the occupier *quâ* occupier. In either case the basis of assessment would be the gross estimated rental which in a particular district, under ordinary circumstances, a tenant from year to year might reasonably be expected to give for the use of the premises inclusive of the machinery and plant, with a deduction on account of maintenance, repairs, fire insurance, and any charges which in a term of years would have to be met before profit could be reckoned.* In the case of factories occupied by the owner it should be remembered that the

* This deduction should, in our opinion, include a provision for obsolescence. All machinery is of a changeable nature, and provision has constantly to be made for its going out of fashion.

assessment is made on him as an occupier, and that he should discriminate between his dual interests. Whilst calculations on the basis of the capital sunk in the building and on his plant, and the interest thereon, are aids in checking the estimated rental that would be receivable, they cannot be considered as final, or as yielding a basis of assessment, owing to numerous accidental circumstances, such as the increase or decrease in the value of ground rents, and of variation of cost in the construction of new, or structural alteration in old, factories.

The basis of assessment on workshops.

The same basis of assessment is often applied to the rating of workshops, using that term as distinctive of places where production is not made for profit, but where production or repairs are effected for the sole use and benefit of the occupiers. In this category fall the shops of railway, gas, tram, water, and similar undertakings, as also national and municipal workshops.

Aid in checking that portion of the assessment which may be said to be on account of machinery is derivable from a Machinery Ledger, if such be kept (see Chapter VI.). The value of the machinery that would pass with the freehold would be ascertainable from it.

The statute law in Scotland as regards the rating of machinery differs from that of England. In the former country, the main statute is the Lands Valuation Act of 1854, which under the term "lands and heritages" includes "all machinery fixed or attached to any lands or heritages" as liable to assessment. In the case of the North British Railway Co. (1887, 25 Sc. L. Rep. 4), Lord Fraser held that machinery that could be "detached without destruction to itself or injury and destruction to the building," was not attached and was not assessable.

In 1894, Lord Wellwood held, in the case of Cowan and Sons, Limited, that such machinery was assessable provided it could be shown to have been attached to the premises in order to be permanently or quasi-permanently used in that position, and that the buildings had been altered and specially adapted to the use of the machinery, and would require to be reconstructed or altered if the machinery were removed, unless replaced by machinery of precisely the same size or shape. This view was upheld by the Lands Valuation Appeal Court in March, 1902, when, in the case of James Carmichael and Co., Limited, it was held that machines in an engineering foundry attached by bolts to specially prepared foundations were assessable.

APPENDIX D.

SOME NOTES ON THE LAW RELATING TO FIRE INSURANCE.*

The Proposal and the Policy.

Good faith the basis of insurance.

It is of the greatest importance that the form of proposal should be correctly filled in, and the questions answered, in an accurate and straightforward manner, without equivocation or ambiguity; as a misrepresentation or a concealment of a material fact, whether intentional or not, may invalidate a policy. The fact that the property proposed to be insured has been inspected by a representative of the insurance office does not relieve the assured from the responsibility of bringing under the notice of the office any circumstances which affect the degree of the risk. Good faith is always assumed to be the basis of insurance. It is open to the proposer to make a special contract with the insurers upon such conditions as may be agreed.

Representations.

Warranties.

The representations contained in the proposal or policy must be *substantially* true; but all specific conditions and statements are termed warranties, and must be absolutely and *literally* true; and this applies to descriptions of the property insured, if expressly contained or referred to in the policy.

* The object of these notes is to indicate to factory occupiers the liabilities which, from an accountant's point of view, it is desirable to provide for by insurance or otherwise. In its legal aspects the subject of insurance against losses by fire has been dealt with in "The Law of Fire Insurance," by Charles John Bunyon, M.A. (London: C. and E. Layton), to whom we are largely indebted for the subject matter of these notes.

Immediately the policy of insurance is received by the insured he should carefully examine it, and if the property is not correctly described or the policy contains any other error, it should, without loss of time, be returned to the office for correction. If the required alteration is not inconsistent with the conditions of the policy it can be made by endorsement, but if the alteration is intended to vary the contract a new policy should be applied for.

Correction of policy.

In view of the fact that in the case of large insurances the risk is generally divided between several offices, and that consequently several policies are issued to the insured, it is recognised as a great convenience that the leading offices now practically adopt a common form of policy.

Common form of policy.

The liability of the insurers continues for the term specified in the policy, but when the policy is renewable the assured is allowed fifteen days' grace, and if a fire occur during this interval he will, by practice, be fully protected; but in that event he should immediately pay the premium and thereby make evident his intention to renew. It is not customary to grant days of grace in the case of policies for short definite periods, and a policy of insurance is not, except by special agreement, determinable before the expiration of the specified term. The offices generally reserve to themselves the right to decline to renew a policy; and if they exercise this right and notify the assured of the fact, or if they give notice that they will not renew the policy except at a higher premium, and the assured declines to agree to this, the policy will expire absolutely on the date specified, the days of grace not being allowed.

Renewal of policy

The risks of fire insurance are classed as ordinary, hazardous, extra hazardous, and special, but the published rates and classifications afford very imperfect means of ascertaining the premiums payable in any individual case. The rates of premiums vary from 1s. 6d. per cent. for ordinary dwelling-houses to £5 5s. per cent. and more for dangerous stores and premises, and for the special risks of some factories. An understanding on this point is, therefore, invariably arrived at before an insurance is effected.

Classification of risks.

Most of the leading offices belong to what is known as the Tariff Association, a combination which has for its object the fixing of minimum rates for certain particularly hazardous risks. This, no doubt, accounts in a large measure for the existence of co-operation on the part of manufac-

Tariff system.

turers and others for purposes of mutual insurance; and also for the fact that insurances to a considerable amount are effected with American and Continental fire offices; but it is not at all certain that the public are prejudiced by the operation of the tariff-system, which has the effect of encouraging the persons engaged in the hazardous trades in question to take extra precautions against fire, with the results of diminishing the exceptional losses and of ultimately bringing the rates of premiums down to the normal level of other trades.

Position of agent.

When large insurances have to be effected by a firm it may be advisable to place the business in the hands of an insurance broker, who may be able to secure much better terms for his client than the latter could obtain by negotiating with the offices direct. It must be remembered, however, that an insurance broker occupies, in a measure, a dual position, and that while in some matters he may act for the office, in others he may represent the assured. Even if he is the agent of an insurance company, the latter is not bound to undertake a risk which he has accepted. If the company decline a proposal made through a broker and notify their decision to him, they will not be liable if a fire takes place before he has been able to communicate the refusal to his client. The responsibility of the insurance office cannot be said to commence until they have, by the issue of a receipt, accepted the premium or a deposit; and a broker is personally responsible if having agreed to effect an insurance he neglects to do so and a fire takes place. When the insurance is provisional only, and subject to the office making an inspection of the property, it is usual to grant the office twenty-eight days for this purpose, within which period it has the option to decline the risk; but should a fire occur during the interval, and the office has not declined, it would be liable.

The Nature of the Contract and of the Risk.

Insurance a contract of indemnity.

