

THE APPLICATION OF COST ACCOUNTING AND
CONTROL TO THE MANUFACTURING PROCESSES OF WINE
AND SPIRIT IN SOUTH AFRICA
WITH SPECIAL REFERENCE TO THE
KO-OPERATIEVE WIJNBOUWERS VERENIGING VAN
ZUID-AFRIKA, BEPERKT
(K.W.V.)

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SECTION A.

INTRODUCTION .

Chapter 1.

INTRODUCTION.

1. Introduction.

Cost Accounting to-day may be considered as one of the many tools available to modern management in order to improve the efficiency of its organisation.

The meaning and function of Management has been defined by numerous writers, two of whom are quoted hereunder:-

The art of management has been defined "as knowing exactly what you want men to do, and then seeing that they do it in the best and cheapest way". (Taylor, 1947, 21).

Putting it into broad general terms, "management" is concerned with seeing that the job gets done: its tasks all centre on planning and guiding the operations that are going on in the enterprise. That it is not usually recognised as simply and clearly as this is due to the fact that in most industrial and commercial activities it is overshadowed by other factors - either the technicalities of operation or the complications of the records, routines, etc., that are adopted for financial control purposes. These things may well be unavoidable accompaniments of modern business, but it is important to realise that they are in fact the only tools for the manager's job: they are not the job itself, nor do they really help to explain what the job is. (Brecht, 1953, 8).

Management may, therefore, be briefly defined as the art of applying the economic principles that underlie the control of men and materials in the enterprise concerned.

An organisation and the part played by Management in the organising of the work are described as follows.-

An organisation is a group of persons working together for a common end, each having duties and obligations one towards another, and to the organisation as a whole. To organise comprises two processes. Firstly, there is the division of the work to be done into convenient and appropriate units; and it is important to observe that it is the work that is organised, not the persons to whom it is allotted. Secondly, there is the establishment of the relationships between the various units, and the responsibility and authority to be attached to each position. In addition, there is the problem of selecting, training and appointing suitable persons for each position. This last, however, may be more correctly called "staffing" than organising. (Seymour, 1954, 55).

In addition, therefore, to the primary function of Management, i.e. the control of labour and material, the organising of the work in such a way as to achieve maximum efficiency is of the utmost importance.

With a relatively small undertaking the management function and responsibility can be satisfactorily fulfilled by the personal attention of one or at the most two members.

A small undertaking has been defined as:-

..... one which is privately-owned and operated, does not have decentralised management, generally employs 250 or less workers, and does not maintain a dominant position in its industry. (Gottterer, 1954, 6).

In this work, however, a relatively small undertaking is considered to be one which complies with the above definition except in that the number of workers generally employed / is

is taken to be such that they can be adequately controlled by one or two executive members. In such concerns control is necessary, but the need for elaborate costing and control systems largely falls away and the desired control is achieved by direct contact of the Management with the employees.

With regard to a relatively large undertaking, however, management is compelled to find methods in order to organise and co-ordinate labour and capital to attain the highest degree of efficiency. A great variety of such methods exists. Examples are: planning techniques, production control methods, wage incentives and cost accounting and control methods. Each of these methods, however, whilst related, constitutes a separate subject for study and, if grouped together, would be too comprehensive for this thesis, the object of which is to study only cost accounting and control and the application thereof to the manufacturing processes of vine products in South Africa.

The various commodities which comprise vine-products are fully set out in Chapter II/4.

2. Evaluation of the problem.

The application of cost accounting to the manufacturing processes of wine and spirits
/ has

has been selected for the following reasons:-

a. The production of alcoholic products from grapes is firmly established in this country and, as will be seen from output figures for the period 1918 to 1958 quoted hereunder, is still rapidly developing. The production figures quoted have been selected from A Survey of Wine-growing in South Africa, 1958 - 1959, page 17, and exclude vintage output from those areas where grapes are used mainly for the production of sultanas and other dried vine-products. These figures have been excluded because the subject selected for investigation is the development of vintage output mainly for the manufacture of alcoholic products.

Table No.1:

Production figures of vintage output and the amount used for alcoholic products.

Year.	Tons/leaguers ⁽¹⁾	Amount used for making alcoholic products: Tons/leaguers
1918.	96,750	Not available.
1928.	159,623	141,780
1938.	278,220	244,352
1944.	509,792	424,424
1945.	469,716	387,705
1948.	465,256	404,670

/ 1950

Table No.1. (contd.)

Year.	Tons/leaguers (1)	Amount used for making alcoholic products.
		Tons/leaguers.
1950.	460,330	389,804
1952.	389,045	331,107
1953.	502,848	438,940
1954.	506,073	441,392
1955.	555,639	498,211
1956.	620,255	561,851
1957.	549,613	493,959
1958.	563,311	495,525

(1)

One leaguer equals 127 British Imperial gallons of wine and is reckoned to be equivalent to one short ton (2,000 lbs.) of grapes. (A Survey of Wine Growing in South Africa, 1958 - 1959, 17).

In order, however, to reveal clearly the rapid growth, in the table below the above figures are converted to percentages with 1938 as 100% and, to establish the ratio of the total amount of the total vintage used for making alcoholic products, these figures are expressed as percentages of the total vintage for corresponding years.

/ Table No.2:

Table No.2

Production figures as percentages
(calculated from figures reflected in
Table No.1)

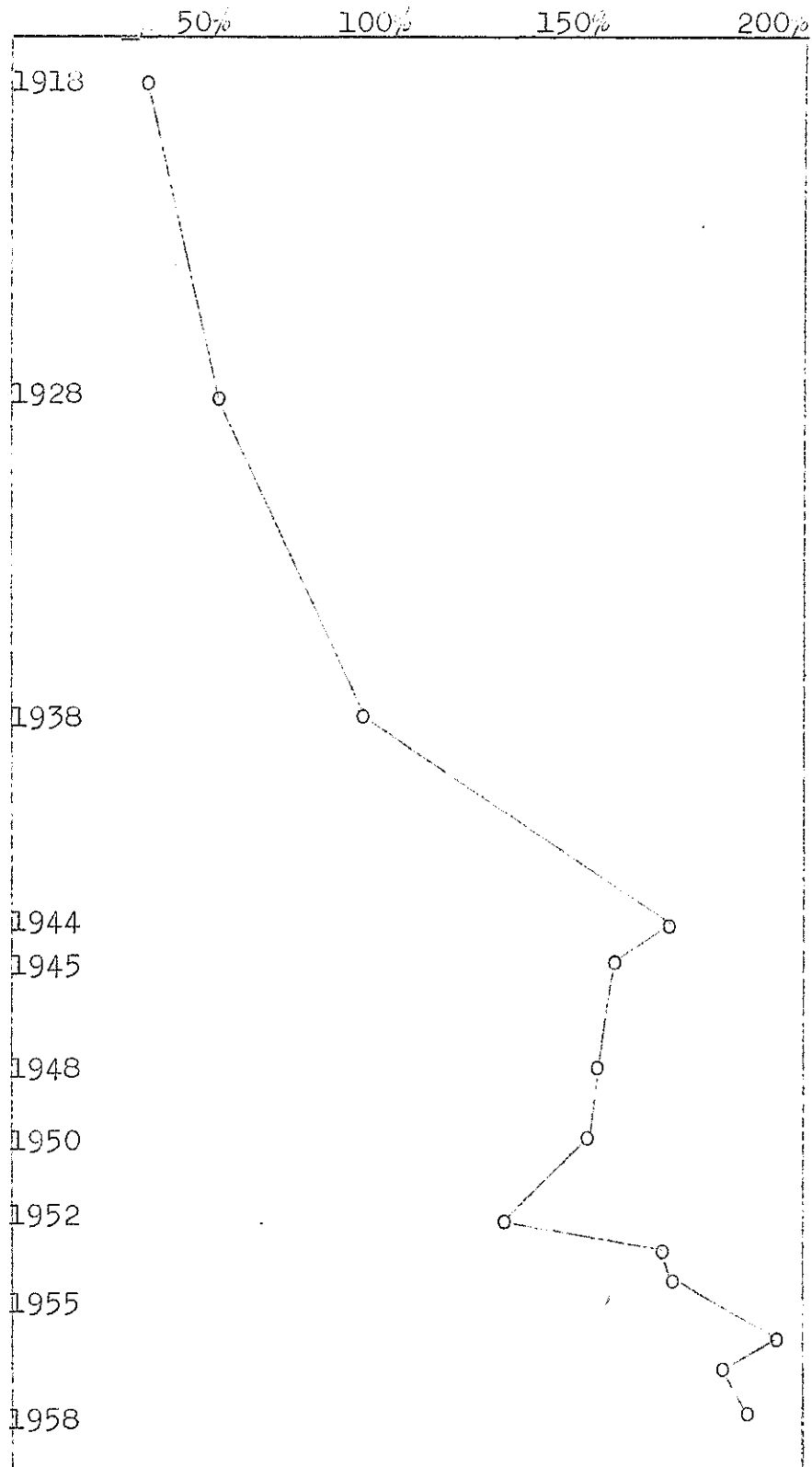
Total vintage output percentage with 1938 as 100%		Amount used for making alcoholic products as percentage of the total vintage
Year	%	%
1918	35	Not available
1928	57	89
1938	100	88
1944	184	83
1945	168	83
1948	167	87
1950	165	85
1952	140	85
1953	181	87
1954	182	87
1955	200	90
1956	223	91
1957	198	90
1958	202	88

The following diagram expresses the
percentages of total vintage output as a graph.

/ Annual

Diagram No.1:

Annual vintage output expressed
as percentage with 1938 as 100%



A study of the diagram makes the proportionate increase in the vintage output obvious. With 1938 as 100% the first point on the diagram, i.e. the percentage for 1918, is only 35%. During the following twenty-six years the output increased to 184% of that for 1938, which is more than five times the output for 1918. From 1944 there appeared to be a drop to 140% in 1952, but an increase again took place to reach a peak output level of 223% in 1956. Although the total for 1958 was considerably less than the 1956 figure, it was still almost six times the figure for 1918.

The above analysis, therefore, confirms that production is still developing.

The figures reflected in the production table illustrated above show that the proportion of the total vintage used for alcoholic products varies between 83% and 91%, leaving a balance of only 9% to 17% for other purposes, thus confirming the important role played by alcoholic products in the vintage output of South Africa.

The size of the private and other undertakings participating in this industry very well justified an investigation of cost accounting methods, particularly with a view to determining the extent to which existing
/ methods

methods could be improved upon in order to increase their effectiveness and contribution towards managerial efficiency.

b. The costing problems can be regarded as unique, the main reason being the "maturation process" which is one of the most important processes in the manufacturing of a good quality wine. From a costing method and control point of view the maturation process presents great difficulty, since not only is it extremely difficult to identify the raw material as it flows through the various processes, but maturation losses in volume and weight through evaporation take place continuously and temperature differences cause fluctuations in volume.

c. The total output of vintage takes place over only three to four months of the year and, therefore, manufacturing processes have to be set up in such a way that the year's output can be handled during these few months. This highly seasonal nature vitally influences labour and capital requirements as well as the allocation and control of costs incurred thereon.

This is illustrated in the following analyses and subsequent graph which depict the labour units employed by the K.W.V. over a period of twelve months, i.e. from January to December, 1959:-

/ Table No.3.

Table No. 3:

Labour summary - 1959 (coloureds and natives)

	Total		Paarl		Worcester.		Robertson.		Montagu		Stellenbosch.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Jan.	364	7	217	7	38	7	54	7	14	8	41	7
Feb.	543	10	304	9	88	16	72	10	17	9	62	11
Mar.	<u>583</u>	11	298	9	<u>111</u>	20	<u>79</u>	11	<u>23</u>	13	<u>72</u>	13
Apr.	467	9	269	8	61	11	69	9	16	9	52	9
May.	435	8	276	8	38	7	59	8	13	7	49	9
June	394	7	230	7	34	6	61	8	16	9	45	8
July	434	8	289	9	35	6	62	9	7	4	41	7
Aug.	436	8	282	9	33	6	59	8	19	11	43	8
Sept.	419	8	277	8	31	5	58	8	16	9	37	7
Oct.	431	8	289	9	32	5	56	8	14	8	40	7
Novem.	419	8	279	9	33	6	55	7	11	6	41	7
Dec.	409	8	271	8	32	5	55	7	12	7	39	7
	5534	100	3289	100	566	100	739	100	178	100	562	100
Average over 1 year	445	100	274	100	47	100	62	100	15	100	47	100
Average over 3 months peak period	531	119	301	110	87	185	73	118	20	133	62	132
Average over remaining 9 mths.	416	93	269	98	34	72	58	94	14	93	42	89
No. at head office	3											

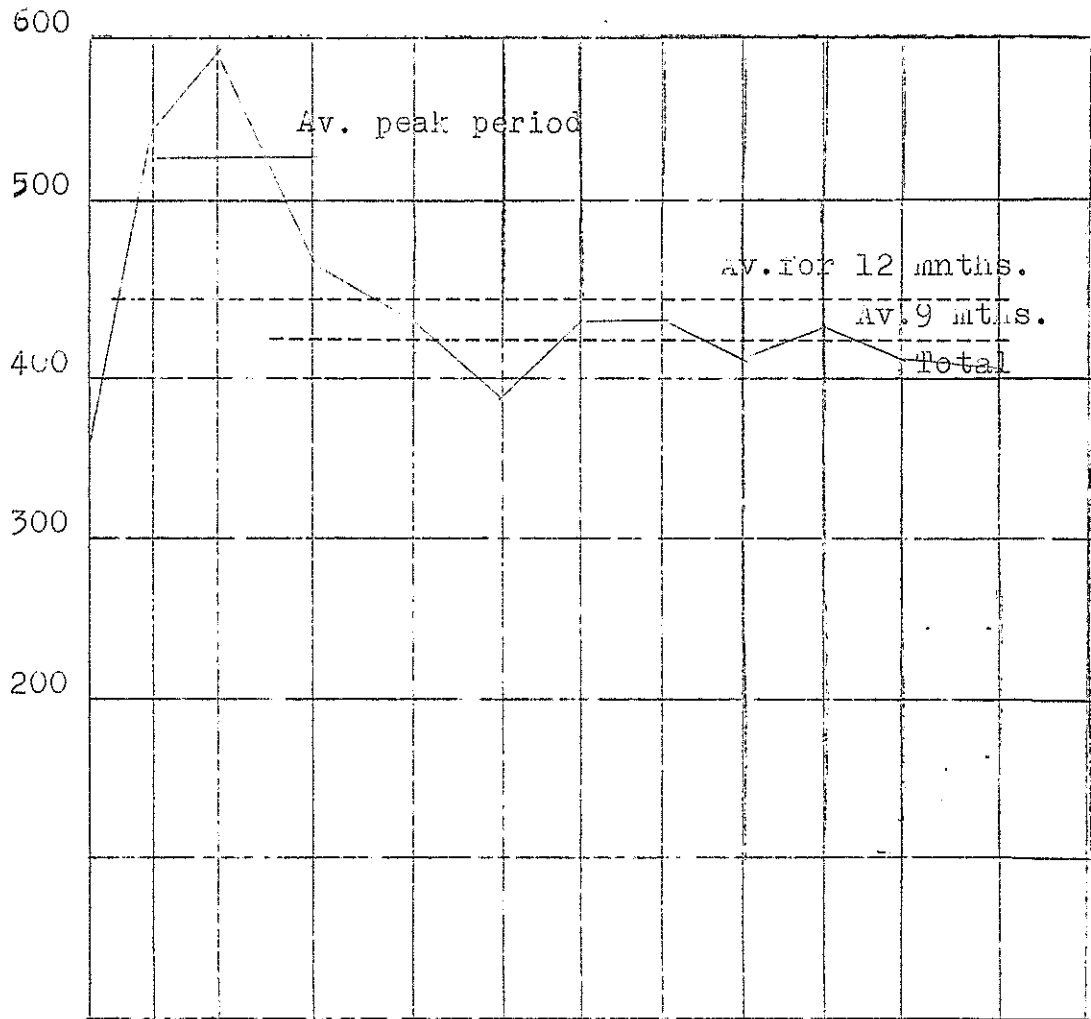
/ Diagram

(Taken from K.W.V. records.)

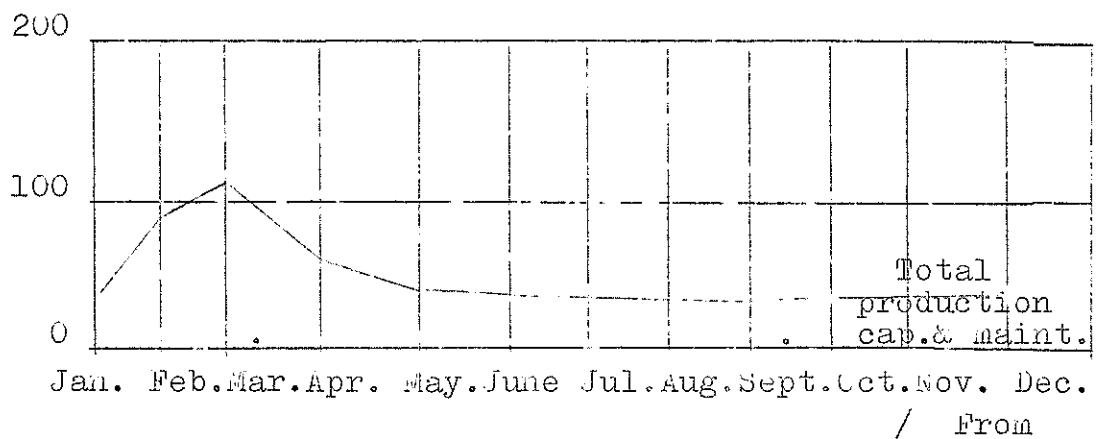
Diagram No.2:

Labour on production and capital
and maintenance work.
(coloureds and natives)

Non-europeans (all depots - 1959).