Except in the case of a valued policy, and subject to the special conditions of average (referred to later) a policy of insurance against fire is a contract to indemnify the assured, either by payment or reinstatement, to the extent of his loss or damage by fire not exceeding the amount of the insurance, and this together with the expense of extinguishing the fire, is the measure of the liability of the insurers. If therefore the assured receives from the office the

full value of the property destroyed he will have to give the office the benefit of the salvage, and of any rights tending to reduce the loss, which he possesses. If, for instance, the person whose property is destroyed by fire is able to recover the loss from a party other than the insurer, the latter, if he had satisfied the claim, would be able to sue in the name of the assured the person actually responsible for the loss. A person whose property has been negligently set on fire by his neighbour will, if he is insured, be able to recover from either the latter or the fire office. If he recovers under his policy the office would be entitled to proceed in the name of the assured against the person who caused the conflagration. This raises a very serious point for manufacturers and others to consider, for, although their own property may be fully protected, they may by negligently causing the destruction of their neighbour's property incur serious loss without protection. "The right of the office rests upon the doctrine of subrogation, by which if a man has two distinct remedies against different parties for one and the same claim, one of such parties paying the whole amount, is entitled to recover it from the other party if primarily liable, in the name of the person originally injured."*

Subrogation.

The indemnity is personal to the assured and cannot, "except by way of mortgage," be assigned without the consent of the insurers endorsed upon the policy. It is essential that the assurer should have an interest in the property both when effecting the insurance and at the time of the fire. The conditions of some policies are exceedingly stringent in this respect, and they may be so framed as to render the policy void upon the demise of the assured, or upon the admission of a new partner. Trustees in bankruptcy, or under deeds of assignment, should obtain an endorsement in their favour on the policies when the property becomes vested in them.

Policy not assignable.

When a sale of buildings or of other properties, which are insured, is intended, and it is decided to transfer the insurance, an understanding should be come to with the office. Immediately a contract for sale is concluded the purchaser becomes in equity the beneficial owner, and is the sufferer in the event of the property not being insured and a fire taking place. The vendor of the property is not bound to tell the purchaser whether or not the property is insured; and even if there is a policy in favour of the vendor existing at the time of

Transfer of properties.

* "The Law of Fire Insurance," p. 125.

the fire, the purchaser is not, in the absence of a specific agreement, entitled to any benefit under it. But he can call upon the insurers to expend the insurance money in reinstatement. In the case of leaseholds, it should be stated that in the event of the property being destroyed by fire subsequently to the date of the contract, the purchaser may be bound under the conditions of the lease to rebuild. It is advisable in the interest of the purchaser that these risks should be provided against in the contract for sale, or that immediately it is signed he should insure the property.

When the policy becomes void, or when the interest of the insured in the property ceases from any cause before the expiration of the term of the insurance, the insurers are not bound to return the proportionate part of the premium in respect of the unexpired portion of the term. Most fire policies, however, provide for the transfer of the insurance upon the removal of the objects insured, and it is usual for the offices to transfer their indemnity from one property to another, provided their risk is not increased; and they will take into consideration the unexpired proportion of the premium in fixing a new rate.

Premiums not returnable.

Fire insurances are based either on a valued policy, or are specific, or are subject to the conditions of average. Valued policies are those in which the office and the insured agree to assign to the property insured a definite value, which in case of fire shall be the amount to be reimbursed to the insured quite irrespective of the actual loss sustained by him. Such policies are unsatisfactory and very rare; and the onus of proving that the property has been valued rests with the insured. Specific insurances are those in which the insurers are liable for the actual loss, not exceeding the amount for which the property is insured. The third category of fire insurance, embracing the conditions of average, calls for most careful consideration by the assured. The effect of these conditions is to make the insured his own underwriter to the extent by which his property is under insured; and in the event of fire he would be able to recover from the offices only such proportion of the loss as the sum insured by them bears to the total value of the property. Thus, if a manufacturer effected an insurance, under the average conditions, upon his stock worth £60,000, and subsequently increased the goods on hand by £20,000 and a fire occurred destroying £40,000 worth of stock,

Valued policies.

Specific insurances.

Conditions of average.

he would be able to recover only £30,000, that being the proportion of the loss which the amount of the insurance (£60,000) bears to the total value of the stock (£80,000) at the time of the fire. The insured, in this case, being in the position of an underwriter for one-fourth of the risk, would be entitled to participate to that extent in the salvage. The average conditions are necessarily inoperative if the value of the property does not exceed the amount covered by the policy.

Alterations in the risk.

"The subject of alterations after the date of the policy in the structure or use of the buildings, either as regards the trades carried on or the goods deposited in them, has been of all others the most fruitful of disputes between the assurers and the assured. In the decided cases the question has generally turned upon the construction of the conditions, and the fire offices, tutored by experience, certainly endeavour to guard themselves in every possible manner against unanticipated hazards. In spite, however, of the ingenuity of their advisers, cases must occasionally arise to which no condition is applicable, and the question remains for solution how far an alteration not in terms expressly forbidden affects the contract. The true solution would appear to be found by ascertaining whether by the alteration the description is rendered inapplicable, or whether any express representation as to the future use of the premises has been violated, and whether there is any condition in the policy applicable to the case."*

It is important before making any alteration in, or addition to, the property insured, to ascertain whether the description amounts to a warranty, as in that case the policy would be invalidated by a violation of the description; and when the policy expressly disallows any alteration or addition, even a temporary modification would vitiate the policy. Repairs, however, are quite permissible, although they may while being carried out increase the risk of fire.

"A question arises when the assured, having effected an insurance upon the stock-in-trade or machinery, undertakes after the date of the policy an additional or different trade or business, not a part of, or incidental to, the first. This is often specially provided for by a condition; when it is not so, two questions may arise. First, whether the alteration has caused any increase of risk; secondly, whether the new stock is covered by the insurance. Assuming that there has been no unauthorised increase of risk to

* "The Law of Fire Insurance," pp. 86, 87.

void the policy, if a claim is made for a loss upon property forming part of the new or additional stock, the question must turn upon the wording of the policy, and whether, applying the ordinary rules of construction, it can be fairly inferred that the property destroyed was within the terms of the contract."*

There can be no doubt that a manufacturer whose trade is described in the policy would not be able to claim indemnification under that policy for loss of stock of another trade which he had taken over since the insurance upon his original stock was effected. When the insurance is upon goods of an ordinary character, the addition of goods which are regarded as hazardous would invalidate the policy.

It is well that in every case of alteration or addition the policy should be carefully examined, with the object of ascertaining whether the risk has been increased beyond that contemplated by the insurers, and whenever there is any doubt the insurance office should be communicated with. It is better in most cases that the owner should pay a higher rate of premium than incur the risk of being his own insurer. The omission to communicate a material fact to the insurers would entitle them to cancel the policy; but they may waive this right by endorsement of the policy, or even by accepting the renewal premium after they have had notice of a violation by the insured of the conditions of the policy. Conversely, should there be a discontinuance of any specially hazardous branch of the business, or should the risk be reduced from any cause during the continuance of the policy, the Insurers will generally make some allowance on the rate of premium.

Fire must be proximate cause of damage.

Liability does not attach to the insurers unless the loss is proximately caused by fire. The mere heat of a stove, if it causes damage to property, will not, in the absence of combustion of substances other than the fuel in the stove, be sufficient to support a claim against the insurers; nor will the insurers "be responsible for any loss on goods or utensils damaged or destroyed whilst undergoing any process in which the application of fire heat is necessary."

Explosives.

With regard to loss by explosion many intricate questions present themselves, and the provisions on this point inserted in policies vary widely; but of course the risk can be indisputably defined by special conditions.

Oil and gas.

Ordinary oil and coal gas, for purposes of lighting and heating, are allowed by all policies, but gas must not be made

on the premises; and some offices expressly recognise liability for losses caused by gas explosions.

As one of the alterations of which the offices require notice may be mentioned the adoption of electric lighting. The electric light is deemed to be a special risk unless it has been installed in accordance with the rules of the Phœnix Fire Office, or of those drawn up by the Society of Telegraph Engineers and Electricians.

Electricity.

The offices are not, it would appear, unwilling to insert in their policies the condition that losses by lightning will be made good, but in the absence of such provision disputes may arise.

The Adjustment of the Loss.

The insured should, in the event of a fire, give immediate notice to the offices, and prepare to furnish them with such proof of the loss as may be required by the policies. Sometimes it is stipulated that particulars of the damage shall be furnished by a given date to entitle the insurer to recover, and it is important that this condition should be strictly complied with. Claims made on the insurers are investigated and adjusted by assessors appointed by them.

Proof of loss.

Value of proper accounts.

The nature of the evidence of loss required to be produced varies with circumstances, in some cases even a statutory declaration being required, but the best proofs obtainable are generally the account books, invoices, &c. If the accounts are properly kept the adjustment of the loss is very materially facilitated.

The account books and business papers are not usually insurable, but their loss, and the consequent inability on the part of the insurer to produce satisfactory evidence of the loss, is frequently regarded, by those who have to assess the damages, as a cause for suspicion.

The claim made upon the insurers should be well founded, and be such as can be evidenced by the books, for although the insured may be justified in making a claim in excess of the amount admitted by the insurers, still a large and unsubstantiated claim may by a jury be regarded as an indication of *mala fides*, and it is generally provided in the policy that any attempt on the part of the insured to defraud the insurers shall avoid the insurance.

Right of insurers to enter premises.

The insurers, it appears, have the right to enter the premises where a fire has occurred, and to remain in possession for a reasonable time for the purpose of enabling them to assess the damage; and by the Metro-

politan Fire Brigade Act of 1865, as well as by numerous other Local Acts, power is given to the officers of the brigade to take such measures as they may deem expedient for the protection of life and property, and to break into, or pull down, any premises for the purpose of putting an end to a fire; and any damage that may thereby be caused is covered by the insurance against fire.

Consequential losses. The insured is bound to do everything in his power at the time of the fire to lessen the loss to the insurers. The costs of extinguishing a fire, as a rule, fall on the insurers, and there are other consequential losses which are generally borne by them, but it is always advisable that they should be specifically mentioned in the policy. Such are, for instance, the expenses attending the removal of properties, which fall primarily on the salvage; and the loss arising from theft at the time of the fire. But avoidable losses or expenses will not be made good, and goods destroyed by fire during removal are not covered.

The insurance being an indemnity, only the actual loss at the time of the fire will be reimbursed; and the insured cannot claim

Co-insurers. compensation in excess of his actual loss. If he is insured in several offices he is bound to declare the fact when a fire occurs, and the loss is then distributed rateably among the several offices. The insured is not entitled to compensation for such consequential damages as loss of future profits, interest, or rent, unless specifically covered by the policy.

It is quite permissible to insure the rent payable during rein-

Rent. statement, but the offices usually limit this to an amount representing one year's rent. This is a point of some importance to a tenant, inasmuch as his tenancy is not affected by a fire, and until such tenancy has expired he is bound to pay rent, although the premises may be burnt down. But this may be provided for by an express agreement in the lease that in the event of the premises being destroyed or damaged by fire, rent shall cease until they are reinstated.

With regard to the valuation of the properties destroyed, this is usually based upon their state of repair and condition at the

Valuation of properties. time the fire broke out, and the insured cannot claim to be supplied with new properties in place of those destroyed, if these, although they were before the fire still applicable to their original uses, have undergone considerable wear and tear. In the case of stocks on hand the cost of production, not including any percentage for profit, is generally the basis upon

which indemnification is made; but even this measure of compensation may be unobtainable if the properties have depreciated considerably as a result of obsolescence or of having been superseded by improved articles. With marketable merchandise, however, the indemnification is made on a different basis. In that case "the price current on the day of the fire will fix the amount of the liability of the insurers. The cost to the assured has nothing to do with the matter. . . . . If the goods have risen in value the payment of the cost price would be no indemnity, while if the insured were to receive the cost price of goods which had fallen in value, or which having been on hand for a considerable period had become depreciated, the same objection would arise, and in the event of a fall in the produce market such a rule might be a serious temptation to arson."* There would be an exception, however, in the case of merchandise whose value had either improved or deteriorated after the date of sale but before the time of delivery, during which interval the goods had been destroyed by fire. These points are usually specially provided for in the policy.

Salvage.

It has already been stated that if the insured has been fully indemnified, and the policy contains no conditions of average, the salvage will belong to the insurers, but if the insured is inadequately covered, then the value of the salvage to the extent of his deficiency will be his property.

Reinstatement.

An invariable provision in fire policies is that the insurers shall have the option of reinstating instead of paying the estimated amount of the loss incurred by the insured, but, except occasionally in the cases of buildings and machinery, this option is seldom exercised by the insurance offices.

Auctions.

As a matter of practice the course generally pursued with regard to settlement of claims is to put up the damaged goods for sale by auction, the proceeds, after deducting the expenses, being handed to the insured, and the office making up the difference between the net proceeds of the salvage and the amount insured.

Insurers are not liable for loss owing to the assortment being broken, and they cannot be required, on the ground that companion articles are damaged, to sell by auction articles in good condition.

When the insurance is in favour of several persons any one of

them can receive the insurance money after adjustment and give discharge; but if the policy has been mortgaged, and the office have notice of the fact, they will require the mortgagee to join in the receipt, and under the Building Act the mortgagee or other person interested can call upon the insurers to expend the insurance money in reinstatement.

Insurance in joint names.

Boiler Insurance.

Losses due to the explosion of boilers or collapse of flues are not covered by ordinary fire policies. Such losses can, however, be provided against by insurance with the companies carrying on this branch of insurance business. These companies generally undertake also the repairs, alterations, and maintenance of boilers, the inspection of steam boilers and engines, and the supply of steam power.

The insurers are guaranteed:—1. The responsible inspection of the boilers by an officer of the Insurance Company, with a written report of the result, at periodical intervals, or whenever necessary. 2. Indemnity to the assured up to the amount of the insurance, against all damage, not only to the boiler, but to the surrounding property, which may result, otherwise than by fire, from the explosion of the boiler or the collapse of the flues, provided that the explosion or collapse is not consequent on the over-loading of the safety-valves, or by the wilful act of the insured; and against injury to persons consequent upon the explosion, provided such injury is not covered by any other policy of insurance.

These Insurance Companies are also generally prepared to undertake, by a special contract, all repairs of boilers necessitated by wear and tear, as well as the periodical inspection and indicationof engines.

Insurance can further be made on boilers with internal furnaces, if in good condition and adapted to the pressure required. In such cases the insurance covers all damage to the boiler itself, its mountings and the adjacent property, up to the full amount insured *in cases of actual explosion*, but does not cover any damage to, or injury of, the internal flues in cases of collapse.

Periodical inspection, with a written report, giving information and containing advice, but without insurance, is also undertaken by the same companies.