Non-europeans - Worcester depot:



From the foregoing table and diagram it will be seen that the peak employment period takes place over four months, i.e. from February to May and confirms the highly seasonal nature of the activities previously mentioned.

d. No record appears to exist of an attempt having been made to introduce and develop a system of cost accounting applicable to the wine industry which complied with the requirements of a costing system as a tool whereby management could increase its own effectiveness to the highest possible degree.

3. The method of investigation and research.

In order to investigate the methods of cost accounting as applied to the manufacturing processes of wine, the K.W.V. organisation was selected as a sample for the following reasons.-

a. The management of the organisation, being progressive, decided that such an investigation should be undertaken in order that their own methods and procedures could be critically examined and improved if and where necessary, thus making a valuable contribution to the industry as a whole.

b. To-day almost 90% of all South African wine and brandy exports to overseas countries come from the cellars of this
/ organisation

organisation (A Survey of Wine Growing in South Africa - page 51).

c. Approximately 50% of the total wine output is processed by this organisation. This is illustrated in the following table.-

Table No.4:

Wine output (in leaguers @ 20°.)

Description.	Year				
	1955.	1956.	1957.	1958.	1959.
Must converted into vinegar. A	102	113	107	112	98
For canning, moskonfyt and grape juice. B	-	4346	2832	1472	1353
Raisins, sultanas and currants, calculated in tons of fresh grapes as equivalent to C	17182	13697	13621	26579	18444
Table grapes in tons equivalent to D	40144	40248	39094	39625	40373
Own use on farms. E	3820	3641	3588	3490	3187
Vintage Pool F	345742	419116	357835	339839	302541
Good wine. G	148649	139094	132536	152196	189736
Totals. H	555639	620255	549613	563311	555732
Deliveries to K.W.V. (Distilling wine, etc.) I	180359	239194	196538	180857	160986
% of Vintage Pool I/F X 100%	52%	57%	55%	53%	53%
Purchases good wine J	20700	22493	22123	26982	28062
% of Total good wine J/G X 100%	14%	16%	17%	18%	15%

/ AS
(Taken from K.W.V. records).

As can be seen from the above table, a total of over 50% of the distilling wine and about 15% of the good wine is handled by the K.W.V.

d. The K.W.V. organisation is not only subject to all the activities peculiar to the wine manufacturing but, because of its particular nature which is fully discussed in Chapter II/2, the problems for which a costing system had to be designed and developed were increased due to the fact that this organisation is compelled to accept all distilling wine offered by producers.

The investigation was carried out along the following normal logical lines. -

(1) The methods which were in operation were thoroughly examined in detail and all the deficiencies in the system which were revealed were reported to the management.

(2) Ways and means of overcoming the shortcomings, which in certain instances involved radical changes in methods, procedures and organisational construction, were discussed with responsible officials and a plan of action for installing the improvements agreed upon was prepared.

(3) Many of the existing forms were either completely eliminated or required extensive redesigning. In addition the
/ basic

basic principles of cost accounting had to be established which, in most instances, involved an almost complete change of methods and procedures.

The above could be termed the designing stage, and was followed immediately by the installation of the new methods and procedures.

Installation commenced in 1957 and, as is usual in such cases, was carried out in stages over a period of approximately three years.

The principles, methods and procedures adopted are set out in this thesis which is also intended to serve as a blue print for the organisation.

4. Organisation of the thesis.

The first chapter of this thesis is designed to introduce the reader to the evaluation of the problems of cost accounting as applied to the wine industry and to the methods of investigation and research which were undertaken to overcome them.

The history, founding and functions of the K.W.V. and the processing of wine products are discussed in Chapter II. Under the section headed "Theory" the basic principles in regard to cost centres, ledger keeping and integration, cost accounting,
/ budgeting

budgeting, management and the organisation of the cost department are set out.

Beginning with section C the thesis turns to the more practical phase of the investigation and sets out the methods found to be in existence followed by section D which covers the recommended methods.

The conclusion and further recommendations are presented in section E.

The reason for setting out this work in the form adopted is to explain clearly the nature of the products processed, and also the problems peculiar thereto, in order that the magnitude of the problem may be fully appreciated before the theory, existing methods and the recommended methods are discussed.

The theory is given pride of place to make possible a critical analysis of existing material on the subject and, in so doing, to be in a position to build up basic theories which can serve as a yardstick against which the effectiveness of the existing methods can be measured. This will reveal deficiencies so that when recommended methods are developed the shortcomings in existing methods are known and this, coupled with the theoretical basic principles developed, will form a sound basis for the recommended methods.

Chapter 11.History and development.1. Introduction.

Viticulture was introduced to South Africa in 1655, in which year Johan Van Riebeeck, commander of the first Dutch settlement at the Cape of Good Hope, planted the first vines. On the 2nd February, 1659, Van Riebeeck recorded in his diary that wine was made for the first time from Cape grapes.

Ten years after the first vine had been planted at the Cape, the Dutch settlers entered the export trade by sending quantities of wine to the East. But the Dutch East India Company discouraged this practice at their food-supply base, and what little they did allow their ships to carry, was offered gratuitously to foreign powers and distinguished persons.

Simon Van der Stel became governor of the Cape in 1679 and established his farm at Groot Constantia. He exhorted the free burgers, as the settlers were commonly known, to follow his example and thereby extend the vineyards of the Cape. Constantia wines brought great prestige to the South African

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wine industry and were amongst the most sought after dessert wines in Europe.

In 1688 the French Huguenots arrived and settled at Franschoek, Paarl, Drakenstein and Stellenbosch. They not only extended the vineyards but were also instrumental in improving the quality of Cape wines.

The encouragement of the export of South African wines to Great Britain in the year 1805 was influenced by the British taking possession of the Cape and a lively wine trade resulted with a consequent increase in production.

About six years later Sir John Cradock appointed the first official wine taster in order to ensure the maintenance of the standard of the quality of the wine exported.

This was followed by a period in which the export trade to Britain flourished and in the year 1826 considerable capital was invested in the industry by the wine growers and merchants.

This trade, however, collapsed in the year 1861 as a result of the abolition of preferential tariffs by the Gladstone government.

The industry suffered a further severe setback when, in 1866, phylloxera which spread very rapidly was discovered in patches of sick vines in Constantia and Moddergat (now Helderberg). Baron Carl von Babo mentions the discovery of phylloxera at the Cape in his 1886 report, whilst in his 1885 report it was stated that

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phylloxera had not yet been found at the Cape (Perold, 1927, 487). To combat the disease the farmers successfully replanted their vineyards with imported American disease-resistant root stocks on to which they grafted cuttings of European wine-grape varieties.

The overcoming of these difficulties was followed by a further period during which the industry flourished and the South African war stimulated the improved position but, unfortunately, in 1917 the industry was rocked to its very foundation by that terrible peril - over-production - which meant uneconomically low prices for wine. Such a situation demanded immediate action, and the prominent figure in the endeavours made to find a solution to the problem was Mr. C.W.H. Kohler who suggested to farmers that their resources be pooled and that a co-operative society be formed to protect their interests. This led to the founding in 1918 of the Co-operative Wine Growers Association of South Africa, Ltd., which to-day is better known as the K.W.V.

In 1924 Parliament passed Act 5, i.e. the Wine and Spirit Control Act, which made the transactions of non-members subject to the same provisions as those of members. Under its constitution the K.W.V. annually fixes the minimum price to be paid by the trade for distilling wine. This changed the face and

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character of the South African wine industry as it was the first time in the history of the Union's wine industry that the growers had been organised.

The main objectives of the K.W.V. are to promote the interests of South African wines, develop export markets, encourage production of quality wines, and safeguard the interests of both the producer and the consumer of locally produced wines. Success, however, was not immediate and years of toil and disappointment were experienced during which the K.W.V. endeavoured to find a solution to the problem of its prodigious surpluses. In spite of all efforts, production still far exceeded local consumption and there were no outside markets. In approximately 1926, however, export trade with Britain and Holland was resumed.

The South African Wine Farmers Association (London) Limited was established in the United Kingdom in the year 1931 and the K.W.V. held a half interest. The functions of this Company are mainly to effect distribution, maintain continuity of supplies, uniformity of quality and stability of prices. In the year 1950 the K.W.V. acquired full control of this Company.

In the year 1940 the Wine and Spirit Control Amendment Act No.23 was passed. This provided for the fixing of the price for good

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wine sold by producers and also empowered the K.W.V. to limit the production in the Cape of wine alcohol.

To-day the wines emanating from the cellars of the K.W.V. are very well received in overseas countries. During the year 1958, 4,585,113 bulk gallons of wine and brandy valued at £1,795,520 were exported from South Africa, and, of this quantity, ninety percent was produced by the K.W.V. The quantity of Cape wines shipped to Great Britain alone in 1958 amounted to 1,205,924 bulk gallons.

(K.W.V. Records).

2. The functions of the K.W.V.

The K.W.V. is a producers agricultural co-operative society registered in terms of the Co-operative Societies Act and in its memorandum of association its main function is briefly referred to as follows:-

To direct, control, and regulate the sale and disposal of the wine products of its members in such a way that a satisfactory yield is continually ensured. With this objective as its main function it has to exercise its powers, perform its responsibilities and enforce the claims of the company in accordance with Annexure A of the memorandum of the company.

The memorandum of association of the society and Annexure A referred to above, authorise the K.W.V. to receive, handle and dispose of all products of its members -

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and, by law, also the products of all non-member wine growers - and/or to regulate and control the disposal of such products direct to the liquor trade in South Africa with a view to supplying the needs of the liquor trade in this country.

Because production through the years has always been in excess of local consumption, the memorandum of association lays down that the portion of every vintage crop saleable locally should be offered to the local liquor trade at a price mutually agreed upon by the K.W.V. and the liquor buyers. That portion of every crop which is not saleable locally and which is fixed according to the discretion of the K.W.V. as a "surplus", may not be offered in competition with the liquor merchants on the local market. This surplus portion of the output has to be disposed of by the K.W.V. in foreign countries or may be marketed locally in a non-drinkable form. It is by means of this provision, viz. the removal of all surpluses from the local market, that a stable price for the wine products is obtained, thus ensuring a continual and satisfactory yield to the wine-grower.

It is to be noted that, because the memorandum cannot bind the wine buyers, the determination of the price for the saleable

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portion of the crop is only possible with the mutual agreement and approval of the wine buyers. The price so determined normally tends to swing in favour of the wine buyer as, not only is the wine-grower keen to sell as much as possible of his output in the quickest possible time because of fear that a higher price will tend to reduce the demand, but he can also regulate his replenishment according to requirements.

It was, however, necessary for the K.W.V. to obtain legal support in order to ensure that its objectives could be properly carried out because the powers allotted under the memorandum and the Co-operative Societies Act were limited in so far as non-members were concerned. Act No.5 of 1924 allocated to the K.W.V. specific powers over the control and determination of prices in regard to distilling wine (wine used for the distillation of spirit, brandy, etc.) and this to some extent facilitated the application of its objective. Act No.5 of 1924 is now contained in Act No.38 of 1956, under which the following privileges are granted to the K.W.V.:-

(1) To determine the price, subject to appeal, of distilling wine to the trade.

(2) The right to supply, subject to

/ prescribed

prescribed conditions, its own products to its members only.

(3) The right to exercise statutory control in order to maintain price levels.

The K.W.V., however, is prohibited from selling distilling wine or spirit in the Union and the Federation, except liquor to distillers and wholesale merchants according to their requirements in regard to quantity and quality.

Act No.5 of 1924 provided for control, by the K.W.V., only over distilling wine and spirit, but in 1940 Act No.25 was promulgated under which the K.W.V. was empowered to determine the price of good wine. This Act is similar to Act No.5 since it also prohibits the K.W.V. from disposing of its good wine products in the Union and the Federation. This Act, in addition to allowing the K.W.V. the right, as under Act No.5 of 1924, to determine the distilling wine price, also furnishes the organisation with the power, subject to the consent of the Minister of Agriculture, to determine the following in respect of good wine:-

(1) A minimum price.

(2) A quality price.

(3) The percentage to be purchased or obtained of the total quantity of good wine purchased or obtained by any wholesale

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merchant in one year at a price which is not less than the above minimum quality price.

Any recommended price determination is to appear in the Government gazette. The trade has the right to object within fourteen days and the minister may be called upon to approve or disapprove of the price concerned.

In addition to the above, Act No.23 of 1940, also provides for the following:-

(1) The purchasing of good wine by the liquor trade can only take place with the consent of the K.W.V. (article 3 of Act No.23 of 1940).

(2) The sales price for good wine sold to persons licensed to trade in liquor or to distillers has to be paid to the K.W.V. for repayment to the wine growers concerned. (article 6 of Act No.23 of 1940).

(3) Consent for the distillation of good wine by liquor traders or distillers is to be given by the K.W.V. (article 7 of Act No.23 of 1940).

(4) An obligation to collect a levy on all good wine sales to cover administrative expenses. (article 8 of Act No.23 of 1940).

(5) Powers for the K.W.V. to limit the production of both distilling wine and good wine by prescribing the maximum quantity that any wine grower may produce. (article 9 of Act No.23 of 1940).

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The main functions of the K.W.V., therefore, are to continually ensure a satisfactory yield to the wine grower, to remove all surplus production from the local market and to dispose of such surplus anywhere except in the Union and the Federation or in a non-drinkable form, and to exercise its powers of control allocated by law to the best advantage of the industry.

Apart from directing and regulating the sale and disposal of its members' wines, and securing for them a continuously adequate return for their products, the K.W.V. has endowed an oenological college where viticultural research is carried out to the benefit of all wine growers. It also sponsors overseas bursaries for promising students, and thus enables South Africa to keep abreast of every trend in modern viticultural methods.

3. Organisation of the K.W.V.

The line organisation of the K.W.V. as it exists to-day is shown in appendix 1.

The control of the activities of the K.W.V. is vested in a board of twelve directors who are representative of nine areas which are based on the production capacity of the districts concerned and not on their

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geographical size. The directors are elected to the board by members in the respective areas.

From its twelve members the board elects a chairman and a vice-chairman and meets fortnightly to conduct business arising from its normal activities and in addition special meetings are held as and when required. The chairman of the existing board is Mr. A.J. du Toit.

The main function of the board is to formulate major policies, direct the activities of the K.W.V., and especially to declare the surplus, which it does annually before the 15th January from information compiled mainly by the staff of the K.W.V. It also declares the price of distilling wine for the ensuing season.

The general manager, who at present is Professor W.J. Pretorius, is directly responsible to the board and, although he has extensive powers, is required to keep the board informed of any important matters requiring its attention.

The assistant-general manager (administration and budgetary control), the assistant-general manager (sales), the secretary, the manager (legal administration), the production manager, the chief wine expert and the personnel manager are each separately

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and directly responsible to the general manager for the respective departments of the organisation.

4. The processing of wine and spirits.

a. Introduction

The grapes are picked and sorted in the vineyard and all green or rotten bunches are separated from the good ones, which are placed in baskets and transported to the cellar. This sorting operation is of particular importance especially in so far as the manufacture of good wine is concerned. The grapes may be dumped into a basket or other container or may even be loaded loose in a truck but care is taken to ensure that the berries are not damaged and also that no containers from which the grapes could absorb metal are used for this purpose because such contact would tend to cause wines with a high metal percentage to become turbid.

On arrival at the cellars the grapes are crushed in a grape mill, an important feature of this process being that the pips should not be broken. In the course of this operation the stalks are removed from the husks and the must, the latter being pumped into the fermenting tanks and from

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here onwards the procedure differs according to the type of wine to be produced. The various types are discussed in this chapter and the manufacturing processes charted.

b. Types of wine

The various types of wine are as follows:-

(1) Dry white wines

Immediately after the crushing process the must is separated from the husks and stalks and for this purpose presses are used which are, in modern cellars, hydraulically operated. Sulphur dioxide (SO_2) is then added in order to act as a preserver. Fermentation now takes place: this means that the sugar in the wine is converted to ethylalcohol and in this process it is essential that the temperature should be as low as possible because if it rises above 90°F the danger of the alcohol being converted to acetic acid is created. To prevent this the entire cellar is kept cool or cold water is used to keep the must temperature down to a minimum.

After fermentation, i.e. when all sugar has been eliminated, the wine is kept in containers which are filled to absolute capacity in order to ensure that no air is present because the presence of air will cause the ethylalcohol to be converted into acetic acid.

After about two weeks the wine is removed from the lees and is then ready for

/ maturation

maturation or to be sold to the trader as unmaturred wine.

(2) Dry red wines

These wines are known as the clarets and burgundies. The difference between the manufacturing of the dry white and the dry red wines is that with the latter the fermentation takes place with the husks and must together, so as to obtain as dark a colour as possible. The red wines are astringent because the tannin present in the husks is absorbed into the wine. They also require a longer period of maturation before being ready for use.

(3) Fortified sweet wines

For sweet wines the grape is harvested as ripe as possible. The pressing process, however, remains the same. The juice from the grapes is allowed to ferment and, by stopping the fermentation at different stages by means of the addition of wine spirit, wines of different sugar content are obtained.

(4) Distilling wine for manufacture of ethylalcohol

The making of distilling wine is similar to that of dry table wine but the grapes used for this purpose are those which are too poor in quality for the manufacture of good wine. The quality of the distilling wine is of little importance because in the process of its dis-

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-tillation only pure ethylalcohol is obtained by means of rectification. This ethylalcohol or wine spirit is used for the fortification of sweet wine and brandy.

(5) Distilling wine for the production of brandy . .

The difference between the distilling wine used for the manufacture of alcohol and that used for the distillation of brandy is for the latter the distilling wine is made from certain grape varieties only and must be of good quality because the process of brandy distillation is one of concentration.

Before this wine may be distilled into brandy it must be approved by a board specially constituted and appointed by the government and if the wine fails this test it is used for the distillation of ethylalcohol. Because of this the farmer is paid a bonus for distilling wine which is suitable for the distillation of brandy.

c. Processing analysis

(1) Introduction

In this section the processing of good wine, grape crushing and the production of moskonfyt, brandy and spirit is discussed.

(2) Good wine

A flow chart depicting the various processes through which good wine passes in the course of its manufacture at the Paarl depot

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is appended. The symbols used in the charts are explained in Chapter III/2.

Diagram No.3:

Good wine - Paarl.

No.	○	→	□	△	Description of operation.
1.	○				Transport wines in tanks loaded on lorries from farms.
2.	○				Receive wine at receiving store
3.	○				Weigh loaded lorry.
4.	○				Pump wine from lorry tank into cement storage tanks (100 leaguer tanks mostly).
5.	○				Weigh empty lorry.
6.	○				Draw samples of wine and submit to laboratory for analysis and report thereon.
7.	○				Apply So_2 to wine.
8.	○				Apply fining materials such as gelatine, bentonite. Wine remains on finings for a time. Before the end of the year, however, all the season's wines must be transferred to the main wine cellar.

Diagram No.3 (Contd.).

No.	○	→	□	△	Description of operation.
9.		○			Pump wine from finings and deliver into cement storage tanks in the main wine cellar Note: Some wines remain here in tank maturation; others, like some dry red wines, are exported almost immediately; all the sherries and some of the wines remain here until it is possible for them to be put away in wood for maturation.
10.		○			Pump wines from main wine cellar to maturation stores, where they are filled into casks ranging mostly from 70 gallons to 120 gallons in capacity.
11.	○				mature wine in small casks:- (a) Sweet wine usually for about seven years. (b) Solera sherry is immediately on receipt from the farms placed in small wood where it remains for two years while the flor develops. Thereafter it is

/ transferred

Diagram No.3 (Contd.)

No.	○	→	□	⊥	△	Description of operation
						transferred to the solera which consists of three batteries of 400 gallon casks. Part of the contents of each cask in every battery is, once a year, withdrawn and transferred to the next battery. The young wine, therefore, enters into battery No.1 whilst the more matured wine is withdrawn from battery No.3. Creadera - battery - battery - No.1 No.2 battery - matured No.3 wine. 150 gallons from each cask are transferred in January and 100 gallons in June. A maturation period of slightly over nine years is being maintained in this manner, and continuity in quality is also being maintained.
11.		o				Remove wine at the end of the maturation period from the small casks and pump into cement tanks where it remains in storage until required for blends.

Diagram No.3 (Contd.)

no.	○	→	□	D	△	Description of operation.
12.	o					Blend wine. Periodically blends are made up. Usually wines removed from maturation casks are blended with wines in tank maturation. The procedure is to transfer the wine to be blended into blending tanks in the right proportions where they are mixed by means of stirring apparatus. (On making up blends standards of quality are maintained).
13.	o					Transfer wines from the blending tanks to the main wine cellars.
14.	o					Fortify wines, i.e. by the addition of spirits the alcoholic strength is brought up to the desired level.
15.	o					Add to the wines fining materials such as gelatine, bentonite, charcoal, etc. and sometimes also SO_2.

Diagram No.3 (Contd.)

No.	○	→	□	D	△	Description of operation.
16.		o				Draw off within one month after the fining materials were added the wines from the finings, by transfer to the other cement tanks.
17.				o		Leave the wines in storage until required to supplement supplies of wines which are ready for export in bulk, bottling or local bulk sales.
18.		o				Transfer wines to the refrigeration department where they are kept at low temperatures for varying periods of time and also filtered.
19.		o				Transfer the wines from the refrigeration department into cement tanks or wooden vats in the main cellars.
20.		o				Apply SO_2 and make colour corrections if necessary by the addition of a caramel mixture. The wine is now ready for.- (a) Filling into casks for export. (b) Bottling for export or / sale

Diagram No.3 (Contd.):

No.	○	→	□	D	△	Description of operation.
						sale to members and staff. (c) Sale to local merchants in bulk.

(Compiled from a study of K.W.V. processes)

(3) Grape crushing, production of moskonfyt,
distilling wine and boys' wine

A flow chart depicting the various processes in regard to grape crushing, the production of moskonfyt, distilling wine and boys' wine is presented hereunder:-

Diagram No.4.

Grape crushing, production of moskonfyt
distilling and boys' wine.

No.	○	→	□	D	△	(a) <u>Grape crushing.</u>
1.		o				Farmers deliver the grapes in lorries provided by themselves.
2.	o					Weigh lorry fully loaded.
3.		o				Offload grapes into the receiving pits.
4.	o					Take a sample of the grapes from each load and crush in a small hand machine. The sugar content is determined and entered on the scale ticket.

Diagram No.4 (Contd.)

No.	○	→	□	D	△	(a) Grape crushing.
5.	○					weigh the empty lorry.
6.		○				Feed grapes by hand into the crushing mills.
7.		○				Pump the crushed grapes from the crushing mills into cement tanks known as separating tanks.
8.				○		Leave the crushed grapes in the separating tanks for some time to allow the juice to drain off.
						(b) <u>Production of moskonfyt</u>
1.		○				The grape juice flows from the separating tanks into sulphuring tanks.
2.	○					Apply SO_2 to prevent fermentation.
3.	○					Leave the juice in the tanks for about three days for settling.
4.		○				Pump the clear sulphured juice into moskonfyt charger tanks (i.e. the cement tank from which the moskonfyt plant is fed).

Diagram No.4 (Contd.)

No.	○	→	□	⊞	△	(b) <u>Production of Moskonfyt.</u>
5.		o				Withdraw the grape juice from the charger tanks and concentrate in the vacuum evaporators (i.e. the moskonfyt plant).
6.		o				The concentrated moskonfyt flows into receiving tanks.
7.	o					Sulphur moskonfyt required for export. Moskonfyt for local use is fortified with grape spirit.
8.				o		Leave the moskonfyt in storage in the receiving tanks for subsequent filling into steel drums and trucks for export or local use.
(c) <u>Production of distilling wine and boys' wine</u>						
1.		o				(The latter is produced for supply to the farmers for rationing to their labourers). The grape juices flow from the separating tanks into fermentation tanks (This step follows step (a) 8).

Diagram No.4 (Contd.)

No.	○	→	□	△	(c) <u>Production of distilling wine and boys' wine</u>
2.	o				Leave juice for about six days for fermentation.
3.		o			Transfer the distilling wine to charger tanks in the distillery. Note: The boys' wine is treated with meta and transferred to storage tanks, from where it is supplied to farmers as required.
					(d) <u>Pressing of grape husks.</u> (Continues from step (a) 8).
1.		o			Manual labour works the husks out daily from the separating tanks into fermentation tanks situated directly below the separating tanks.
2.	o				Leave the husks to ferment for about four days.
3.		o			Draw the fermented wine off and transfer to distilling wine storage tanks.
4.		o			Throw the fermented husks and stalks out by manual labour with a conveyor belt and transfer to continuous presses.

Diagram No.4 (Contd.):

No.	○	→	□	⊂	△	(d) Pressing of grape husks.
5.		o				Pump the wine pressed out by the presses to the distillery wine storage tanks.
6.		o				Sell the husks to farmers who remove them in their own lorries

(Compiled from a study of K.W.V.processes).

(4) Brandy and spirits

Separate flow charts depicting the various processes through which brandy and spirits pass in the course of their manufacture are appended.

Diagram No.5..Brandy and spirits

No.						(a) Brandy.
1.		o				Pump rebate wines (distilling wine delivered by the farmers and accepted as being of the standard demanded for the production of rebate brandy) into potstills. Note: The name rebate derives from a rebate on excise duty which is granted on approved brandy produced from wines which have also been approved of by the brandy board. A minimum maturation period of three years is required.

Diagram No.5 (Contd.)

No.	○	→	□	△	(a) Brandy.
2.	○				Distil the brandy in two stages.- (i) The wine is distilled into low wines with an alcoholic strength of about 60° proof spirit. (ii) The low wine is then distilled into brandy with an alcoholic strength of about 26° overproof.
3.		○			The brandy flows by gravity into cement reception tanks.
4.	○				Break brandy down before maturation to a strength of about 8° overproof by the addition of water.
5.		○			Pump the brandy into oak casks and stack in the maturation stores.
6.				○	Leave the brandy under maturation for a period of three years, or for longer periods of five to ten years respectively.

Diagram No.5 (Contd.)

No.	○	→	□	△	(a) Brandy
7.		o			At the end of the maturation period pump the brandy out of the casks into cement storage tanks. Note: The brandy is now ready for sale to local merchants or for the production of blended brandy.
8.	o				Convert the brandy by the addition of flavouring materials, spirit and colouring matter into a palatable product called blended brandy.
9.				o	Store the blended brandy in cement tanks for subsequent filling into casks and trucks for export or bottles for local sales.
					(b) Spirits
1.		o			Pump-feed the distilling wine (which is produced by the K.W.V. but is mostly supplied by farmers and co-operative societies) from the charger tanks into continuous patent stills.

Diagram No.5 (Contd.)

No.	○	→	□	D	△	(b) Spirits.
2.	o					The stills break the distilling wine up into the followings:- (i) Spirit of an alcoholic strength of approximately 96.5% by volume. 75% of this is pure rectified spirit. 25% contains volatile impurities such as aldehydes, esters, and fusel oil, which were formed during the fermentation process. This is collected in separate receiving tanks, and is re-distilled after having been chemically treated. (ii) Waste materials, which are referred to as spent-wash and are disposed of as useless waste in various ways. Note: The distilling wine introduced to the process and the final volume of spirit produced stand at the approximate ratios of 8½ to 1.
3.	o					Transfer the final product to cement or steel spirit storage tanks.
4.				o		It is eventually disposed of as follows:-

Diagram No.5 (Contd.)

No.	○	→	□	⊥	△	(b) Spirits.
				o		(i) Sold to local wine merchants. (ii) Used by the K.W.V. for the blending of brandy, the production of liqueurs or for the fortification of wine.

(Compiled from a study of K.W.V. processes)

(5) Conclusion. (Personal observation)

The processes through which the various wine products produced from grapes pass are illustrated in the foregoing diagrams. The procedures described therein are not intended to present a technical illustration of the various processes, but have merely been included to give a broad outline of the operations and the order in which they are carried out.

5. Conclusion.

A study of the manufacturing processes is important because the design of a system of cost accounting and control will have to take this factor duly into consideration.

This approach is obviously in contrast with the views expressed by Van der Schroef who refers to this part of the production process as "onbelangrik".

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In general the German writers also tend to ignore the importance of this aspect but the significance of a study of the manufacturing processes is fully appreciated by the American cost accountants. Although the English cost accountants are fully aware of the necessity of a study of the manufacturing processes, they tend to follow a rather conservative policy in their application of cost accounting methods, hence their preference for actual as against standard cost accounting methods.

SECTION B.

THEORY.

The development of basic cost accounting
and control principles pertaining to the
manufacture of wine and spirits.

Introduction to section B.1. Origin and development.

The need for cost accounting developed with the early growth of industry, the rapid expansion of which, both in size and complexity, making it necessary for industry to become acquainted with the costs of its products. Its origin and development can best be understood if discussed under the headings of the double-entry bookkeeping system, industrial bookkeeping, and cost accounting.

a. The double-entry bookkeeping system

The first systematic attempt to apply the method of double-entry bookkeeping appeared in the North Italian Industrial States when, in 1494, La Paciolo issued a mathematical book under the caption of "De Computis et Scripturis". In this book he illustrated, under a separate subsection, the system of double-entry bookkeeping. This work was followed in 1518 by a book written by a German, Grammaters, on the same subject. Various other authors contributed to the development of this phase and one of the best books in this connection in those days was "Den Stijl van Boekhoudens" published by J. Contereels in 1603. A book called "Vorstellicke Boekhouding op die Italiaanse Wyse"

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was published in 1608 by Simon Sterin. This writer was responsible for the successful re-organisation of the financial position of the community of Prince Maurits.

(Sorgdrager, 1955, 9). The system of double-entry bookkeeping was by this time firmly established and accepted as being a method which could be successfully employed to "domeinen and staatskosten" (Jan en Annie Romein, 1947, part I, 269 - 270).

b. Industrial bookkeeping

With the industrial revolution in Great Britain home industry was largely replaced by the factory system. This forced the procurement of assets in the form of expensive machines on which depreciation had to be allowed for in the cost structure. As a result of this the main cost items were no longer only material and labour, but running costs had also to be taken into consideration.

This led to industrial bookkeeping, and in 1750 John Dodson gave a clear example of this in his shoemakers' accounts (D.Solomon, 1952, 4). In his account he made provision for a material account, debiting same with the quantity and value of the purchased material and crediting it with charges or debits to accounts, such as soles, heels, etc. These accounts in turn were credited with the quantity and values issued to the workmen for

/ shoe

shoe production and their personal accounts were debited. On completion of the work the personal accounts were credited with the value agreed upon beforehand and a finished stock account debited. The latter account was subdivided into columns for quantity and value so that such information in respect of the various sizes could be recorded separately.

The balances reflected in the personal accounts represented the work produced by the workmen and these accounts were cleared by paying such amounts to the workmen concerned. The completed stock account was credited with the cash and credit sales and a debit balance was brought down which, when deducted from the value of finished unsold stocks on hand, represented the profit or loss.

The German bookkeeping techniques also developed and, in 1860, Edouard Low, an accountant in the German ministry of trade, in his book entitled "Theorie des Rechnungs Wesens" quoted forty books on accounting.

c. Cost accounting

As a result of the growing competition in the engineering industry in the late nineteenth century, the interest in cost accounting grew. This industry is largely built on the tender basis and, therefore, the determination of costs as a guide for price fixation became most important. This

/ development

development is referred to by Solomon (1952, 19) as follows:-

"Perhaps the most important factor, however, leading to a growth of interest in costing was the increasing difficulty of price fixing in the engineering industry. As the industry grew and as it became more competitive so the interest in cost accounting developed".

Cost accounting forms the basis of the facts guiding management in the establishing of prices and, although the factor mentioned above can be regarded as being the most important for the origination and subsequent development of cost accounting, it still plays an important part in the establishment of this system of accounting in all modern industry. The selling price factor, however, is not the only one which contributes to the profits of the organisation. Another important factor is the effective control of costs and this necessarily developed, in management, a feeling of cost consciousness which gave rise to a need for facts and data.

This is confirmed by Goetz, (1949, 9) as follows:-

"Major trends tending to increase managements' need for data and for sharper focussing of data on problems are:-

1. The growing scale and complexity of industry.
2. The increasing use and importance of fixed capital.
3. The increasing range and tempo of change.
4. The increasing social control of business.

and by Henrici (1947, 1, 2) as follows:-

"The manager of every plant is met with a mighty challenge. Not merely must he see that his factory turns out products which can compete on a quality basis - he must have this done in a way that permits continued sales at a continued profit. Too frequently he cannot control prices. Hence his only recourse is to control the cost, and the test of his ability is his success in doing so".

/ Goetz.

Goetz (1949, 14):-

"Management must know more facts and know these facts more precisely not in qualitative terms alone but quantitatively".

Henrici (1947, 3):-

"Costs can be controlled only on the basis of accurate, comprehensive, well-coordinated knowledge of their nature, amount and reason for existing".

Matz, Curry, Frank (1952, 6):-

"Cost accounting may be described as being that part of the accounting procedure of the enterprise which deals with the task of determining, reporting, analysing and controlling the cost of a particular process, job, service unit, or department of the company".

Cost accounting is, therefore, a tool which has been developed largely to ascertain required information by means of the accumulation of facts and figures and, as such information can only be used as a basis for taking the necessary steps to increase productivity, it is essential that it be placed, with the least possible delay, before the appropriate section of management so that any remedial action necessary may be enforced.

Although a method of recording the historical costs may be used as a guide for price-fixing purposes, it serves as a proportionately limited guide in this respect for new products or lines, or for the control of costs in the process of spending and, therefore, a need developed for the predetermination of costs and for the subsequent comparison thereof with the actual or historical cost.

/ In

In Netherlands literature this is referred to as the "Voorcalculatie" (noodzakelijke offers) to be compared with the "Nacalculatie" (gebrachte offers) that is the actual costs. This results in a variation which can be analysed by management and serves as a guide as to whether pre-established targets have been achieved.

The calculation of future costs also renders possible, according to Scholma (1948, 38), "de controle van die bedrijfsefficiency" because the cost price is an application on the economic principle since the economically-minded human being tries to achieve the best economic result with the smallest possible effort.

In American literature John Whitmore was an early developer of standard cost accounting. He illustrated the application thereof in the shoe factory (J. Whitmore: "Shoe factory accounts" in Journal of accountancy - May 1908).