It will be seen from these notes how important is the bearing such questions of insurance against losses have upon the accounts of a manufacturer, and how necessary it is for accountants to give due consideration to these and kindred subjects in order that losses which, if sustained, would cause serious embarrassment, if not insolvency, may be adequately provided against. It is very desirable, having regard to this point of view, that all insurance policies should be entered in an Insurance Register, which should be so ruled as to admit of a complete record of all the salient features of the policies; the extent of, and the premiums on, the insurances; and of the grouping of the various offices with which the policies are effected.

Importance of subject to accountants.

APPENDIX E.

TABLE FOR DETERMINING AMORTIZATION OF LEASES, &c.

(*For examples, see page* 212).

Years.	Years Pur. 3 per Cent.		Years Pur. 4 per Cent.		Years Pur. 5 per Cent.		Years Pur. 6 per Cent.		Years.
½	·489	½	·485	½	·482	½	·479	½	½
1	·971	1	·962	1	·952	1	·943	1	1
1½	1·446	1½	1·428	1½	1·411	1½	1·395	1½	1½
2	1·913	2	1·886	2	1·859	1¾	1·833	1¾	2
2½	2·374	2¼	2·335	2¼	2·297	2¼	2·259	2¼	2½
3	2·829	2¾	2·775	2¾	2·723	2¾	2·673	2¾	3
3½	3·276	3¼	3·207	3¼	3·140	3¼	3·075	3	3½
4	3·717	3¾	3·630	3¾	3·546	3½	3·465	3½	4
4½	4·152	4¼	4·045	4	3·942	4	3·844	3¾	4½
5	4·580	4½	4·452	4½	4·329	4¼	4·212	4¼	5
5½	5·002	5	4·851	4¾	4·707	4¾	4·570	4½	5½
6	5·417	5½	5·242	5¼	5·076	5	4·917	5	6
6½	5·827	5¾	5·626	5¾	5·435	5¼	5·255	5¼	6½
7	6·230	6¼	6·002	6	5·786	5¾	5·582	5½	7
7½	6·628	6¾	6·371	6¼	6·129	6¼	5·901	6	7½
8	7·020	7	6·733	6¾	6·463	6½	6·210	6¼	8
8½	7·406	7½	7·087	7	6·789	6¾	6·510	6½	8½
9	7·786	7¾	7·435	7¼	7·108	7	6·802	6¾	9
9½	8·161	8¼	7·776	7¾	7·419	7¼	7·085	7	9½
10	8·530	8½	8·111	8	7·722	7¾	7·360	7¼	10
10½	8·894	9	8·439	8¼	8·018	8	7·627	7¾	10½
11	9·253	9¼	8·760	8¾	8·306	8¼	7·887	8	11
11½	9·606	9½	9·076	9	8·588	8½	8·139	8¼	11½
12	9·954	10	9·385	9¼	8·863	8¾	8·384	8½	12
12½	10·297	10¼	9·688	9¾	9·132	9¼	8·622	8½	12½
13	10·635	10¾	9·986	10	9·394	9½	8·853	8¾	13
13½	10·968	11	10·277	10¼	9·649	9¾	9·077	9	13½
14	11·296	11¼	10·563	10½	9·899	10	9·295	9¼	14
14½	11·619	11½	10·843	10¾	10·142	10¼	9·507	9½	14½
15	11·938	12	11·118	11	10·380	10½	9·712	9¾	15
15½	12·252	12¼	11·388	11½	10·612	10½	9·912	10	15½
16	12·561	12½	11·652	11¾	10·838	10¾	10·106	10	16
16½	12·866	12¾	11·911	12	11·059	11	10·294	10¼	16½
17	13·166	13¼	12·166	12¼	11·274	11¼	10·477	10½	17
17½	13·462	13½	12·415	12½	11·484	11½	10·655	10¾	17½
18	13·754	13¾	12·659	12¾	11·690	11¾	10·828	10¾	18
18½	14·041	14	12·899	13	11·890	12	10·995	11	18½
19	14·324	14¼	13·134	13¼	12·085	12	11·158	11¼	19
19½	14·603	14½	13·364	13¼	12·276	12¼	11·316	11¼	19½
20	14·877	15	13·590	13½	12·462	12½	11·470	11½	20

TABLE FOR DETERMINING THE AMORTIZATION OF LEASES, &c.

(*For examples, see page* 212.)

Years.	Years Pur. 7 per Cent.		Years Pur. 8 per Cent.		Years Pur. 9 per Cent.		Years Pur. 10 per Cent.		Years.
½	·475	½	·472	½	·469	½	·465	½	½
1	·935	1	·926	1	·917	1	·909	1	1
1½	1·379	1¼	1·363	1¼	1·347	1¼	1·332	1¼	1½
2	1·808	1¾	1·783	1¾	1·759	1¾	1·736	1¾	2
2½	2·223	2¼	2·188	2¼	2·154	2¼	2·120	2	2½
3	2·624	2½	2·577	2½	2·531	2½	2·487	2½	3
3½	3·012	3	2·952	3	2·893	3	2·836	2¾	3½
4	3·387	3¼	3·312	3¼	3·240	3¼	3·170	3¼	4
4½	3·750	3½	3·659	3¾	3·572	3½	3·488	3½	4½
5	4·100	4	3·993	4	3·890	4	3·791	3¾	5
5½	4·439	4¼	4·314	4¼	4·194	4¼	4·080	4	5½
6	4·767	4½	4·623	4½	4·486	4½	4·355	4¼	6
6½	5·083	4¾	4·920	5	4·765	4¾	4·618	4½	6½
7	5·389	5	5·206	5¼	5·033	5	4·868	4¾	7
7½	5·685	5¼	5·482	5½	5·289	5¼	5·107	5	7½
8	5·971	5½	5·747	5¾	5·535	5½	5·335	5¼	8
8½	6·248	5¾	6·002	6	5·770	5¾	5·552	5½	8½
9	6·515	6	6·247	6¼	5·995	6	5·759	5¾	9
9½	6·774	6¼	6·483	6½	6·211	6¼	5·956	6	9½
10	7·024	6½	6·710	6¾	6·418	6½	6·145	6¼	10
10½	7·265	6¾	6·929	7	6·616	6¾	6·324	6½	10½
11	7·499	7	7·139	7¼	6·805	6¾	6·495	6¾	11
11½	7·724	7¼	7·341	7½	6·987	7	6·658	6¾	11½
12	7·943	7½	7·536	7¾	7·161	7¼	6·814	7	12
12½	8·154	7¾	7·723	8	7·327	7¼	6·962	7	12½
13	8·358	8	7·904	8	7·487	7½	7·103	7	13
13½	8·555	8¼	8·077	8	7·640	7¾	7·238	7¼	13½
14	8·745	8½	8·244	8¼	7·786	7¾	7·367	7¼	14
14½	8·930	8¾	8·405	8½	7·926	8	7·489	7½	14½
15	9·108	9	8·559	8½	8·061	8	7·606	7½	15
15½	9·280	9¼	8·708	8¾	8·189	8¼	7·717	7¾	15½
16	9·447	9½	8·851	8¾	8·313	8¼	7·824	7¾	16
16½	9·608	9¾	8·989	9	8·431	8½	7·925	8	16½
17	9·763	9¾	9·122	9	8·544	8½	8·022	8	17
17½	9·914	10	9·249	9¼	8·652	8¾	8·114	8	17½
18	10·059	10	9·372	9¼	8·756	8¾	8·201	8¼	18
18½	10·200	10¼	9·490	9½	8·855	8¾	8·285	8¼	18½
19	10·336	10¼	9·604	9¾	8·950	9	8·365	8½	19
19	10·467	10½	9·713	9¾	9·041	9	8·441	8½	19½
20½	10·594	10½	9·818	9¾	9·129	9¼	8·514	8½	20