In English literature H.S. Cary (The accountant, 25th July, 1903, 955) pointed out the advantages of cost accounting integrated with the financial accounts.

Briefly therefore, the first development which took place was that of a double-entry bookkeeping system from which, due to a large extent to the industrial revolution, industrial bookkeeping developed.

Because of the need for facts and

/ figures

figures for both the establishing of a guide for price fixation and the control of costs in order to increase productivity, cost accounting developed, firstly, into systems of historical cost recording and, subsequently, into the predetermination of costs, better known to-day as standard costing.

2. Organisation and methods.

From the above analysis it is clear that one of the main functions of cost accounting is to determine facts and figures and, therefore, the cost accounting procedures and methods are, to a great extent, related to the forms and documents in use in any organisation.

Goetz (1949, 4):

"Accounting is an expensive tool, of no value in itself. Its values are derived wholly from the importance of its objectives and its success in attaining these objectives. Its costs are determined by the methods employed, the records kept and the reports rendered. These costs should be justified method by method, record by record, and report by report, by the values of objectives attained. A study of managerial accounting should analyse the managerial objectives of accounting and justify principles and methods proposed by managerial values of data that such methods provide."

A study of cost accounting, therefore, will not be complete unless a proper study of the forms, documents and clerical procedures in operation in the organisation is carried out simultaneously or prior to the study of the

/ actual

actual costing methods as the effort put into improving the cost accounting methods will be related largely to the improvement and streamlining of clerical methods and procedures.

3. Organisation of the chapter.

A close relationship exists between cost accounting, documentation, clerical procedures and methods and in order that this relationship may be seen in its true perspective, the subject of organisation and methods is fully discussed in a separate section in this chapter.

Discussion on the methods and procedures in regard to the actual apportionment of overhead expenses has been intentionally avoided in this thesis because so much literature on this particular subject is already available that further discussion thereon would contribute little, if anything, to the field of cost accounting, particularly as all the problems related to the distribution of overhead charges experienced in the study undertaken were of a common nature and, therefore, do not warrant special reference or treatment.

In developing the theory on cost accounting and related subjects for this thesis, reference has been made to a number of existing text books and reliable articles; and the

/ theoretical

theoretical principles expounded in some of these are quoted, compared with others and discussed in order to determine the most valid theory.

Chapter III under section B. is designed to introduce the reader to a study of organisation and methods. Beginning with Chapter IV/^{the} discussion turns to the pure theory of cost accounting, and sets out the theory pertaining to cost systems, material costs, labour and overhead costs and product unit costs. In Chapter V budgeting and management controls as tools for cost controls are discussed.

Chapter III.

Organisation and methods related to cost accounting and control.

1. Introduction.

The objective of a study of organisation and methods is to examine and ascertain the effectiveness of the methods in operation and to introduce, where necessary, improvements which may lead to greater efficiency. An examination of this nature is of particular importance in any organisation because of the continual change in internal and external factors affecting the successful operation thereof and also on account of the constant development of new techniques and procedures, such as automation. Barnes (1955, 1) points out that since so many people do physical work, and because the mechanism of the human body is so intricate, considerable thought has been given to ways and means of improving and simplifying work methods with a view to increasing the daily output but at the same time reducing the effort.

It is, however, not advisable for management itself to undertake this critical examination for the following reasons:-

/ a.

a. Management is not only a full-time function but is the most important function in an organisation and, where it is found that management can afford the time for such activities, it becomes most necessary to investigate the justification for management on a scale allowing for tasks of this nature.

If, therefore, management is called upon to participate in an organisation and methods investigation, sacrifice would, of necessity, have to be made regarding managerial responsibility with consequent loss of proper management within the organisation.

b. It may, in many instances, be desirable that an objective analysis of the methods and procedures be carried out in order to receive a fresh and unbiassed approach to the various features or aspects.

c. Insufficient experience is a third reason why management should not be called upon to undertake such an investigation. By this is meant that whilst management may have considerable experience of its own organisation, experience regarding a large variety of undertakings may be limited and, therefore, such experience would be limited to experience in "depth".

For the three reasons set out above it is not desirable for management to undertake independent investigations of this nature and, therefore, in many instances, use is made of someone

/ detached

detached from daily routine who can devote the "time" (H.M. Treasury, 1954, 11) demanded by the investigation and can also, from experience in "breadth", i.e. experience in similar aspects of a great variety of organisations, ensure that an objective approach to the problem is obtained. The combination of the experience in "depth" (say a) of the Management of the organisation and the experience in "breadth" (say b) of the outsider results in $a \times b$, which is far greater than the mere application of a and b separately and independently of each other.

Cemach (1958, 15) subscribes to the view expressed above, i.e. that the independent expert brings to the job diversified experience and can devote himself entirely to his own assignment which it is difficult for a member of the organisation to do. He also points out something, which can very well be added to the above as yet another reason why management should not conduct this examination, i.e. that the independent expert can tell management politely but truthfully, things which few employees would dare to talk about.

There are obstacles in the way of an organisation and methods application which are.-

a. Lack of understanding the purpose of organisation and methods and fear of blame for mistakes or deficiencies which the investigations might reveal. Although organisation and methods investigation is a fault-finding campaign, it is

/ not

not carried out for the purpose of establishing blame, the basic idea being to determine errors in order that they may be corrected for future needs.

b. Resistance to the changing of established methods is human because one has become acquainted with such methods, whereas lack of knowledge of suggested procedures naturally creates a fear of the unknown.

The practical application of an organisation and methods study is done by means of a systematic analysis, design or redesign and development of the various methods and procedures used by the management in attaining its objectives.

Generally the organisation and methods work contributes towards greater efficiency; fields of responsibility are properly delegated and efforts are better co-ordinated through the elimination of unnecessary functions.

It ensures that facilities are provided for proper management, adequate controls, and comparisons between actual positions and pre-determined targets. Management is freed from detail and provided with facts for the exercise of control and also proper delegation which eliminates the necessity for executive time being spent on searching for information.

The scope of organisation and methods work is wide and closely linked to cost accounting and

/ control

control. In the same way that cost accounting is largely dependent on the clerical methods employed, the records kept and the reports rendered, as was pointed out in the introduction to the Theory, so is organisation and methods dependent on the cost accounting principles and procedures in so far as they form the basis for adequate controls and comparisons of the actual positions with predetermined targets rendered to the appropriate level of management.

Because of their close relationship, the four subsections discussed in this chapter are clerical procedures and documentation, cost centres, ledger keeping and integration and the organisation of the cost department.

2. Clerical procedures and documentation.

a. Introduction

The first step necessary in order to develop improved clerical methods is to obtain an accurate insight into existing methods. This is best achieved by a procedural study in meticulous detail of the component parts or procedures of the organisation. Such a study involves (Barnes, 1955, 9) questions concerning everything about the job, that is, the way it is being done, the materials and forms that are being used, the tools and equipment, the working conditions,

/ and

and even the design of the end product.

This information is obtained by asking the questions (Barnes, 1955, 9):

What is done?

Why is the work done?

Who does the work?

Where is the work done?

When is the work done?

How is the work done?

In order to follow the procedures through from beginning to end it is necessary to describe the work by setting out in sequence the operations involved. In one procedure record, related operations or those contributing to a specific end or which are carried out in connection with specific documents or articles are described. The operations are linked by a thread in order to follow the contents of one procedure record as it flows into another and in such a way that any lack of continuity in recording the movements will immediately be apparent.

In addition to the compilation of the procedure record, the related forms and documents are carefully studied and examined with a view to obtaining a better understanding of the methods and procedures.

After a careful study of all phases of existing methods, procedures and documents has been carried out, consideration is given to

/ various

various possibilities of improvement, such as:-
Can all unnecessary work be eliminated; can clerical operations be combined, changed in sequence or simplified?

After all improvements that seem worth while have been considered, the next stage is to compile a complete new set of procedure records, redesign the documentations, plan the new work flow through the office and, where desirable, reconsider the office layout.

Various methods of procedural analysis records are in existence and, as certain basic principles pertaining to form design, office planning and layout are of importance to the effectiveness of such a study and method improvement, these are discussed in greater detail under the appropriate headings.

b. Procedural analysis

(1) Introduction

The purpose of making a procedure record is to assist in the analysis of the methods existing in an organisation and also in the development of new ones.

Barnes (1955, 5) points out that in most cases each person does his own particular job without much concern as to the work of others. In order, therefore, that the overall position may be well understood and recorded step by step, use is made of the procedure methods, of which a great many and variety are in existence. The

/ choice

choice of the method will largely be governed by circumstances, the complexity of procedures and a great number of other factors amongst which the personal preference of the investigator probably plays a most important part.

Cemach (1958, 41) points out that there is as yet no accepted terminology on the subject and purely for convenience he divides it into preliminary, basic and supplementary. He classifies written procedures without charts or other diagrammatic presentation as preliminary, and illustrates the meaning with an example (1958, 42). In the example the operations are listed in chronological order, as performed by the operators, on the document selected. Owing, however, to the large number and variety of documents used in office procedures, the operations pertaining to one particular document cannot always be conveniently isolated and for this reason this system is not favoured. Under basic Cemach lists procedure charts, specimen charts and flow process charts and supports the explanations by means of examples. Under the third classification he enumerates the multiple activity time chart, the volume chart, diagrams and models.

In his definition of the "process flow chart" Cemach (1958, 46) concentrates on showing what is done to the material and uses a number of symbols to denote various forms of activity. Although not completely identical in description,

/Alford

Alford and Bangs (1948, 559) also refer to the same chart as a "process flow chart", whilst Barish (1951, 92) refers to similar charts as "process charts". Maze (1947, 555) refers to such charts as the "operator chart" which is, according to him, also frequently referred to as a "right and left hand chart".

In view of the above, it is obvious that no uniformity exists in regard to definitions, descriptions and interpretation of procedural analysis flow charts and the representation thereof.

It is, however, not the intention to attempt a comparison of all such charts and methods but a short description is given supported by an example of an actual organisation and methods study undertaken in a large costing department in Johannesburg during 1958 by the writer of this thesis. The various methods are illustrated by using this example and discussed and commented on as follows:-

Written procedure records, referred to by Cemach (1958, 41) as the "preliminary" method, process flow charts and the specimen charts method.

(2) Written procedure records

In a procedure record the flow of work forms a pattern based on the various posts carrying out the important operations and the way in which these posts are linked by movements of

/ material

material and related documents. Basically, forms of procedure records may be built up as follows:-

(a) The post as such is taken and the operations carried out are described under the post. The operations are then linked from post to post by means of reference numbers. This type of procedure record is generally referred to as the case type.

(b) The second form of writing out procedure records is referred to as the chain type. The operations are followed through in sequence of performance and not necessarily post by post but normally as a whole.

The main distinction between these two methods can be described as follows:-

In the case type the operations are listed under the posts and are numbered in sequence for reference whilst under the chain type the procedure is the same, except that the operations are followed right through and are not broken down by posts.

In order to explain the operation of the methods in the example referred to above, the processing and posting of time-sheets is used. The various related sections and the costing section are coded and the various documents referred to in the example are listed and numbered as follows:-

/ Table

Table No.5.

Sections and forms

Sections concerned	Code
Paysheet section	A
Costing section	B
Timekeepers	C
Originate or file	O

Forms applicable

Description of form	Form reference No
European timesheets	1
Clock card	2
W.O. posting sheet	3

The various operations pertaining to the above documents in the sections concerned are set out hereunder according to the two different methods enumerated above:-

(a) Case type.

Table No.6.

Procedure record - Salaries and
wages allocation.

Costing section B

Organi- sational unit reference from	Document No. copy No. received	Operation des- cription	Document No. copy No. despat- ched.	Organi- sational unit refer- ence to
A 12	1/1 and 2/1	1.Receive from the paysheet section euro- pean time sheets with clock cards attached.		

Table No.6. (Contd.)

Organizational unit reference from	Document No. copy No. received	Operation description	Document No. copy No. despatched	Organizational unit reference to.
		2. Check to ensure that all time-sheets have been endorsed by the by the pay-sheet section, and detach clock cards.		
		3. Sort clock cards into alphabetical order and file.	2/1	0
0	3/1	4. Prepare w.o. posting sheet and post from the time sheets and reference No. (t/sheet) works order No., and labour hours.		
		5. Return time sheets to pay sheet section for filing.	1/1	A 15
		6. File w.o.posting sheets.	3/1	0

/ Paysheet

Table No.6: (contd.)

Paysheet section A

Organi- sational unit reference from	Document No. copy No. received	Operation des- cription	Document No. copy No. despatch- ed	Organi- sational unit refer- ence to
C	1/1 and 2/1	1. Receive from the time- keeper euro- time sheets with clock cards at- tached.		
		12. Forward to the costing section european time sheets with clock cards at- tached.	1/1 and 2/1	B.1
B 5	1/1	15. Receive back from the costing sec- tion euro- pean time sheets and file.	1/1	0

(Personal observation)

As shown in the above example the operations are described and numbered under each section in the centre column of the five columnar table. On the left-hand side are shown the reference of the section from which received, the document and copy concerned. On the right hand side the outgoing document and copy, as well as the section despatched to, are provided for.

/ The

The operational description reference numbers follow strictly in numerical order and, therefore, if under section B at operation number 1 documents Nos.1/1 and 2/1 are received from section A.12, then under section A operation No.12 the cross reference to B₁ will be shown, as clearly illustrated in the above example. Because, however, under section A a large number of operations may be carried out between the receiving and the forwarding operations, such descriptions and of necessity the numbering thereof have been omitted to save space - hence 1, 12, 15 under the paysheet section A.

The main advantage of this system lies in that there is a simplified check to ensure that all the documents received are dealt with and either filed or despatched to another section.

The left-hand column, as can be seen from the above table, balances with the right-hand column in so far as the documentation is concerned. The reproduction of this type of procedure record on a typewriter, however, becomes difficult because columns have to be drawn which slows down the typing speed. If, on the other hand, it is to be reproduced by a photographic process, it has to be set out neatly or written in order to produce a legible record. To overcome this major difficulty,

/the

the form of the procedure record can be slightly modified by entering the references immediately above the operational description, as shown hereunder. This modification eliminates the columns but still tabulates the procedures on the same basis.

Table No.7:

Modified method

<u>A 12 - 1/1 and 2/1.</u>	
1.	Receive from the paysheet section european time sheets with clock cards attached. <u>2/1 - 0.</u>
2.	Sort clock cards into alphabetical order and file.

(Personal observation).

(b) Chain type.

When the chain type is used the procedure record is set out as follows:-

Table No. 8:

Chain type procedure record.

Organi- sational unit refer- ence from	Document No. copy No. received	Operation description.	Docu- ment No. copy No. des- patched	Organi- sational unit refer- ence to
C	1/1 and 2/1	<u>Paysheet section</u> <u>A</u> 1. Receive from the time- keeper euro- pean time sheets with clock cards attached.		

Table No.8 (contd.):

Organi- sational unit refer- ence from	Document No. copy No. received	Operation description	Docu- ment No. copy No. despat- ched.	Organi- sational unit refer- ence to
		12. Forward to the costing section euro- pean time sheets with clock cards attached.	1/1 and 2/1	B
A	1/1 and 2/1	<u>Costing section B</u> 13. Receive from the pay sheet section euro- pean time sheets with clock cards attached.		
		17. Return time sheets to the pay sheet section for filing.	1/1 and 2/1	A
B	1/1	<u>Paysheet section</u> 18. Receive back from the cost- ing section european time sheets and file.	1/1	O

(Personal observation).

The distinct advantage of the case type of procedure record over that of the chain type is that in the case type each section or department as such is studied separately as a whole and the procedures therefor set out. When all pro-

/cedures

cedures have been studied and the records compiled, the procedures from one section/department to another are then linked together and reference numbers inserted. Under the chain type, the procedures are followed through the whole organisation and, in instances where the size of the organisation is large and complex, the analyst will have to devote a considerable amount of time to understanding quite clearly how the system works.

(3) Process flow charts

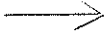
Many types of symbols and variations thereof have been used for process charts (Cemach, 1958, 46). These have been developed from a study of different factory and office processes and through the application thereof to various industries. Some standardisation has developed in dividing a process into five activity classifications, namely, operation, transportation, inspection, delay, storage. The following are the symbols established:- (Alford and Bangs, 1948, 550, 551).

Diagram No.6:

Symbols for flow charts.

Symbol	Description
Operation 	An operation takes place in the following cases: 1. When calculating, planning, receiving or passing on of / information

Diagram No.6 (Contd):

Symbol	Description
	information is carried out. 2. The object is changed in some of its characteristics. 3. The object is assembled or disassembled from another object. 4. The object is prepared for any of the five activities (that is, operation, transportation, etc.)
Transportation 	Transportation takes place when the object is moved from one position to another and such movement is <u>not</u> an operation or an inspection.
Inspection 	This is done when the object is examined to verify the quantity or quality, or for identification.
Delay 	A delay occurs when there is a pause between operations intentionally or because immediate progress is not possible.
Storage 	Storage occurs when an object is kept in safe custody.

An example of a process flow chart
applied to the above example of procedures:-

Diagram No.7:

Process flow chart.

No.	Symbols					Description of operation.
	○	→	□	D	△	
1.						Receive from pay sheet section european timesheets with clock cards attached.
2.						Check to ensure that all time sheets have been endorsed by the pay sheet section.
3.						Detach clock cards.
4.						Move clock cards to sorting desks.
5.						Sort clock cards into alphabetical order by employee.
6.						Sort clock cards by employee into date order.
7.						Check for missing clock cards.
8.						Mark list for clock cards not received.
9.						Wait for all clock cards to be received.
10.						When all clock cards are received, forward to filing cabinets.
11.						Punch clock cards for filing.