TABLE FOR DETERMINING THE AMORTIZATION OF LEASES, &c. *Continued.*

Years.	Years Pur. 3 per Cent.		Years Pur. 4 per Cent.		Years Pur. 5 per Cent.		Years Pur. 6 per Cent.		Years.
20½	15·148	15¼	13·812	13¾	12·644	12¾	11·619	11½	20½
21	15·415	15½	14·029	14	12·821	12¾	11·764	11¾	21
21½	15·678	15¾	14·242	14¼	12·994	13	11·905	12	21½
22	15·937	16	14·451	14½	13·163	13¼	12·042	12	22
22½	16·192	16¼	14·656	14¾	13·328	13¼	12·174	12¼	22½
23	16·444	16½	14·857	14¾	13·489	13½	12·303	12¼	23
23½	16·691	16¾	15·054	15	13·645	13¾	12·429	12½	23½
24	16·936	17	15·247	15¼	13·799	13¾	12·550	12½	24
24½	17·176	17¼	15·436	15½	13·948	14	12·669	12¾	24½
25	17·413	17½	15·622	15½	14·094	14	12·783	12¾	25
25½	17·647	17¾	15·804	15¾	14·236	14¼	12·895	13	25½
26	17·877	18	15·983	16	14·375	14½	13·003	13	26
26½	18·104	18	16·158	16¼	14·511	14½	13·108	13	26½
27	18·327	18¼	16·330	16¼	14·643	14¾	13·211	13¼	27
27½	18·547	18½	16·498	16½	14·772	14¾	13·310	13¼	27½
28	18·764	18¾	16·663	16¾	14·898	15	13·406	13½	28
28½	18·978	19	16·825	16¾	15·021	15	13·500	13½	28½
29	19·188	19¼	16·984	17	15·141	15¼	13·591	13½	29
29½	19·396	19½	17·139	17¼	15·258	15¼	13·679	13¾	29½
30	19·600	19½	17·292	17¼	15·372	15¼	13·765	13¾	30
30½	19·802	19¾	17·442	17½	15·484	15½	13·848	13¾	30½
31	20·000	20	17·588	17½	15·593	15½	13·929	14	31
31½	20·196	20¼	17·732	17¾	15·699	15¾	14·008	14	31½
32	20·389	20½	17·874	17¾	15·803	15¾	14·084	14	32
32½	20·579	20½	18·012	18	15·904	16	14·158	14¼	32½
33	20·766	20¾	18·148	18¼	16·003	16	14·230	14¼	33
33½	20·950	21	18·281	18¼	16·099	16	14·300	14¼	33½
34	21·132	21¼	18·411	18½	16·193	16¼	14·368	14¼	34
34½	21·311	21¼	18·539	18½	16·285	16¼	14·434	14½	34½
35	21·487	21½	18·665	18¾	16·374	16¼	14·498	14½	35
35½	21·661	21¾	18·788	18¾	16·462	16½	14·561	14½	35½
36	21·832	21¾	18·908	19	16·547	16½	14·621	14½	36
36½	22·001	22	19·027	19	16·630	16¾	14·680	14¾	36½
37	22·167	22¼	19·143	19¼	16·711	16¾	14·737	14¾	37
37½	22·331	22¼	19·256	19¼	16·791	16¾	14·792	14¾	37½
38	22·492	22½	19·368	19¼	16·868	16¾	14·846	14¾	38
38½	22·652	22¾	19·477	19½	16·943	17	14·898	15	38½
39	22·808	22¾	19·584	19½	17·017	17	14·949	15	39
39½	22·963	23	19·690	19¾	17·089	17	14·998	15	39½
40	23·115	23	19·793	19¾	17·159	17¼	15·046	15	40

TABLE FOR DETERMINING THE AMORTIZATION OF LEASES, &c.
Continued.

Years.	Years Pur. 7 per Cent.		Years Pur. 8 per Cent.		Years Pur. 9 per Cent.		Years Pur. 10 per Cent.		Years.
20½	10·717	10¾	9·919	10	9·212	9¼	8·583	8½	20½
21	10·836	10¾	10·017	10	9·292	9¼	8·649	8¾	21
21½	10·950	11	10·111	10	9·369	9¼	8·712	8¾	21½
22	11·061	11	10·201	10¼	9·442	9½	8·772	8¾	22
22½	11·168	11¼	10·288	10¼	9·513	9½	8·829	8¾	22½
23	11·272	11¼	10·371	10¼	9·580	9½	8·883	9	23
23½	11·372	11¼	10·451	10½	9·645	9¾	8·935	9	23½
24	11·469	11½	10·529	10½	9·707	9¾	8·985	9	24
24½	11·563	11½	10·603	10½	9·766	9¾	9·032	9	24½
25	11·654	11¾	10·675	10¾	9·823	9¾	9·077	9	25
25½	11·741	11¾	10·744	10¾	9·877	10	9·120	9	25½
26	11·826	11¾	10·810	10¾	9·929	10	9·161	9¼	26
26½	11·908	12	10·874	10¾	9·979	10	9·200	9¼	26½
27	11·987	12	10·935	11	10·027	10	9·237	9¼	27
27½	12·063	12	10·994	11	10·072	10	9·273	9¼	27½
28	12·137	12¼	11·051	11	10·116	10	9·307	9¼	28
28½	12·209	12¼	11·106	11	10·158	10¼	9·339	9¼	28½
29	12·278	12¼	11·158	11¼	10·198	10¼	9·370	9¼	29
29½	12·344	12¼	11·209	11¼	10·237	10¼	9·399	9½	29½
30	12·409	12½	11·258	11¼	10·274	10¼	9·427	9½	30
30½	12·471	12½	11·305	11¼	10·309	10¼	9·454	9½	30½
31	12·532	12½	11·350	11¼	10·343	10¼	9·479	9½	31
31½	12·590	12½	11·393	11½	10·375	10¼	9·503	9½	31½
32	12·647	12¾	11·435	11½	10·406	10½	9·526	9½	32
32½	12·701	12¾	11·475	11½	10·436	10½	9·548	9½	32½
33	12·754	12¾	11·514	11½	10·464	10½	9·569	9½	33
33½	12·805	12¾	11·551	11½	10·492	10½	9·589	9½	33½
34	12·854	12¾	11·587	11½	10·518	10½	9·609	9½	34
34½	12·902	13	11·621	11¾	10 543	10½	9·627	9¾	34½
35	12·948	13	11·655	11¾	10·567	10½	9·644	9¾	35
35½	12·992	13	11·686	11¾	10·590	10½	9·661	9¾	35½
36	13·035	13	11·717	11¾	10·612	10½	9·677	9¾	36
36½	13·077	13	11·747	11¾	10·633	10¾	9·692	9¾	36½
37	13·117	13	11·775	11¾	10·653	10¾	9·706	9¾	37
37½	13·156	13¼	11·803	11¾	10·672	10¾	9·720	9¾	37½
38	13·193	13¼	11·829	11¾	10·691		9·733	9¾	38
38½	13·230	13¼	11·854	11¾	10·709	10¾	9·745	9¾	38½
39	13·265	13¼	11·879	12	10·726	10¾	9·757	9¾	39
39½	13·299	13¼	11·902	12	10·742	10¾	9·768	9¾	39½
40	13·332	13¼	11·925	12	10·757	10¾	9·779	9¾	40

TABLE FOR DETERMINING THE AMORTIZATION OF LEASES, &c.
Continued.