Diagram No.7 (contd.):

No.	Symbols					Description of operation.
	C	→	□	P	△	
12.						Arrange clock cards in the files.
13.						File clock cards.

(Personal observation).

The distinct advantages of the process flow chart methods are the following:-

(a) It gives a clear presentation of the flow of the procedures.

(b) It puts emphasis on double handling and transportation operations, and facilitates fact finding.

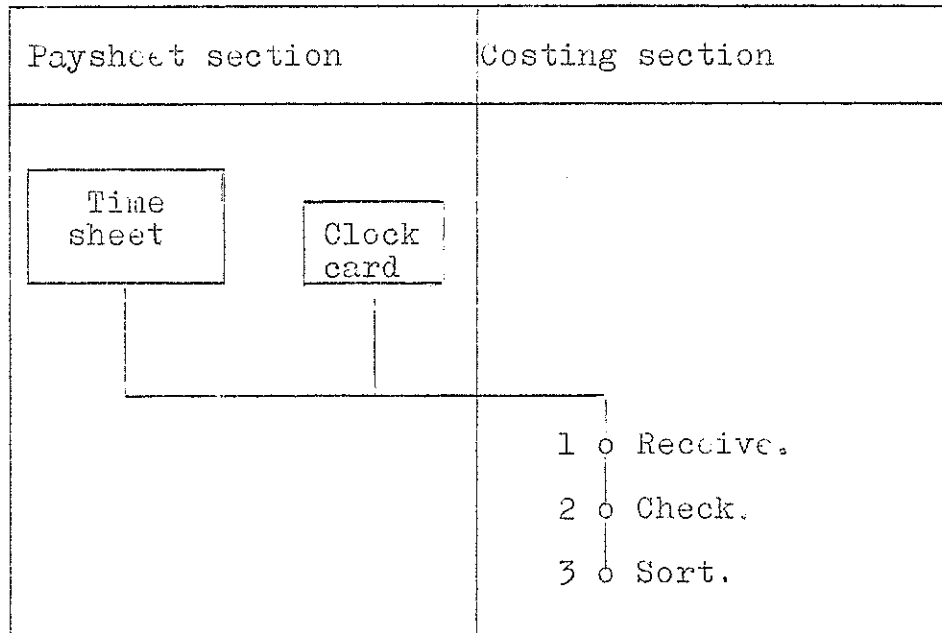
(c) The amount of detail normally required may bring to light defects in the system which were not noticed in another way.

The disadvantages, however, of difficult reproduction on a typewriter have resulted in this method not often being used in office organisation and methods studies.

(4) Specimen chart method

The principles of the specimen chart method are the same as those advocated by Cemach (1958, 44) with slight modifications and can very briefly be drafted as follows:-

/ Diagram No.8:

Diagram No.8.Specimen chart method

As can be seen from the above illustration, provision is made for a skeleton drawing of the document involved, together with a brief description of the operation by section.

This method serves a useful purpose when it is desired to observe at a glance the flow of the document and its copies.

(5) Conclusion .

From the foregoing discussion it is clear that there exists a great variety of methods of recording procedural analysis and that the prime function of these methods is basically to assist in the analysis of existing procedures so that the analyser may become conversant with methods in operation with a view to the improvement thereof.

c. Forms and documents.

A form is defined by Barish (1951, 159) as a duplicated document with blank spaces for the insertion of data by hand (ink or pencil), by typewriter, or by any other process. This describes the meaning of the term.

Forms are used to record and communicate information and provide a means for such data being set out in an orderly and predetermined manner.

Form design is important because the form should be appropriate to the work for which it is to be used, and should ensure smoothness in handling by clerical labour. Form design is normally carried out together with the development of the clerical procedures.

A considerable number of factors have to be taken into consideration when a form is being designed. Maze (1947, 494 - 507) lists a great number of such factors which he subdivides into:-

Functional specifications, under which he lists 20 functions, such as, title, instructions, numbers, etc.

Physical specifications, taking into consideration the paper, filing requirements and handling, review of existing forms and, finally, the procurement of forms.

/ Barish

Barish (1951, 159 - 187) discusses form design under about 27 headings which include combining forms, arrangement of data, headings and instructions, margins, etc.

Investigations into the need for retaining a form and the design of those which cannot be eliminated should be carried out with the utmost care and due consideration should be given to essential factors of which some are briefly listed hereunder:-

(1) The form should be necessary. The most economical operation is the one that is entirely eliminated. Very often it is found that a form was created for some special purpose during some past period and, as the information is now no longer required, the form in question has lost its usefulness but, nevertheless, is still being compiled. Therefore, the exact information required by the user should, in all instances, be determined.

(2) The form should be printed at the lowest cost and, to achieve this, standard size printing paper should be used and economical quantities of printing ordered.

(3) The conditions under which the form is to be used should receive due consideration. For example, if, in order to obviate duplication, the use of certain waxed surface paper is desirable but such paper is non-heat

/ resistant

resistant, it should not be used under conditions where it would be exposed to constant heat.

(4) The form design should be done, as far as possible, to the satisfaction of all those who will handle or use it.

(5) In order to facilitate the functional handling of work flowing from one form to another, care should be taken to ensure that the form being designed is related to the other forms, documents or books with which it will be used. An example of this is the job card on which the information should be set out in the same sequence as that on the invoice, thus enabling the typist to follow the entries in a straight line when the invoice is being typed.

(6) The number of operations should be reduced by carbon copying, copywriter or other method, but the form should be made comprehensible, without creating an impression of complexity, and be attractive in appearance, especially when dealing with the public.

(7) Each form should be allocated a short title and a reference number.

(8) Where the form is to be used on a machine, it should be designed in order to fit the particular machine.

(9) The type and quality of personnel who will use the form plays an important part

/ in

in the design thereof and special consideration should be given to the design most suited to the stages of reading, interpreting and making of entries. It should also be clearly understood what entries are required and they should be as simple and short as is practicable.

(10) Where the form requires special tables or working space the layout of the office and the space available have to be considered in conjunction with the form design.

(11) Different colours for different forms may be used to facilitate handling in the office and this is especially useful where a differentiation between departments is required.

(12) The space required for each entry should be assessed by tests or by reference to other forms with similar entries.

(13) Provision should also be made for:

Filing margins.

Space for signatures.

Instructions.

Totals.

Before the design of the form is finalised, a difficult or series of difficult entries should be selected for sample items and the suitability of the form(s) tested. After a successful test run the form can be finalised and submitted for printing.

Forms well designed will save by being less expensive, reducing filing cost, and increasing clerical efficiency.

d. Office Planning

Hopf (1942, 5) correctly states that "the substance of management comprises the four functions of planning, organising, co-ordinating and controlling" and planning, according to him, "is composed of analysis, simplification and standardisation". Maze (1947, 677) attempts to develop this approach by stating that office planning transfers this major function of management to the sphere of the modern office where it then, according to him, becomes the "art of assembling facts and evaluating them in new combinations for executive decisions".

Although this may be considered as one of the functions of office planning, it cannot be regarded as the prime objective thereof. Throughout his discussion on office planning Maze (1947, 677 - 707) does not convince the reader entirely as to the true aims of office planning and its functions. He seems to attach considerable importance to scheduling office operations which he refers to as:

"the application of a time factor to the movement of work throughout the office (684)".

It should, however, be appreciated that, because of great variety and the complexity of some of the clerical procedures, satisfactory

/ time-standards

time-standards are not available for all clerical work and a system of office planning, if based largely on time factors as mentioned above, is bound to fail.

The objective of office planning can be defined as being that of speeding the work through the office with a minimum of staff in the shortest possible time.

This principle may sound simple, but in application may develop major complications. An example of this in some organisations is the month-end cash payments by customers. The clerical staff during the course of the month may be idle at times but overloaded when the "rush" starts. Office planning should endeavour to overcome such problems in the most economical way, i.e. although sufficient staff should be available to cope with the work satisfactorily during such "rush" periods, the staff complement should be fixed at a level that the organisation can afford to pay.

In planning for production similar problems are experienced, particularly in shipbuilding, construction of houses, bridges, etc. where the main objective is to complete the product as quickly as possible at the lowest cost. In the mass production type of manufacturing, however, the prime consideration is to ensure that the labourer is fully occupied continuously, thus achieving the highest possible economy. This

/ latter

latter principle is referred to by Van Gogh (1949, 69) as:-

"de aaneensluiting van de twee bewerkingen".

e. Office layout

Barish (1951, 114 - 135) correctly attaches considerable value to efficient office layout, which he considers as being of prime importance for an efficient clerical system. He mentions a large number of factors which are of importance when an office layout is being considered. Some of these are: Reduction of lines of communication, conservation of space, accessibility to public, flexibility, proximity to units being serviced, proximity to related units, working conditions, and office environment.

Maze (1947, 3) expresses similar views on this subject and discusses it under various headings, such as: building characteristics, appearance of the office and the use of colour in the office.

It is very necessary to set out the office accommodation so as to ensure that the correct situation is given to the various clerks. The supervisors should be able to see the clerks who work under their direction and be close to them for reference purposes. The flow of the work should be taken into consideration and it should not be necessary for clerical workers to have to leave their desks

/ unnecessarily

unnecessarily in order to refer to some distant card index, file or to other clerks with whom their duties are inter-related.

The layout should be standard as it is most important to ensure that over a long period the minimum amount of movement takes place and the maximum use of space is made.

Ventilation should be taken into consideration and adequate lighting provided. The offices generally should be attractive and clean in order to favourably stimulate the morale of employees and to achieve maximum efficiency.

The most suitable type of desks and chairs should be provided.

f. Conclusion

Although an attempt has been made in this subsection to describe briefly the various methods of procedure analysis, documentation design and analysis, office planning and layout, it by no means covers all the factors relating to this wide subject but merely sets out in skeleton form their principles, methods and usage.

In developing a system of cost accounting and control, the forms, documents and procedures have, of necessity, to be studied because of their close relationship, as explained in the introduction to the Theory, and therefore a background to such a procedural analysis will prove beneficial.

3. Cost centres.

Cost centres are established to meet the needs of an organisation which is divided into units, the work activities of which have a common factor. Normally it is found that most organisations are divided into departments for administrative purposes, e.g. manufacturing, stores and sales, but this general and broad classification does not always suffice for the determination and apportionment of costs.

Cost centres are established so that we may determine just how many dollars of the company's money is being spent by each supervisor.

(Henrici, 1947, 15).

After the establishment of cost centres, the procedure in regard to the allocation of expenditure is to charge, wherever possible, the expenses directly to the cost centres and to apportion thereto indirect expenses or the overhead burden on a predetermined basis. An example of this is with labour costs where all labour charges are allocated to a cost centre or service unit and not to the individual products.

Two kinds of cost centres exist, viz:-

a. Productive.

By this is understood the segregation of common work activities where the product can be charged with the expense, and the costs accumulated

/ against

against the product on this basis can subsequently be recovered against the sales return of the product concerned.

b. Expense

Where the actual cost or determined expenditure of a particular activity, which is in itself not productive or producing a product or portion thereof is accumulated.

In order to apportion the costs as correctly as possible the plant should be divided into as many cost centres as is feasible based on the amount of detail required and the practical subdivision thereof.

4. Ledgerkeeping and integration.

a. Introduction.

The general attitude in regard to cost accounting and accounting practice is that they should form one integrated system. This, according to those in favour of this method, will ensure greater accuracy and more accurate cost records. Evans-Herring (1952, 22) strongly recommends that the accounts which form the system of budgetary control and standard costing should be an integral part of the financial accounts of the business. This, according to him, avoids the duplication of records and complexities which arise when the cost control system is operated

/ outside

outside the financial accounts, and it also ensures greater accuracy in the cost accounts. This view is largely supported by Fisher and Thompson (1952, 47) who state that:-

accuracy is necessary to ensure that individual items of expense are correctly charged to a department, and to ensure that all expenses have been charged .

These views are generally found in European practice where importance is attached to the necessity for cost and financial accounting being completely tied in with each other and where, as pointed out by the group of European Experts Technical Assistance Mission No.50 (1952, 30), the tendency is to develop "complete" systems or no systems at all.

The basic approach underlying the above discussions is that a cost accounting method in order to be accurate and useful should be part and parcel of the financial accounts system. A factor of utmost importance to be considered is the speed of making available to management the accumulated information. Financial accounts normally have to be accurate and for this reason usually become available comparatively late and the complete integration or combination of the two methods into one may result in the late availability of cost information. Apart from serving as a basis for the determination of a price, the most important function of cost accounting is that of producing

/statistics

statistics rapidly in order to control the manufacturing operations. An integration of cost and financial accounts is desirable, but the two systems should not be made so interlocked that the production of cost data and statistics are entirely dependent on the progress of the financial records.

Bearing in mind the extreme urgency and the importance of the early availability of figures for costing and budgetary control purposes, a system of integrated cost and financial records can more readily be developed when modern mechanisation techniques are adopted, particularly punch card methods.

The speed with which statistical and accounting data is produced under such conditions greatly reduces the vital time factor and, therefore, complies with the goal of producing rapidly the required information.

The general principle is, therefore, that integration should be applied wherever possible provided that the figures for budgetary and costing purposes are available as and when required.

In considering the importance and rapid development of mechanisation it is the intention to discuss in this subsection, firstly, the suitability of mechanisation, under which consideration is given to the various factors that should be taken into account when mechanisation is con-

/ sidered

sidered and, secondly, to make a brief comparison of some of the very many types of office mechanisation and equipment which are available to-day.

b. Suitability of mechanisation

If the worker in a factory is to be effective he must be supplied with the correct tools and the same principle can be said to apply to any office. Unfortunately, however, it is all too often assumed that if difficulties in obtaining accurate and up-to-date office work are being experienced the problem can be overcome by simply purchasing or hiring machinery. This assumption has, in many an instance, been an incorrect one but the introduction of office machinery may, if it is considered very carefully and in its correct perspective, prove beneficial.

Cemach (1958, 93) lists five advantages of mechanisation. These are.- greater speed of production, better control of accuracy, better legibility of records, additional information becoming available at no extra cost, reduced filing space and better accessibility of records. Barish (1951, 189) quotes five possible advantages of mechanisation, such as, reduction in clerical labour, greater legibility, neatness and accuracy, the simplification and standardisation of work, more frequent production of statistical information and saving of

/floor

floor space. The various factors for consideration in favour of and against machinery are listed below, the disadvantages and advantages being shown as debit and credit respectively:-

<u>Debit.</u>	<u>Credit.</u>
(1) <u>Procurement costs, etc.</u>	(1) <u>Greater speed and accuracy</u>
Say procurement costs = c	Assume savings per unit = s
Interest % = i	Total number of units = u
Time in years (life) = t	Total savings per annum = s.u
∴ Cost per annum = $\frac{c}{t} (1 + \frac{i \cdot t}{2})$	

The machine will prove to be beneficial from an economical point of view if

Cost per annum < Savings per annum

$$\frac{c}{t} (1 + \frac{i \cdot t}{2}) < s, u$$

$$\therefore u > \frac{c (1 + \frac{1}{2} i \cdot t)}{t \cdot s}$$

(Personal observation).

<u>Debit</u>	<u>Credit.</u>
(2) <u>Bottlenecks</u>	(2) <u>Availability of machines</u> in off-peak periods to do statistical analysis and other work.

With mechanisation it is normally found that all the work mechanised has to be processed through the machine(s) within a limited period and during rush periods the machine is expected to

/ cope

cope with abnormal work loads, whereas with manual methods the bottlenecks can be largely reduced by internal staff or temporary staff arrangements.

Assume that the total work to be done per

$$\text{month} = W$$

that the total capacity of machines

$$\text{per day} = C$$

that the total number of work days = w

Therefore the machine(s) should at least be capable of doing the total amount of work in the total amount of time

$$\therefore C.w \geq W \quad (\text{greater or equal to})$$

But, of the total work volume per month, a percentage occurs only over a few days and can be referred to as the "rush" period.

Say total work to be done during rush period

$$= x \text{ number of days work}$$

and this has to be done in y number of days.

Therefore proportion of total work to be done in the y days

$$= W \times \frac{x}{w}$$

but the total capacity of machine(s) in y days

$$= C.y$$

Therefore to cope with the work during the peak period

$$C.y \geq W \times \frac{x}{w}$$

$$\therefore C \geq W \cdot \frac{x}{y.w.}$$

(Personal observation)

/ Debit

Debit	Credit
(3) <u>Specialised operators</u> It is correct to state that the management is placed to a large extent in the hands of specialised operators who may threaten to leave if the salary demanded is not given or for any other reason.	(3) <u>Improved legibility of records</u> This is important for the correctness of the office work but more especially important where documents are prepared for the customers, e.g. monthly statements of debts, invoices, and other documents and forms.
(4) <u>Replacement of low-paid staff therefore no cost saving.</u> The only work up to now that can be mechanised is the operational or routine type of clerical work. In an ordinary office this is done by low-paid clerical workers and can be carried out at relatively low cost. For the machine to be an economical proposition, therefore, it / must	(4) <u>Reduction of staff</u> Because of industrial development clerical staff has become scarce in proportion to the demand. This causes a high turnover of staff with, in many instances, resultant inefficient work. Also additional provision for leave, etc. has to be made. Mechanisation eliminates to a large extent the staff difficulties mentioned.