Years.	Years Pur. 3 per Cent.		Years Pur. 4 per Cent.		Years Pur. 5 per Cent.		Years Pur. 6 per Cent.		Years.
40½	23·265	23¼	19·894	20	17·228	17¼	15·093	15	40½
41	23·412	23½	19·993	20	17·294	17¼	15·138	15¼	41
41½	23·558	23½	20·090	20	17·360	17¼	15·182	15¼	41½
42	23·701	23¾	20·186	20¼	17·423	17½	15·225	15¼	42
42½	23·843	23¾	20·279	20¼	17·485	17½	15·266	15¼	42½
43	23·982	24	20·371	20¼	17·546	17½	15·306	15¼	43
43½	24·119	24	20·461	20½	17·605	17½	15·345	15¼	43½
44	24·254	24¼	20·549	20½	17·663	17¾	15·383	15½	44
44½	24·387	24½	20·635	20¾	17·719	17¾	15·420	15½	44½
45	24·519	24½	20·720	20¾	17·774	17¾	15·456	15½	45
45½	24·648	24¾	20·803	20¾	17·828	17¾	15·491	15½	45½
46	24·775	24¾	20·885	21	17·880	18	15·524	15½	46
46½	24·901	25	20·965	21	17·931	18	15·557	15½	46½
47	25·025	25	21·043	21	17·981	18	15·589	15½	47
47½	25·147	25¼	21·120	21	18·030	18	15·620	15½	47½
48	25·267	25¼	21·195	21¼	18·077	18	15·650	15¾	48
48½	25·385	25½	21·269	21¼	18·123	18	15·679	15¾	48½
49	25·502	25½	21·341	21¼	18·169	18¼	15·708	15¾	49
49½	25·617	25¾	21·413	21½	18·213	18¼	15·735	15¾	49½
50	25·730	25¾	21·482	21½	18·256	18¼	15·762	15¾	50
51	25·951	26	21·617	21½	18·339	18¼	15·813	15¾	51
52	26·166	26¼	21·748	21¾	18·418	18½	15·861	15¾	52
53	26·375	26¼	21·873	21¾	18·493	18½	15·907	16	53
54	26·578	26½	21·993	22	18·565	18½	15·950	16	54
55	26·774	26¾	22·109	22	18·633	18¾	15·991	16	55
56	26·965	27	22·220	22¼	18·699	18¾	16·029	16	56
57	27·151	27¼	22·327	22¼	18·761	18¾	16·065	16	57
58	27·331	27¼	22·430	22½	18·820	18¾	16·099	16	58
59	27·506	27½	22·528	22½	18·876	19	16·131	16¼	59
60	27·676	27¾	22·623	22½	18·929	19	16·161	16¼	60
65	28·453	28½	23·047	23	19·161	19¼	16·289	16¼	65
70	29·123	29	23·395	23½	19·343	19¼	16·385	16½	70
75	29·702	29¾	23·680	23¾	19·485	19½	16·456	16½	75
80	30·201	30¼	23·915	24	19·596	19½	16·509	16½	80
85	30·631	30¾	24·109	24	19·684	19¾	16·549	16½	85
90	31·002	31	24·267	24¼	19·752	19¾	16·579	16½	90
95	31·323	31¼	24·398	24½	19·806	19¾	16·601	16½	95
100	31·599	31½	24·505	24½	19·848	19¾	16·618	16¼	100
Perp.	33·333	33¼	25·000	25	20·000	20	16·667	16¼	Perp.

TABLE FOR DETERMINING THE AMORTIZATION OF LEASES, &c.
Continued.

Years.	Years Pur. 7 per Cent.		Years Pur. 8 per Cent.		Years Pur. 9 per Cent.		Years Pur. 10 per Cent.		Years.
40½	13·363	13¼	11·946	12	10·772	10¾	9·789	9¾	40½
41	13·394	13½	11·967	12	10·787	10¾	9·799	9¾	41
41½	13·424	13½	11·987	12	10·800	10¾	9·808	9¾	41½
42	13·452	13½	12·007	12	10·813	10¾	9·817	9¾	42
42½	13·480	13½	12·025	12	10·826	10¾	9·826	9¾	42½
43	13·507	13½	12·043	12	10·838	10¾	9·834	9¾	43
43½	13·533	13½	12·060	12	10·849	10¾	9·842	9¾	43½
44	13·558	13½	12·077	12	10·861	10¾	9·849	9¾	44
44½	13·582	13½	12·093	12	10·871	10¾	9·856	9¾	44½
45	13·606	13½	12·108	12	10·881	11	9·863	9¾	45
45½	13·628	13¾	12·123	12	10·891	11	9·869	9¾	45½
46	13·650	13¾	12·137	12¼	10·900	11	9·875	10	46
46½	13·671	13¾	12·151	12¼	10·909	11	9·881	10	46½
47	13·692	13¾	12·164	12¼	10·918	11	9·887	10	47
47½	13·711	13¾	12·177	12¼	10·926	11	9·892	10	47½
48	13·730	13¾	12·189	12¼	10·934	11	9·897	10	48
48½	13·749	13¾	12·201	12¼	10·941	11	9·902	10	48½
49	13·767	13¾	12·212	12¼	10·948	11	9·906	10	49
49½	13·784	13¾	12·223	12¼	10·955	11	9·911	10	49½
50	13·801	13¾	12·233	12¼	10·962	11	9·915	10	50
51	13·832	13¾	12·253	12¼	10·974	11	9·921	10	51
52	13·862	13¾	12·272	12¼	10·985	11	9·930	10	52
53	13·890	14	12·288	12¼	10·996	11	9·936	10	53
54	13·916	14	12·304	12¼	11·005	11	9·942	10	54
55	13·940	14	12·319	12¼	11·014	11	9·947	10	55
56	13·963	14	12·332	12¼	11·022	11	9·952	10	56
57	13·984	14	12·344	12¼	11·029	11	9·956	10	57
58	14·003	14	12·356	12¼	11·036	11	9·960	10	58
59	14·022	14	12·367	12¼	11·042	11	9·964	10	59
60	14·039	14	12·377	12½	11·048	11	9·967	10	60
65	14·110	14	12·416	12½	11·070	11	9·980	10	65
70	14·160	14¼	12·443	12½	11·084	11	9·987	10	70
75	14·196	14¼	12·461	12½	11·094	11	9·992	10	75
80	14·222	14¼	12·474	12½	11·100	11	9·995	10	80
85	14·240	14¼	12·482	12½	11·104	11	9·997	10	85
90	14·253	14¼	12·488	12½	11·106	11	9·998	10	90
95	14·263	14¼	12·492	12½	11·108	11	9·999	10	95
100	14·269	14¼	12·494	12½	11·109	11	9·999	10	100
Perp.	14·286	14¼	12·500	12½	11·111	11	10·000	10	Perp.

Examples.

The foregoing Table is reproduced from the twenty-second edition of Inwood's "Tables for the Purchasing of Estates, &c.," by kind permission of the publishers, Messrs. Crosby Lockwood and Son, and shows the annual amounts to be debited to Profit and Loss Account, and credited to account of Lease or other object to be amortized in a given number of years with interest at 3, 4, 5, 6, 7, 8, 9, and 10 per cent. per annum. The table is also serviceable for ascertaining the value of a Lease at the several rates of interest.*

Example:—A Lease or Annuity for 14 years, to make 3 per cent. and to get back the principal, is worth 11·296 or 11¼ years' purchase of the clear annual rent; at 4 per cent., 10·563, or 10½ years' purchase; at 5 per cent., 9·899, or 10 years' purchase; at 6 per cent., 9·295, or 9¼ years' purchase. In calculating the value of Annuities, Leases, &c., *Compound* Interest is always reckoned and allowed.

A hypothetical Ledger Account, showing the amortization of a Lease at 5 per cent. per annum, will be found, with a description in Chapter VI., p. 120.

* For other rates of interest than are shown in the Table here reproduced, the reader may be referred to the current (Twenty-sixth) revised edition of "Inwood's Tables" (London: Crosby Lockwood & Son, 1900), where a similar Table is given, but extended to many more rates of interest—16 in all: namely, 1½, 1⅝, 2, 2¼, 2½, 2⅝, 3, 3½, 4, 4½, 5, 6, 7, 8, 9, and 10 per cent.

GLOSSARY OF TERMS.

GLOSSARY OF SOME OF THE TERMS USED.

The definitions do not extend to terms used in quotations or in the Appendices.

Amortization.—The process by which provision is made for the expiration of value in an asset.

Appreciation.—The increase in value of assets either through special or general causes. (Opposed to Depreciation, *q. v.*)

Assets.—Property of all kinds, possessed or in reversion. (Opposed to Liabilities, *q. v.*)

Balance Sheet.—A complete summary of debit and credit balances as they appear in the accounts of the Ledger at a given date.

Book Value.—The monetary value of any asset according to the books of account. (Distinguished from Market Value, *q. v.*)

Capital.—The money or properties invested in the business. Assets applied to production of further wealth, or assets used as a source of income.

Cash Book.—A commercial book recording the cash transactions.

Commercial Books.—The books pertaining to the counting-house, such as the Ledger, Journal, Cash Book, recording mercantile transactions, as distinguished from Factory Books treating of merchandise.

Commercial Ledger.—The Mercantile Ledger (as distinguished from the Stores, Stock, and Plant Ledgers).

Cost of Production.—The total expenditure incurred in the production of a commodity. (Distinguished from Prime Cost, *q. v.*)

Counting-House.—The place in which the mercantile book-keeping is conducted.

Craft Register.—The book recording the work done by, and the earnings of, each of the Craft.

Credit Note.—If received, an advice of indebtedness to the firm. If issued, an advice of indebtedness by the firm.

Credit Note Register.—A commercial book in which the credit notes received are registered.

Day Book.—A commercial book in which the sales of stock are recorded.

Delivery Note.—A request to receive, and a description of, material tendered.

Depreciation.—The falling off in the value of buildings, machinery, plant, and other assets. (Distinguished from Appreciation, *q. v.*)

Dilapidations.—Those defects in a tenement which have arisen from neglect or misuse; and of use or age, if the efficiency of the structure is destroyed.

Establishment Expenses—General Charges.—The general expenses which cannot be *directly* charged to any particular process or branch of a business.

Estimate of Cost.—A calculation of the probable cost of a commodity.

Factory.—The place in which manufacturing operations are carried on.

Factory Accounts.—The systematic registration for purposes of account of transactions appertaining to manufacture.

Factory General Charges.—The general expenses incurred in the factory which cannot be directly charged to any particular Order No.

Factory General Charges Book.—The book in which the Factory General Charges are collected.

Fixed Capital.—That part of the capital of a firm which consists of the instruments of production of a more or less permanent character.

Fixed Plant.—The machinery and appurtenances required for the purpose of manufacture, and permanently located in one position in a factory. (Distinguished from Loose Plant and Tools, *q. v.*)

Foreman.—A superintendent of a floor, wing, or shop in a factory, or of a set of men.

Fuel Summary Form.—A form summarising the various items of cost in the delivered price of fuel.

General Charges.—(*See* ESTABLISHMENT EXPENSES.)

General Stores Account.—The account in the Commercial Ledger in which the receipts and issues of stores, as recorded in the Commercial Books, are collected.

Going Concern.—A business the efficiency of which, for the purpose of profit, is maintained.

Goodwill.—The value pertaining to the *clientèle*, or interest in the business.

Indirect Expenses.—Outlays not directly remunerative. (Distinguished from General Charges and Establishment Expenses, *q. v.*)

Indirect Factory Expenses.—Outlays made in the factory which are not directly remunerative. (Distinguished from Factory General Charges.)

Inventory.—A detailed and descriptive catalogue of properties.

Invoice.—If received, an advice of indebtedness by the firm. If issued, an advice of indebtedness to the firm.

Invoice Allocation (or Bought Day) Book.—A commercial book in which invoices for goods purchased are entered and analysed.

Invoice Register Book.—A commercial book in which the invoices received are registered.

Joint Stock Company.—An association of individuals who combine by the subscription of capital to carry on a business.

Labour.—That factor in the cost of production which in a given trade represents the work of adapting materials.

Leading Hand.—The senior hand of a floor, wing, or shop in a factory, or of a gang of men.

Liabilities.—The debts and obligations of a firm. (Opposed to Assets, *q. v.*)

Loose Plant and Tools.—The machinery, tools, and appurtenances required for the purpose of manufacture temporarily located in any position in a factory. (Distinguished from Fixed Plant, *q. v.*)

Magazine.—(*See* STORES.)

Maintenance.—The preservation of the efficiency of fixed capital.

Manufactory.—(*See* FACTORY.)

Manufacturing Account.—The Account in the Commercial Ledger which shows the value of the Stock Orders or goods in course of manufacture.

Manufacturing Order.—(*See* STOCK ORDER.)

Market Price.—The price at or about which all other similar commodities are being sold in the same place. (Distinguished from Book Value, *q. v.*)

Material—Stores.—That factor in the cost of production which represents the raw material of trade employed in the manufacture of commodities.

Obsolescence.—The process by which an article before it is

certain trade, and as a result is no longer of current application in that trade.

Order Form.—An instruction to a vendor to supply material or do work.

Orders Received Book.—A commercial book recording the orders received.

Outworks Time Record.—A form used by employés engaged outside the factory, showing how their time has been spent.

Overlooker.—A supervisor of labour.

Overtime.—Time worked beyond the normal period of employment in the factory.

Overtime Book.—A factory book in which the timekeeper records the overtime made.

Overtime Comparison Book.—A book in which comparison is made between the cost of ordinary time and overtime.

Overtime Return.—A return showing the overtime worked in the factory during a certain period.

Patents Account.—The account in the commercial books which records the book value of patents.

Patterns.—The types to and from which articles are made.

Petty Cash Book.—A commercial book recording small cash transactions.

Piece Work.—Work paid for by the piece or job. (Distinguished from work paid by time.)