Debit	Credit
must compare with the salary cost for these low-paid workers.	
(5) <u>Availability of unnecessary information</u>. The tendency is sometimes to produce too much information and expensive time of executives is required to study such information and statistics. If any information that can be produced by the machine(s) is not of a highly essential nature it should not be taken into consideration at all as a reason for the introduction of mechanised accounting.	(5) <u>Production of more useful information</u> The availability of machines in off-peak periods means that more extensive analysis can be made of available data which can be fruitfully used. An example is found where once per year data is required re the output per district. This information can be produced by the machines in off-peak periods.

The nature of the office and clerical work done in an organisation and the work volumes involved will largely determine whether mechanisation would improve the office efficiency. Where the investigation is for a

/ large

large organisation greater speed and accuracy may prove beneficial in the sense that large volumes are handled, whereas small organisations might find it difficult to prove benefits from an extensive mechanical application.

If the nature of the organisation is such that the work is spread evenly throughout the month or can be so arranged, the problem of bottlenecks may be of less significance.

Specialised operators may be difficult to obtain in certain parts of the country, whilst in other parts this may present no problem.

Sales data to enable the sales manager to acquire more knowledge about the sales in various areas, districts, countries, etc. may be a useful guide in fixing price policies.

The application of mechanised office methods will, therefore, be largely determined by the nature of the organisation, the availability of staff and the usefulness of additional data.

c. Types of office mechanisation and equipment

(1) Introduction

As a result of the post-war development in office equipment more and more equipment is being made available in ever-increasing numbers and varieties, and therefore, in order to select the equipment most suitable for his particular

/ requirements

requirements, it is essential for the efficient administrator of to-day to keep up to date with such developments.

The importance of the correct selection of equipment cannot be over-emphasized as the installation of any type of equipment may have repercussions on the methods and in many instances on basic policies of the organisation.

Because of the large number and variety of office machines and equipment in use to-day it is not the intention to discuss all types and therefore, only a selected few are briefly referred to hereunder:-

(2) Electronic computer

A considerable programme can be fed into the computer and a whole series of operations can be carried out mechanically because, if the basic facts have been supplied to the computer, it is capable of selecting its own set of instructions therefrom.

There are considerable variations in size and speed of computers and a fast computer may be capable of carrying out an amount of work in one hour that will take a human unit one hundred years.

The electronic computer has been defined in a progress report on production control by computer (International Computers and Tabulators, Ltd., 1959, 6) as follows:-

/ What

What - then - is a computer? It is a machine which:-

1. May be actuated by instructions presented to it in the form of numbers -
2. to carry out, upon information also presented to it in numerical form -
3. a sequence - not necessarily pre-determined - of operations of a specific, limited number of kinds -
4. with extreme rapidity and accuracy.

This definition reduced the computer from a creature of science fiction ("giant brains" and all that) to a practical working tool of great versatility and usefulness.

Basically, therefore, information is fed into the machine in the form of numbers and the answer is furnished with great speed and accuracy.

Because of the huge variety of computers available to-day and the complexity of their set-up, it is not the intention to compare this machine with other types nor to discuss it in any further detail.

(3) Other office machines and equipment

The types selected for discussion are punch, card machines, keyboard machines, addressing machines, and kalamazoo manual peg board methods, the basic principles of which are tested under the respective type, reference being made to a few of the functions common to all the types.

Table No.9:Comparative analysis of various types
of office machines.(a) Basic principles .Punch card system

A punch card set-up may include some or all of the following machines:-

- (i) Punch: The cards are punched on this machine by junior clerical staff.
- (ii) The sorter: arranges the punched cards in the desired sequence or groupings at speeds varying from 24,000 to 40,000 card passages an hour, according to the model used.
- (iii) The tabulator (with summary card punch): produces the required control, costing and statistical records from the punched cards, and the summary card punch automatically punches the balances.
- (iv) The verifier: Verification of cards after they have been punched. An automatic verifier gives 100% mechanical verification of the punched cards.
- (v) Reproducing punch: reproduces automatically punched cards from an existing set of cards. The speed may be approximately 130 cards per minute.
- (vi) Multiplier: It multiplies and cross adds the facts in the cards and punches the computed answer on to the card.

/ (vii)



Table No.9 (contd.):

(vii) The interpreter. interprets the punched holes in the cards and prints the interpretation visibly on the cards.

(viii) The colator: It compares two separate but related packs of punched cards and groups, interleaves and segregates them according to requirement. Advantages normally accepted pertaining to punched cards are.-

(1) Speed.

(2) Ineffaceability. The punched hole can never be removed from the card nor does it lose its legibility.

(3) Unalterability. The position of the punched hole remains the same.

(4) Machinability. Standardisation of size and position where information is inserted facilitate machining.

Keyboard machines .

In principle the simpler keyboard machine is merely an extension of the ordinary adding machine. It makes provision for up to approximately twenty-five columns for adding or subtracting. In addition it provides for the recording of the same information on a number of related documents.

The more complex models are also equipped with an alpha keyboard, thus providing for descriptions coupled with numerical information,

/Proof

Table No.9 (contd.):

Proof sheets are used to vouch for the overall accuracy of the processed statistical information.

Addressing machines

The basic equipment used comprises metal plates, a plate cutting machine, and the tabulating or addressing machine.

The plates are designed to afford "signalling" and classifying facilities. The metal plates are embossed with the required constant or semi-constant information and verified for accuracy. These plates can be easily altered to take care of modifications in detail. The embossing of the plates is done on the plate-cutting machine on which up to approximately 90 characters - capital and small letters - numerals, punctuation marks, etc. are provided. In carrying out an operation the procedure is to select the required plates, arrange them in the appropriate order and process them through the listing, tabulating or addressing machine. The reproduction which is carried out without possibility of error is easily, instantly and legibly achieved. Machines are available in various sizes ranging from small hand models to big high speed automatic electrically operated models.

/ Kalanazoo

Table No.9 (contd.):Kalamazoo manual peg board methods..

The copywriter or peg board method is manually operated. The peg board provides a suitable writing base and pegs or cones enable two or more sheets to be kept in correct alignment with each other to enable similar entries to be made on several records simultaneously. This procedure eliminates any transfer errors because the entries are carbon copies. The entries on one of the sheets (normally the last one) are in summary form and can be used for central checking of all the individual entries, thus speeding up checking very considerably. The clerical labour is reduced by this method because two or more records are completed in one operation.

(b) Stores recording and control..

Punch card system

Cards are punched from goods received vouchers for receipts into stores, from requisitions for issues and store balances are arrived at by mechanical tabulations of these cards together with previous balance cards.

The method of stores evaluation is particularly simple in this case, since a set of master punch cards of the standard prices can be used and re-used every time.

/ Keyboard

Table No.9 (contd.):Keyboard machines

The keyboard machine is widely used for stores accounting purposes. For each stock item a ledger card is provided on which is entered the receipts into stock from the receiving vouchers and issues from material requisitions or other documents. The stock balances, total quantity and/or value of receipts, issues, etc. are mechanically produced.

Addressing machines

By means of the addressing machine, requisitions, labels and other vouchers are consistently accurately produced.

By reflecting the unit price, description and other relevant details of stock items on a separate plate which is maintained for each item, pricing and costing of material issues are facilitated.

Kalanazoo manual peg board methods

A stock ledger card and a proof sheet can be written up simultaneously. The use of a proof sheet can be used for calling back against the posting media to ensure accuracy of posting, and the totals on the proof sheet are normally used for posting to control accounts.

/ (c)

Table No.9 (Contd.):(c) Analysis .Punch card system .

The punch card system is particularly suitable for statistical analysis and the amount of information that can be extracted is practically unlimited.

Keyboard machines .

Analysis is normally done in one of two ways. The first method is applicable when the analysis is not of great variety. In this instance the analysis is done merely by posting the figures in appropriate columns. Where a great variety of allocations are required the basic information is processed through the machines by separate posting runs.

Addressing machines

Analysis work in some instances is facilitated by the pre-tabling of selected plates.

Kalamazoo manual peg board methods .

For certain types of analysis this method is particularly suitable and simple to operate. Columns are provided on the proof sheet to facilitate analysis and allocations.

/ (d)

Table No.9 (contd.):(d) WagesPunch card system.

Cards are punched from the daily or weekly clock cards and time sheets. Other particulars such as wage rates, constant deductions, etc. are also stored on punched cards. Related cards are merged and the total amounts payable to employees are ascertained. The necessary payrolls, payslips, etc. are mechanically tabulated at high speed from the punched cards. The allocation of the wages is carried out from cards punched from the time sheets.

Keyboard machines

On the keyboard machine the wage-earning record, the payslip and the payroll are mechanically prepared in one posting run. The advantage is that not only is any possible difference of information on the three documents produced eliminated, but the totals are mechanically produced, thereby increasing speed and effectiveness.

Addressing machines

Operators' weekly time sheets are produced on the addressing machine and carry the name and clock number of each operator. Price and time

/ work

Table No.9 (contd):

work tickets where required can also be produced.

For payroll purposes the information with regard to workers' name, clock number, occupation, rate of pay, normal total weekly wage, static deductions and other constant data is listed mechanically. The variable information is inserted on the payroll list which is then completed.

Kalamazoo manual peg board methods .

By means of this system three or more records can be entered in a single writing operation. Provision is normally made for the payroll, wage earning records (for income tax purposes), and pay slip and duplicate payroll. Clerical time and labour in this instance can sometimes be reduced by 50% - 60%. The records are always kept up to date because they are entered simultaneously.

(e) Salaries

Punch card system .

A procedure similar to that for wages may be followed except that in this case little variation is normally experienced from month to month and punched cards once prepared may remain unchanged for many months.

/ Keyboard

Table No.9 (Contd.):

Keyboard machines

The procedure is similar to that for wages.

Addressing machines

Basically the procedure is the same as that for wages but variations from month to month are normally small thus causing greater simplicity.

Kalamazoo manual peg board method

The same principle as for wages is followed but where cheques are not used a bank instruction can be incorporated and therefore, an accurate and speedy method of instructing the bank to credit its employees' accounts is ensured.

(f) Payment cheque issuing

Punch card system.

In large organisations the procedure followed is to prepare mechanically the cheque which is a punched card and cheque form in one. Great accuracy is ensured and subsequent bank reconciliation is facilitated. Because of the danger of damaging the surface of such cheques/cards, this method is not always used even though it could have been an application.

/ Keyboard

Table No.9 (contd.):

Keyboard machines

The issuing of cheques is facilitated providing in the same run the necessary details for the payment side of the cash book.

Addressing machines

The issuing of cheques can, in instances where repetition takes place, be done mechanically, e.g. monthly salary cheques, fixed dividends, etc.

Kalamazoo manual peg board methods

The normal manual procedure of making out a cheque, a cheque stub and a cash book journal or ledger entry is combined into one writing.

(g) Receipt/voucher issuing

Punch card system

The punch card machines are especially suitable for the preparation of certain basic documents, i.e. invoices, once the basic information is contained in the form of punched cards.

It is, however, never used for the preparation of receipts on receipt of payment and to put such information to the use of the accounts, cards are punched therefrom.

/ Keyboard.

Table No.9 (contd.):Keyboard machines

The keyboard machine is particularly suitable for the issuing of receipts in combination with the entry on the appropriate ledger account but is not normally used for the compilation of sales invoices and other related documents.

Addressing machines

It is not normal practice to utilise addressing machines for the issuing of receipts, the reason being the delay occasioned in selecting the appropriate plates. In some cases, however, where the variety of products is small, invoices and related documents can be speedily, accurately and satisfactorily produced.

Kalamazoo manual peg board methods

Here again the various entries to the receipts, etc. are combined, resulting in similar advantages as described above.

(h) CostingPunch card system

Punch card machines are widely used for costing systems. Especially where a system

/ of

Table No.9 (contd.):

of standard cost accounting is applied, the machines are highly suitable. The standard costs of material, labour, etc. are punched into master punch cards and continually used for evaluation of material consumed, labour used, etc.

Keyboard machines.

A cost card is maintained on which the historic or actual cost of individual works orders is accumulated. This is done mechanically.

Addressing machines

Job costing is facilitated by automatic reproduction of material and the unit price and the labour operation and value.

Kalamazoo manual peg board methods

It is possible to use a peg board sheet for each job in combination with a summary sheet which may well be printed into analysis columns for additional breakdown of costs.

(i) Use in combination with other machines.

Punch card system

Punch card set-ups are widely used in combination with other types of machines. Examples are where cards are punched simultaneously

/when

Table No.9 (contd.):

when entries are made by keyboard machines. These cards are thereafter processed in the normal way.

Keyboard machines

As the keyboard machine is eminently suitable for ledger posting work, but not for statistical analysis purposes, it has in many instances been successfully combined with a punched card installation.

Addressing machines

Addressing machines are commonly used in combination with the kalanazoo peg board and summariser equipment as well as punch card machines.

Kalanazoo manual peg board methods

Addressing machines are often used to great advantage in combination with peg boards, for the production of wages and salary records and invoices and vouchers.

From the above analysis the following conclusions can be drawn in regard to the machines in question.

(i) Mechanisation of work of a repetitive nature

In this instance the punch card and addressing machines appear to be most suitable

/ because

because work of a recurring nature can be mechanised and subsequent information automatically produced.

(ii) Ledger posting

In the case of the keyboard machine and the kalamazoo pegboard equipment entries are made directly to the ledger account concerned whilst in the case of the punch card machine cards have to be punched and subsequently mechanically tabulated to arrive at the ledger account entries. Where information on the ledger accounts is required on an up-to-date day to day basis it is, therefore, apparent that the punch card machine cannot be of equal effectiveness as the keyboard and kalamazoo methods.

(iii) Analysis

Because statistical information can repetitively be produced from the same punched cards and as there is no limitation to the statistical combination this method is far superior to any of the other mentioned methods. Because, however, of the fact that the flexibility of the punch card machine is practically unlimited, the danger exists in many offices to produce superfluous information or data in such great detail that costly time is spent by executives trying to absorb and interpret information of this nature.

Although machines of great varieties and

/ types

types are available to-day each type possesses particular advantages and disadvantages in regard to suitability for particular purposes and, therefore, when the possibility of mechanising a particular job is considered special care and study are required in order that the most suitable type of equipment may be selected for the job concerned.

5. The organisation of the cost department.

Organisation comprises the posts, lines of responsibilities and duties which are found in the organisational structure of any unit whether it be a department, branch or section.

Basically there are four types of organisation, viz. line, functional, committee and combined line and staff (Alford and Bangs, 1948, 13).

Line organisation is similar in structure to a battalion and its companies or a number of retail shops each with an individual manager but all under the control of a sales director or owner of the business.

The functional form of organisation can be described as that where a managing director controls the firm, and the functions of manufacturing, accounting and sales activities are

/ delegated

delegated to a works manager, accountant and sales manager respectively.

Committee organisation is utilised in order to co-ordinate different functions within an organisation. This type, however, has a great defect as, in many instances, it could be used as a tool to avoid decisions:-
"Let us refer the matter to the committee".

The line and staff organisation combines the two types above and is most effective in a big organisation. Normally the accountant is responsible for all the accounting work carried out in various branches or departments of the undertaking.

In order to establish a satisfactory organisation it is necessary to define the duties of the incumbent of every post. These duties are then written out in statement form and referred to as duty lists.

Basically two lines of thought exist in regard to the place which the cost department should take in the organisation. Firstly, the view has been expressed that it should be considered as a department of the factory because it is engaged primarily in the maintenance of factory records and information.

The second contention is that the cost department should be responsible to and form part of the general accounting department in as much as cost accounting is merely a phase

of all accounting (Lang, 1948, 175).

Because it is desirable that cost accounting should be completely integrated with the financial accounts and also because the work pertaining to cost accounting is of an administrative nature, the second contention is supported.

6. Conclusion.

An o. and m. (organisation and methods) study of an organisation involves the studying of existing clerical methods and procedures with a view to effecting improvements therein and, if necessary, introducing new ones. Where work volumes justify it, such investigations include consideration being given to the possibility of utilising office machinery. The selection available is great and the investigator requires a good up-to-date knowledge thereof.

As clerical methods will to a great extent be influenced by those used in apportioning and allocating costs, the establishment or otherwise of cost centres becomes of great importance and is a pre-requisite to the final decision made in regard to the method of ledgerkeeping and integration to be adopted.

Because the work is either to be carried out or supervised by clerical staff, the general

/ organisational

organisational structure is of importance and includes the demarcations of lines of responsibility and authority and the definition of each post.

The clerical methods to be employed, the system of ledgerkeeping to be used and the clerical organisation to be established will to a great extent depend upon the methods and procedures selected for the cost accounting and control system.

Chapter IV.Cost accounting.1. Introduction.a. Introduction

The importance of cost accounting in present-day industrial organisation and the variety of functions which it is designed to meet will appear from a study of cost text books, a few brief extracts from which are quoted here-under:-

Fisher and Thompson (1952, 1) promote the idea that the prime function of cost accounting is mostly that of providing a basis for fixing a selling price. The purposes of cost accounting are given as follows:-

Cost accounting is an important section of industrial management. At the highest levels it is a guide in formulating policies for sales and production development, plant extensions, production planning, and remote control of day to day progress; at the lower levels petty leakages of stocks, and time lost due to misdirected effort are controlled by constant supervision and by comparison of records.

Fisher and Thompson (1952, 132) give as secondary purposes stock control, production cost control, work-in-progress control, departmental and sectional expenditure control and financial accounting. The main purpose, i.e. that of providing a basis for the fixing of selling prices, is once again emphasised on this page.