Piece Work Analysis Book.—A book in which the piece work returns are analysed and a comparison instituted as to the relative value, as regards the product, of time and piece wages.

Piece Work Return.—A factory form used by employés engaged on piece work.

Plant.—The machinery and appurtenances required for the purpose of manufacture. (*Vide* Fixed Capital, Fixed Plant, Loose Plant.)

Plant and Buildings Ledger.—A book in which are collected all entries relating to fixed and loose plant and buildings.

Plant Debit Note.—A factory form used to record the employment of plant.

Plant Debit Summary.—The form on which Plant Debit Notes are summarised.

Prime Cost.—The original or direct cost of an article. (Distinguished from Cost of Production, *q. v.*)

Prime Cost Journal.—The book in which adjusting entries as to cost are made.

Prime Cost Ledger—Prime Cost Book.—The book in which are collected all entries relating to prime cost, or contingently to cost of production.

Profit and Loss Account.—The statement which shows the pecuniary result of the business effected. (Distinguished from Revenue, *q. v.*)

Railway Rates Book.—The book in which railway rates are recorded under the headings of the various charges making up the rate.

Rate Book.—(*See* WAGES RATE BOOK.)

Raw Material.—The unadapted materials employed in the production of commodities of a particular trade. The manufactured articles of one trade may be the raw materials of another.

Renewal.
Renovation.
Repairs.
} (*See* MAINTENANCE.)

Reserve Fund.—A provision for contingencies.

Residual Value.—The ultimate selling value of assets when worn out or superseded.

Retail Warehouse.—The repository for commodities which have been purchased from the makers or other vendors for reselling.

Revenue.—The gross return from capital employed. (Distinguished from Profit and Loss, *q. v.*)

Sales Analysis Book.—A commercial book in which an analysis is made of the sale of stock.

Sales Cancelled Book.—A commercial book in which the credit notes given to customers in respect of stock returned are entered.

Scrap.—The minimum value of articles, *i.e.* the price that may be depended on for waste material.

Shop Returns Book.—A book in which are recorded the Stores Debit Notes.

Sinking Fund.—A fund invested in order to provide for an eventual loss or claim.

Stock—Stock-in-Trade.—Those commodities which, having been manufactured or purchased, constitute the objects of the trade; manufactured commodities on hand; contingently, articles purchased for retailing. (Distinguished from Stores, *q. v.*)

Stock Account.—The account in the Commercial Ledger in which are summarised the monetary transactions relating to stock.

Stock Books.—Books relating to the receipt and issue of stock.

Stock Debit Note.—A factory form used to record the completion of articles manufactured for stock, and their transfer from the factory to the warehouse.

Stock Issued Book.—A factory book in which the stock requisitions are recorded.

Stock Ledger.—The book in which all entries relating to stock are collected. (Distinguished from Stores, Plant, and Commercial Ledgers.)

Stock Order.—The instruction to manufacture commodities for stock and to record the expenditure. (Distinguished from Working Order, *q. v.*)

Stock Order No.—The number given to a Stock Order. (Distinguished from Working Order No., *q. v.*)

Stock Received Book.—A factory book recording the receipts of stock.

Stock Requisition.—A form used to record the withdrawal of stock from the warehouse.

Stock Returned by Customers Analysis Book.—A commercial book in which the Stock Returned Debit Notes are analysed.

Stock Returned by Customers Book.—A factory book in which the Stock Returned Debit Notes are recorded.

Stock Returned Debit Note.—A factory form used to record the return of stock to the warehouse by customers.

Stock taking.—(*See* SURVEY.)

Stock Uncompleted.—Articles in course of manufacture for stock.

Store.—The repository for stores.

Stores.—The raw material employed in manufacture or other purposes. (Distinguished from Stock, *q. v.*)

Stores Account.—(*See* GENERAL STORES ACCOUNT.)

Stores Debit Note.—A factory form recording the return to store of waste or surplus material.

Stores Issued Book.—A factory book in which the Stores Warrants are entered.

Storekeeper.—The officer in charge of stores. (Distinguished from Warehouseman, *q. v.*)

Stores Ledger.—The book in which all entries relating to stores are collected. (Distinguished from Stock, Plant, and Commercial Ledgers.)

Stores Received Book.—A factory book in which the invoices for goods purchased are entered.

Stores Rejected Book.—A factory book in which are recorded all the credit-notes received from vendors of goods returned.

Stores Requisition.—A requisition from the storekeeper for the purchase of material.

Stores Requisition Book.—The book in which stores requisitions are entered.

Stores Warrant.—A factory form used for the withdrawal of stores.

Survey—Stock-taking.—The process of taking an inventory and of examining the condition, &c., of properties. (*See* VALUATION.)

Suspense Account.—An impersonal account in the Commercial Ledger to which items in abeyance are charged.

Symbolic Nomenclature.—The designation by symbols of machines and parts.

Time Allocation Book.—The book in which the time records are entered, and in which their apportionment to the various orders is carried out.

Time Book.—A factory book used by the timekeeper to record the time made by the employés.

Time Clerk.—The clerk who enters the employés' records of time, and analyses the same under the various working orders.

Timekeeper or Gatekeeper.—The employé whose duty it is to record the time the other employés enter and leave the factory.

Time Record.—A factory form used by the employés, recording how their time has been spent.

Time Sheet.—A form used to record the time of lighters, barges, or boats on their journeys.

Tools.—Instruments or implements of production of a more or less permanent nature.

Tool Order.—An instruction (subsidiary to a Stock Order) to manufacture tools, and by means of which the cost of those to be used in the manufacture of a commodity is ascertained.

Tool Order No.—The number given to a Tool Order.

Trading Account.—The account in the Commercial Ledger which represents the trading transactions. The debit side of the account records the cost of stock issued, and the credit the proceeds of sales.

Transfer Analysis Book.—A commercial book analysing the transfer from stores to warehouse, and *vice versâ*.

Transfer Book.—A factory book used to record Transfer Notes.

Transfer Note.—A form employed to record transfer of commodities from store to warehouse, or *vice versâ*.

Unclaimed Wages Book.—The book in which are entered the names and wages of those employés who are not paid in regular course.

Valuation.—The process of ascertaining by examination and survey the present and prospective value of properties or the earning power of any asset.

Viewer.—The examiner of manufactured articles or parts.

Wages.—Payment for labour.

Wages Account.—The account in the Commercial Ledger in which are collected all the entries relating to wages.

Wages Advice.—The form used to record the engagement, or dismissal, or resignation of employés, any alteration in their rates, fines levied, or premiums allowed.

Wages Book.—The book which records the amounts payable to each employé.

Wages Rate Book.—The book in which the rates of wages paid to employés are entered.

Wagon and Van Statement Form.—The form on which the earnings of the wagons and vans are shown.

Wagon Journey Repairs Book.—The book recording the repairs done to wagons whilst on journeys.

Warehouse.—The repository for stock.

Warehouseman.—The custodian of the stock. (Distinguished from Storekeeper.)

Wear and Tear.—The gradual and normal deterioration of plant and buildings.

Working Order.—An instruction to expend labour and material in the maintenance, repair, and renewal of plant and buildings, and to record this expenditure. (Distinguished from Stock Order, *q. v.*)

Working Order No.—The number given to a Working Order.

Writing Down—Writing-off.—The process by which the book value of an article is reduced.

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