Blocker (1954) defines the major function

-ction of cost accounting as being the determination and analysis of costs and income with a view to evaluating the operating efficiency of each department. A second function which he refers to is the accumulation and utilization of cost data for the purpose of controlling such costs. The third function which he mentions is the proper matching of costs with revenues, that is, the costs shown in financial statements should be identified with the sales for the same period. Finally, he points out that cost accounting comprises special cost studies which form the basis for management to determine policies and formulate plans directed towards profitable operations.

Although Blocker mentions the part played by cost accounting in relation to the sales policy, he attaches more value to the function of analysing costs in order to evaluate efficiencies.

The author, although quoting four purposes of cost accounting, deals with only two of them, viz:-

- a. The function of cost control.
- b. The supply of basic data for fixing of managerial policies.

The first three points are merely an elaboration on how cost accounting is used in the control function, whilst the actual purposes of cost accounting are as follows:-

(1) Control of costs

The first and most important function of cost accounting is that of making available useful data to the respective levels of management. In order to achieve this function the first step is to set proper standards for quantity, price, quality, etc. and the second is to analyse actual costs in such a way that they can be readily compared with the predetermined standards so that variations from standard can be investigated.

(2) Data for a price policy.

The cost system should furnish basic data as a guide for the fixing of a selling price only when there is a change in the method of production, when cutting of prices is necessary or when quoting for a product not normally produced. For standard lines prices are usually determined by market supply and demand and the cost information supplied in such instances is only a guide as to whether the manufacture of a particular product is profitable or not.

(3) Inventory valuation for financial accounts

A minor function of cost accounting is to provide a basis for the evaluation of material and work-in-progress for the periodical financial accounts and also for the cost profit statements and other schedules.

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These functions, however, should be carried ^{out} with the minimum of clerical costs and should produce information equivalent to their cost of production as summarised by Goetz (1949, 4) as follows:-

In common with all other enterprise activities, managerial accounting should be worth what it costs:-

- (i) It should be directed towards objectives of sufficient importance to justify its costs.
- (ii) It should be valid in terms of the environment within which management must operate.
- (iii) It should have structure and logic to give it completeness and consistency.
- (iv) It must be reducible to a reasonably simple method for economy and workability and to ensure provision of data before they have become obsolete and useless.

b. Classification of costs

Costs can normally be classified into:-

(1) Fixed costs

These costs vary from time to time irrespective, within limits, of the volume of output.

(2) Variable costs

Certain variable costs are those costs which vary in close correlation with the change in output.

(3) Semi-variable costs

Semi-variable costs are those which vary from time to time but also tend to be influenced very much more than fixed costs are by any change in output.

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This classification and the respective definitions given are confirmed by the under-mentioned writers as follows:-

Goetz (1949, 45):

Fixed costs are constant, cannot change; whereas variable costs can be changed by managerial planning or diligence.

Fisher and Thompson (1952, 44).

Variable expenses are the expenses which fluctuate directly with the volume of production; fixed expenses are those which are constant within a reasonable margin of fluctuation of production.

Blocker (1948, 667):

There is nothing in a cost itself that makes it variable or fixed; it is the period of time in relation to one of the factors that gives rise to the distinction.

Evans-Hemming (1952, 15). classifies the above costs under four headings, viz:-

- (1) Directly variable expenses (V): those expenses which can be expected to vary with changes in activity.
- (2) Fixed expenses (F): those expenses which remain constant within certain wide limits at various levels of activity, such as, depreciation.
- (3) Mixed expenses (M): those expenses which are composed of a directly variable element as well as a fixed element, and
- (4) Indirectly variable expenses (I): those expenses which, although varying with changes in activity, do not do so in direct proportion to the volume of output.

The classification into four different types is mainly of an academical nature. The subdivision of what is normally classified as semi-variable into mixed expenses and indirectly variable expenses according to the writer's definition of each of the two types may be useful

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in the study of the behaviour of certain expenditure.

An example of a mixed type of expense is electricity where a minimum charge is applicable. Direct wages under a bonus scheme is another example. Up to 100% productivity no bonus may be paid and wages are, under a given policy, therefore fixed in relation to output. When production exceeds 100% the wages over and above basic rates are of a direct variable nature.

The definition of indirectly variable expenses is closely related to the above definition of semi-fixed expenses and, therefore, costs may, where found necessary in order to improve the accuracy of standards and budgeted costs, be divided into the four types, i.e. directly variable expenses, fixed expenses, mixed expenses and indirectly variable expenses, but from a practical point of view the classification of the costs may become extremely difficult, since careful analysis may be necessary to decide to which one of the four types a cost item should form a charge.

The division is referred to as not being absolute, i.e. fixed costs are not at all times fixed and variable not at all times a variable. This is confirmed as follows:-

/ Goetz.

Goetz (1949, 46):

(1) The division depends upon the dimension or dimensions of the managerial problem under consideration.

(2) The division is not absolute. Fixed costs are relatively, not absolutely, fixed, and variable are relatively, not absolutely, variable.

(3) The division depends upon the span of anticipation.

The main purposes of dividing the costs into the various types are:-

(1) To be in a position to understand the behaviour of costs at fluctuating volumes of output, and to take the necessary remedial steps to control the costs.

(2) To determine separately a cost price for both the total cost and the variable cost to serve as a guide for price fixation even under keen competitive conditions.

(3) To help in fixing responsibilities for cost control purposes. A departmental foreman may have limited power in the control of costs of a fixed nature, i.e. his own salary, floor space rental, rates and taxes, etc., but is in a position to exercise considerable influence over the control of costs such as consumable stores, unskilled wages, etc.

(4) The budgeting of future expenses is simplified, especially if the expected output is somewhat different from that of the present and past times.

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The subdivision of costs into the above types is sometimes carried through to the final profit and loss account as this makes possible better control of expenditure. The reasons for separating variable and fixed expenses in the profit and loss account are listed by Gillespie (1952, 288) as follows:-

Reasons for separating variable and fixed expenses on the profits statement.

- (1) to provide an overall control of all variable expenses in their relationship to sales.
- (2) to provide an overall control of all fixed charges.
- (3) to facilitate the determination of break-even point for the business.

c. Marginal cost

In order to obtain a better understanding of the meaning of marginal cost it is necessary to review a few concepts.

Matz, Curry and Frank (1957, 762) refer to three of these, viz. "marginal", "differential" and "incremental" and point out that the term "marginal" is favoured by economists, whilst that of "differential" is preferred by accountants, and engineers generally speak of "incremental" costs. They contend that variable costs represent the differential cost (1957, 762) and as long as any increase in the business does not add to the fixed costs, such additional business can be accepted, provided the variable cost is recovered (1957, 764). The term incremental cost

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is used by engineers to describe the added cost incurred when a project or an undertaking is extended beyond its originally intended goal (1957, 762).

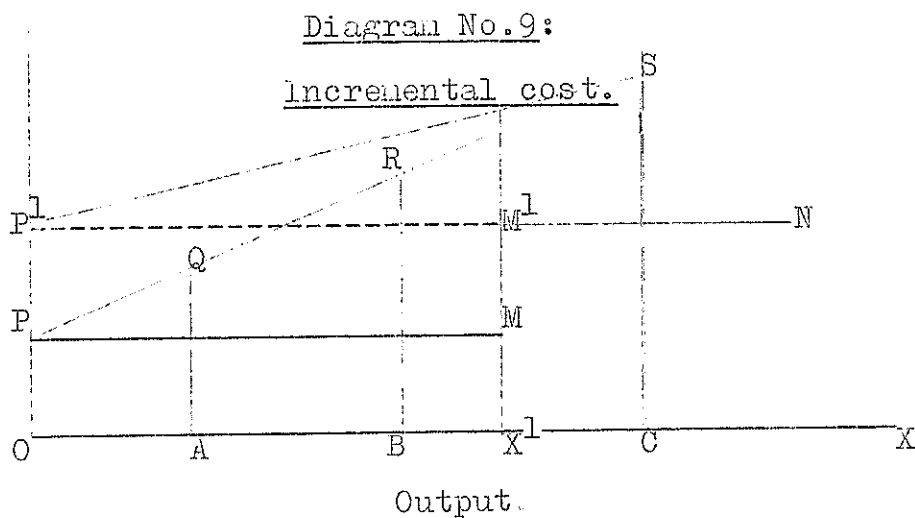
Blocker (1948, 667) points out that the increment of the total cost resulting from an addition to output is a differential cost at two rates of output and by this approach he, therefore, agrees with the above.

In the cost accounting system of a large international aluminium company with its head office in Montreal, Canada, the direct cost is defined as being that portion of the manufacturing cost which has been found to be almost directly proportional to the monthly production volumes. But, as is pointed out, it differs from the incremental cost because it not only excludes costs which may vary directly with production volumes when averaged over a term longer than one accounting period, but it also excludes costs which vary with the production volumes in a manner which does not tend to be linear and, finally, excludes administrative, selling or financial incremental costs.

It can, therefore, be accepted that there is no difference between incremental and differential costs and the term used is merely a question of preference, but incremental or differential costs differ from direct variable costs in the sense that the direct variable is limited to

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within the existing capacity only whilst differential or incremental cost may also appear when additional capacity is provided to cater for increased output. This is best explained by the following diagram:-



(Personal observation).

In the above diagram (No.9) the fixed overhead to provide for a capacity of OX^1 is OP . In this instance the total cost at OA is AQ and at B is BR . The difference between these two costs is therefore $(BR - AQ)$, and since no fixed cost was added this difference is both the direct variable and the incremental cost.

At output level C , however, (when fixed costs are OP^1), incremental cost is $(CS - BR)$ and is equivalent to the additional fixed cost MM^1 plus the difference in the variable cost at levels C and X^1 .

The incremental or differential cost can, therefore, in certain instances, be the same as the direct variable cost but, where the addition

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of fixed cost is involved, there is a difference between these concepts when calculated from a level within the lower capacity range and from the higher capacity range, a situation which arises when an organisation contemplates extensions based on additional business.

Vatter (Solomon, 1952, 211) refers to the term "marginal costs" as being that used by economists to describe the term incremental costs because marginal costs are the slopes, at various points of the total cost curve and can, therefore, be considered as being the incremental costs.

The ascertainment of marginal cost separately from the total cost is essential in order to:-

(1) Serve as a basis for price fixations under competitive conditions.

Because marginal cost is that which increases the total cost as a result of an increase in the volume of production, it is obvious that when the normal output is exceeded the price at which items produced beyond the normal level of output may be sold need only be the minimum of this marginal cost and normally a price which covers the marginal cost plus a contribution to overheads could be accepted.

Blocker (1942, 669) confirms this as follows:-

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A cost system that discloses differential costs makes it easier to obtain the information necessary for the management to determine a pricing policy. The selling price of any product or order should cover at least the differential cost, which would be incurred if it were produced, plus a return to management.

It is, however, important that the prices for items which are sold at a price which covers only the marginal cost do not become excessive and eventually cause a shift of marginal costed products ahead of those products receiving a price in excess of total cost. A constant watch by management is, therefore, essential to ensure that a proper balance is maintained.

This is also stated by:-

Matz, Curry and Frank (1957, 737):

Decisions made on the basis of differential cost studies need the continuous attention of management in order to avoid the possible shift of differentially costed products ahead of totally costed products.

Schmalenbach prescribes a "monistische" condition which means that the balance of assets is not a true reflection of the value (vermogen) of a particular undertaking because it is dynamic (dynamische bilanz) and entirely dependent on the profit and loss account. The change in value, therefore, between two periods is largely dependent on the comparative results from the respective profit and loss accounts for the two periods in question. The determination of the total value of assets cannot, therefore, be arrived at by the mere addition of all asset balances but is entirely dependent on the constant nature of

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future profits.

This approach may be useful when the taking over of an undertaking is contemplated, but for the normal established business it may be unwise to discount the capital value of items, especially where machines at high cost are in use. Such an approach may lead to ignorance of the overall recovery of costs through the selling prices and the shift to marginal costed products referred to above may very well take place.

Total profit, according to Schmaalenbach, is the total profit made by the firm during its own existence and is calculated by deducting from the total income the total expenses. Although, as mentioned above, the importance of balancing the total income with the total cost, in order to ensure that a shift to marginal costed products is avoided, should not be overlooked, it is doubtful whether the calculation of the overall total profit figure, as prescribed by Schmaalenbach, can be of any value for profit control purposes in a well-established organisation. A shift to marginal costed products may take place over a relatively short period and the position should therefore, be constantly watched.

In addition to the total profit concept, Schmaalenbach also distinguishes between two types of profits, viz. "zeitvergleich" or time profits and "betriebsvergleich" or undertaker's profits. In arriving, however, at the profit

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figures he entirely discounts the evaluation of the expensive production assets which means that a true profit cannot be calculated (Sorgdrager's lecture notes) and compared with those of other periods because the appropriation to capital assets may form a substantial portion of the total current income.

(2) An analysis of the marginal cost of a firm may be very useful in forming production policies. The change in the rate of activity, together with its effect on the total cost and also the point where the highest possible profit with existing capital can be made, can be investigated.

(3) Marginal cost analysis becomes useful when financial matters are considered. An additional trade or cash discount may result in a material increase in output with a probable resultant increase in profit and the nature of such factors can be measured when the marginal cost is known.

2. Cost systems.

a. Introduction

Basically a cost accounting system is either of an actual nature, that is, all costing done is based on the allocation and apportionment of the actual costs, and the processing

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of this information through the cost accounts, or of a standard nature, under which method no actual costs are necessarily used in the establishment of unit costs, etc., but the costs are predetermined and/or pre-estimated.

The basic principle of actual costing is set out by Gillespie (1952, 3) as being the historical cost computed after production has taken place whilst predetermined costs are computed before production takes place. This confirms the above description.

Blocker (1942, 19) classifies cost accounting into actual, estimated, normal and standard costs. He defines actual costing as expenses incurred in the production, distribution and administration of a business as shown by internal requisitions, payrolls and expense vouchers. These costs are accumulated daily and are summarised at the end of each accounting period. By normal cost he means the average cost of production, sales or service rendered during an accounting period and this is normally computed for the budget period. Estimated costs are predetermined in an attempt to forecast actual costs whilst standard costs represent an accurate estimate of what material, labour and overhead costs should be after the elimination of inefficiencies and waste. He maintains that standard costs are subject to revision only

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when there has been a change in the price level of materials and labour, or when an alteration in factory methods or machines has taken place.

It will be seen further on, however, that standard costs can be based on basic or current standards and that Blocker's definition of standards complies with the meaning normally associated with basic standard costs. Similarly, his approach in regard to estimated costs falls into line with the principle of current standard costing based on expected actual costs as fully described further on in this chapter. By normal costs he means only the average costs for an accounting period, a period which can be regarded as far too short to arrive at a satisfactory normal average, because wide fluctuations in the activities of the manufacturer may be experienced. Therefore, this does not provide a true reflection of normal costs. His definition of actual costs is a true description of the nature of these costs.

Therefore, although he divided costing systems into four different types, they should basically only be classified under those costs which are either of an actual nature or of a standard nature and in this section the various systems under each are examined and detailed.

b. Actual costs(1) Introduction

Some of the various types of actual costing are departmental costs, process costs, job costing and product costs. These are all fundamentally similar in principle and, because of this, and especially because most of the larger firms and other types of organisations have a diversity of departments and of ranges of production, where any one of these systems is in operation, it usually contains elements of the others.

(2) Departmental costs

Departmental costs are defined by Goetz (1949, 33) as follows:-

Departmental costs do not and are not intended to aid in price setting. They may help solve some problem of policy, e.g. shall a company continue operating a plating department, or should the department be closed and work be sent outside for plating? Primarily, however, departmental costs are intended to help establish executive control.

This statement is not entirely correct because departmental costs can be most useful in guiding price setting. Admittedly, this may not apply in all cases where a large variety of items are manufactured but, where the range of products manufactured in a department is small and the market for some of them is highly competitive thus compelling the firm to sell below total cost, departmental costs may be of immense value in ensuring that the price of products to be sold

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below cost is not fixed in such a way as to cause the cost thereof to be unduly loaded against those items which are sold above cost. The departmental cost information ensures that this balance can be maintained since the over-all profitability of a department is known.

The functions of departmental costs are set out by Fisher and Thompson (1952, 45) as follows:-

Departmental costs, when completed, have three main functions:-

1. Use by departmental foremen and managers in checking the expenditure incurred in their departments and controlling their sectional production cash.
2. To furnish the higher management with records for production planning and comparisons of productions efficiently week by week and period by period.
3. To provide a basis for ascertaining the actual costs of unit production for the use of the sales organisation in securing day to day orders and for the planning of future sales and production programmes.

The over-all function of cost accounting is to act as liason between producing and selling, and the departmentalization of total expenditure is one section of this function.

The requirements of management in regard to control information are daily and/or weekly, and cumulative controls of labour and material costs and other production factors are necessary so that control can be effectively exercised at all levels. To meet such requirements a system of departmental costs is provided, of which the first and prime objective is the making available of information for top level

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management so that effective control may be exercised and not, as stated above by Fisher and Thompson "the providing of information for departmental managers and foremen".

The designing of this information in such a way that departmental heads can, when called upon to do so, answer the questions put to them by top level management and also, on their own initiative, reduce and control costs is, therefore, of secondary importance.

(3) Process costs.

Process costs are defined as follows:-

Gillespie (1952, 20).

Process costing attempts to secure an average unit cost per period of time on the basis of

- (a) expenditures for a long period,
- (b) production for the period.

Fundamentally, process costing is costing by operation.

and by Wheldon (1948, 21):

Process costing: The method of costing production by processes in which (a) the product of the process becomes the material of a subsequent process; or (b) when the different products and by-products (if any) are produced simultaneously at the same process; or (c) when the products, differing only in shape or form on completion, are not separately distinguishable from one another during one or more processes of manufacture.

The two definitions given of process costs describe the meaning of the term. This method of costing can be defined as the accumulation of costs by operation in order to ascertain product costs and is usually adopted in factories

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where continuous processing and manufacturing is involved, such as for explosives, chemicals, textiles, etc.

(4) Job costing

Under the method of job costing a works order is normally issued to the factory where the goods specified thereon are produced. All material, labour and overhead involved in the manufacture of the articles specified on a particular works order are charged against the order concerned. Eventually the total cost of the order becomes known and this information may be used as a guide for the fixing of prices for similar orders.

As a means of control it serves very little purpose because, by the time the cost is known, the job has been completed and little or nothing can be done to control or reduce the expenditure incurred thereon.

The job cost system necessitates the keeping of an inordinate amount of detail and apportionment of costs and, because of the high clerical cost involved in maintaining all the detailed records, etc. becomes an unduly expensive method.

Goetz (1949, 33) states:

This method of cost accumulation gives a standard against which prices received can be judged. It helps management decide whether to buy or produce piece parts or even specific operations on particular parts.

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This statement does not stand up to examination since job costing is used to cost jobs or contracts that are kept separate in job order, work in factories and workshops, builders, constructional engineers, ship-builders, etc. The variety of the items produced is great and, where one item is identical to another, the quantity may vary. To produce 100 metal "STOP" signs as used at stop streets will each cost very much less than the same sign produced in a batch of 10. The guillotining of the material, the beading of the edges, the pickling and all other operations are vitally affected by the quantity produced.

In order to ascertain whether a part should be bought or manufactured internally is normally investigated on an objective basis, i.e. the quantity is considered. The operations involved and the cost is established on an over-all basis and normally it is doubtful whether the cost accumulated under the job orders would be used for such a major decision. It has been experienced in practice that because of a large number of factors, e.g. difference in efficiency, difference in size of the orders, etc., the job costs for the same product may vary considerably without any relation to expected costs.

Examples of this found in an engineering.

engineering firm are as follows:-

Table No.10:

Standard costs and examples of
actual costs.

Product item	Standard cost in cents	Example of actual job costs in cents			
6 c.m. h.h. enamel mug	4.5	6.0	4.0	5.5	6.0
7 c.m. h.h. enamel mug	5.0	5.0	7.0	5.5	6.5
9 c.m. h.h. enamel mug	7.5	10.0	8.0	8.5	9.0
10 c.m. h.h. enamel mug	8.0	9.5	9.5	12.0	8.5

(Personal observation).

The above example shows that the nature of the actual costs was such that the figures could not be used on any of the counts mentioned in the definitions by Goetz above.

Owing to the high expense of maintaining such a system, the unreliability of the information produced because so many factors influence the correctness, and also because in many instances a special analysis is required before the information reflected on the job cost card can be used, the tendency is to develop away from a system of actual job costing.

(5) Product costs.

The main objective in determining product costs is to serve as a guide for the fixation of prices. Other objectives of product costs are:-

/ (1)

(1) Product costs set a standard by which prices obtained may be judged.

(2) It forms a basis for establishing the soundness or otherwise of manufacturing policies. The question whether a product should be manufactured or purchased can be answered.

(3) Product costs under a system of standard costs may form the basis for cost control and the control of the economy of manufacturing or other policies.

(4) Where only a few products are manufactured, it may be possible to ascertain any trends in manufacturing costs by comparing present product costs with previous and future costs. Where a large variety of products is manufactured, as in the jobbing manufacturing shops, the determination of a trend of this nature may be complex and costly. In such cases a sample analysis of the products may be selected and used. Unfavourable trends may be timeously discovered and eliminated.

c. Standard costs

(1) Introduction

A large number of definitions for standard costs exist. Some of these are briefly quoted as follows:

Goetz (1949, 34):

Standard or norms are needed in order to evaluate performance data in any type of cost system.

/ Gillespie

Gillespie (1959, 15):

Standard costs as manually employed are predetermined operation costs, computed to reflect specified quantities, prices and levels of operations.

Alford and Bangs (1948, 1465):

Standard costs are predetermined costs established by a process of scientific fact finding which utilises both past experience and controlled experiment.

Scott (1958, 9):

Standard costs may be defined for the purposes of this book as the normal costs both for individual orders (excluding the cost of faulty work and other excess costs) and for processes and the business as a whole, for normal production efficiency at a normal or planned level of output.

Henrici (1947, 75):

Standard costs are a device for directing the attention of the management to possibilities for economies with existing equipment, methods and materials and for indicating who is responsible for effecting these economies,

and (1947, 4):

Fundamentally, a standard cost is a bench mark. The amount of variation between the actual cost and this bench mark is an index of waste - or, to put it another way, of potential savings. Standard costs foster an optimistic attitude. They state that better performance is attainable. They constantly emphasise what should be. They encourage a striving for perfection.

European Experts Technical Assistance Mission No.50 (1952, 51):

Standard costs are predetermined costs related to carefully planned methods of making and selling a product or, in the case of services, rendering a service.

Fisher and Thompson (1952, 104):

Standard costing is the use of constant values for internal cost accounting records and the comparison of such constant with actual production costs and expenditure in detail, in groups, or in total.

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After careful consideration of the above and other definitions in this respect, standard costs may be defined as:-

Predetermined operational costs established as a bench mark to be achieved or exceeded, and against which actual performance can be measured. The information is then presented to management for use in a forceful way in order to stimulate corrective action.

Standard costs may be applied in any one of the abovementioned types of actual cost systems.

Standard costs do not, however, as stated by Henrici above, reflect in all instances an optimistic attitude, because the basis on which the standards are established determines the expected deviation of actual from standards.

If standards are based on best attainable performance it is true to say that they state that better performance than the actual achieved is attainable. If, however, it is based on "normal performance", the actual position at any one period may reflect a more favourable situation than the normal standards. The types of standards are more fully discussed later.

Koepke (1949, 346) comments as follows on standard costs:-

/ Standard

Standard costs are widely used in many types of industries but one should be sure that they are not too far from the actual costs, particularly if the plant manufactures a widely divergent line of goods.

This statement defines standard costs as costs to be established in such a way that they approach something like the average of actual costs. One of the values of standard costs, i.e. that of being a bench mark against which actual performance can be measured and controlled, will be entirely lost if this definition is accepted as representing the true meaning of standard costs.

This approach is a true reflection of the views maintained by the English cost accountants. The American cost accountants favour a less conservative approach and consider standard costs as bench marks to be achieved and as a means of measuring productivity and controlling costs (Sorgdrager, class lecture, 1959).

(2) Purposes

The purposes of standard costing and the fixing of standards are summarised as follows:-

(a) As a factor in guiding the setting of selling prices: the fixing of selling prices in advance is made possible by the estimating of costs or fixing of standards.

(b) To secure economies in manufacture: the purpose is to establish an adequate yardstick against which to measure costs and facilitate their control, to stimulate the cost consciousness.

of all executives and to encourage individual action to reduce costs and increase output. Over a period standard costs are a quick signal of any dangerous trends in efficiency or deviations from the predetermined standards. Relationships among the true costs of various products will be revealed and discrepancies can be checked and investigated in order to reduce costs.

(c) To serve as a basis for inventory valuation.

(d) Standard costs often serve as a basis or all-inclusive foundation for shop supervision incentive plans.

(e) Standard cost methods are often installed to reduce the clerical effort normally associated with the detailed amount of work required under a system of actual costs. Under a standard cost method permanent standards are used instead of the detailed historical costs. The standards are compared with relatively comprehensive groupings of current data to fix responsibility and establish executive control. This over-all analysis facilitates largely the simplification of clerical effort.

(3) The process of setting standard costs and presentation to management

The general procedure in establishing standard costs is set out by Henrici (1947, 108) in four steps. In the first instance the con-

sumption

sumption per product standard hour (p.s.h.) is determined. Secondly, the total requirements at given levels of operations are established, to which is added minimum allowances for normal line losses. Thirdly, a standard cost of generating the total quantity of each utility at each level of operation is ascertained and, finally, the total normal cost is reduced to a cost per unit of utility sold.

The procedure set out above only outlines the setting of standards but the method of setting standard costs and the presentation thereof to management covers a much wider field and involves a more comprehensive procedure which is as listed hereunder:-

- (a) Analysis of the production processes and the establishment of cost centres.
- (b) Determination of the standard cost method to be used.
- (c) Establishing budgets.
- (d) Establishing material cost standards.
- (e) Establishing labour cost standards.
- (f) Predetermination and apportionment of overheads.
- (g) Ascertainment of product unit costs.
- (h) Ledger systems.

/ (i)

(i) Method of comparing actual and standard performance and reports to management.

(j) Organisation of the cost department.

The mere setting of standard costs is only one half of the complete position. The setting of the standards will in itself be of little or no significance if these standards are not used to present the information to management in a forceful way. In order to achieve such an objective, use is made, where desirable, of a ledger system in which the information is accumulated in an organised manner and presented to management.

(4) Types of standard costs

There are two main types of standard cost accounting systems:-

(a) Basic standard costs

The European Experts Technical Assistance Mission No.50 (1952, 53) refers to basic standards as being merely standards of measurement which may be set for a long period unless manufacturing methods alter. Lang (1948, 271) points out that they serve only as a yardstick with which both expected and actual performances can be compared. Gillespie (1952, 19) refers to this type of standards as bogey or measuring stick standards and states that it is drafted and scheduled at the time the standard cost system is officially started in the factory or when a change is made in the product or existing / methods.

methods of manufacture. He also points out that the bogey standard is permanent and is used as a fixed point with regard to which actual performance of successive periods in the future may be measured. Fisher and Thompson (1952, 106) refer to basic standards as permanent standards which may be used when production is reasonably stable in form and in total output, or subject only to minor changes in methods, or when costs are recorded in great detail which cause annually or half-yearly calculated costs to be a major operation. They also point out that such standards may become remote from actual costs because of changes in production methods and layout, extension of plant, and major increases in material costs and labour rates of pay.

Since basic standard costs are used as a measuring stick of future actual performances there may always be a wide difference between actual costs and such standard costs. Such differences can then be investigated and reduced where actual performance appears to be inefficient.

Although basic standards remain constant it is not true to state that this method is applicable only where output is reasonably stable in form and in total (Fisher and Thompson, *ibid.*) because it is used as a basic

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measuring rod and variations from these predetermined basic figures will reveal whether output is stable or not and may serve as a guide for the reduction in waste. Some of the reasons given above (Fisher and Thompson, *ibid*) as to why permanent standards may become remote from actual costs, are normally some of the reasons for the changing of basic standards.

Changes in production methods and layout will affect the basic process, operation, or a work method, and the basic standard should therefore be changed accordingly. Similarly, with an extension of plant, a major change in manufacturing may take place and the basic standard should be adjusted in accordance therewith. This procedure would be in line with the concept of basic standards, as set out by Gillespie above.

Because basic standards and costs may tend to differ considerably from the actual costs merely by virtue of their basis of establishment for factors, such as pointed out by Fisher and Thompson above, this method is not favoured for local conditions. The two main requirements for a system of cost accounting are those of serving as a basis for price fixation and cost control. Although, as indicated above, basic standards may be used as a yardstick for the measurement of actual performances, they are nor-

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mally subject to considerable adjustments if required as a basis for price fixation.

(b) Current standards

Current standards are the second type of standard costs, and are more frequently used because they are valuable as a guide for price fixing, which is a shortcoming in the system of basic standard costs. These standards are changed frequently and are referred to by some writers as "annual standards" (Fisher and Thompson (1952, 107)).

As far as the current standards are concerned the very first question that arises is: On what basis should they be established?

The various bases are as follows:-

(i) Expected normal

This ignores short term fluctuations of a temporary nature and is based on what is expected to be a normal position.

(ii) Expected actual

The predetermined data is based on the expectations of the actual position (Gillespie, 1952, 15 - 19) taking into consideration known factors that may seriously affect the position. e.g. a drought may have an important influence on the years output of grapes.

(iii) Best attainable performance

The data in this instance is based on the maximum plant capacity. For an

/organisation

organisation where the demand for its products is, because of recent commencement of business, still low, this method may be helpful in providing competitive and attractive prices and, therefore, increasing turnover. In an established organisation the use of this as a basis will serve the purpose of cost control only, i.e. What should the actual position have been if the ideal level of performance had been achieved? A variation, therefore, from the pre-established level is the margin of inefficiency, i.e. difference between ideal and actual. Henrici (1947, 29) describes this as a method to provide a means of comparing actual costs with a fixed base without saying that the basic should necessarily be reached.

(iv) Past averages

Van der Schroeff (1953, 57) also mentions current standard costs based on past averages, but states that this basis is favoured by very few authors. Henrici (1947, 28) refers to the averages of historical costs as a reference cost and not as a standard cost. In cases, however, where current information of a reliable nature cannot be established the use of past averages may have to be resorted to even if only temporarily.

The basis on which current standards are to be based are applicable to:-

/ Material

Material quantity standards.

Material price standards.

Labour quantity standards, i.e.
standard. times.

Labour rate standards.

Budget level of operations for the
distribution of overhead.

Expense standards.

(v) Variance analysis

The difference between the actual cost and the predetermined standard is a variance. In order to receive maximum benefit from a standard cost system these variances must be ascertained and presented to management in a forceful way. The mere presentation of the information is no control in itself but the control is the steps which management is in a position to take in order to reduce or eliminate wasteful operations and procedures. The effectiveness of the steps so taken will be revealed in the size of the variance, i.e. a large unfavourable variance will undoubtedly reflect poor action on the part of management.

The various types of variances may be summarised as follows:-

Lang (1948, 335) and Henrici (1947, 162, 168):

Direct labour variances

Price variances

Efficiency variances

/ Material

Material variances

Price variance

Spoilage variance

Scrap variance

Shrinkage variance - during processing,

i.e. variance due to unprocessed material.

Overhead variances

Expense variance which arises when more
or less than ^{is} allowed in the budget is spent.

Efficiency variance arises when there is
a difference between the labour or machine hours
and the allowed hours, but the output remains
the same.

Utilization variance appears when there
is a difference in capacity or level of output
compared with the budget.

3. Material costs

a. Introduction

In order to obtain a good understanding
of material, it is necessary to discuss the
classification thereof, the fixing of standards
for the quantity and quality, the methods and
procedure of replenishment, prices and the
stores department.

b. Classification of material

In its broadest sense, an inventory is

/ any

any list of property. However, in an industrial sense - as treated here, the manufacturing inventory includes only those materials entering directly or indirectly into the product and those materials, sometimes known as supplies, which aid production but do not necessarily enter or stay with the product. (Koepke, 1949, 405).

The analysis of manufacturing material can be subdivided into two major categories:-

(1) Analysis of material by stage of manufacture

This describes the material in the stage of flow prior to, through and after the manufacturing process. These are as follows:-

(a) Raw materials

The raw material is that material required for the manufacturing process but to which no work has yet been done. This material is normally found in the storeroom or in the factory prior to commencement of the factory process.

(b) Material in progress

The material under this heading is in the process of manufacture but is not yet in a completed form.

(c) Finished material

This is the final product of the raw material on which the production operations were carried out and is still in the hands of the company, having not yet been delivered.

The finished material may be either

/manufactured

manufactured or purchased. The purchased material differs from the finished material produced in the factory in the sense that it requires no further processing before being sold and delivered. Finished purchased material may also be procured, however, for use in the assembly of other products.

(2) Analysis of material by method of charging to the product

The second major classification of material is made according to the manner in which the cost of the material is charged to the product.

Normally the distinction is made between two classes:-

(a) Direct material

This material cost can be charged to the specific job, process or commodities directly, and forms part of the finished product.

In their definition of direct material, Fisher and Thompson (1952, 69) state that direct materials form a part of the finished product or take a direct part in the process of manufacturing the finished product.

This statement is not quite correct since the consumable material may also take part in the process of manufacturing but cannot be considered as a direct material.

(b) Indirect material

Indirect material is that material which is general in character but which is difficult to

/assign

assign to a given unit or product for the purpose of cost finding. (Koepke (1949, 405).

Indirect material is also defined by Fisher and Thompson (1952, 69) as follows:-

Indirect materials which are required for the repair and maintenance of the plant and machinery and for the subsidiary departments and processes.

Indirect material should, however, be subdivided into two classes:-

(i) Indirect material

Indirect material is a direct material but differs from the direct material in the sense that the cost of indirect material is per product or item so small in proportion to the total, that the clerical work involved in the direct cost apportionment to the unit is not warranted.

(ii) Consumable material

Included in this category are items such as oils for the machines, filter plates for filtration of wine, and similar material expense items. These items are necessary in the process of manufacturing but do not form part of or appear in the final product.

Since both these items are of an indirect nature, the cost thereof is normally debited to an indirect or consumable material account. This subdivision of the material into the three sections is confirmed by Henrici (1947, 75).

He classifies material into direct and

/ indirect

indirect, direct materials being those which can be computed exactly for each unit of product. Indirect materials he refers to as those which cannot be directly computed and must be distributed over all products. The latter group he then further subdivides into two classes, namely, indirect material considered as material which is a part of the product but is so small or difficult to measure that it is impracticable to cost it separately, and miscellaneous material which does not form part of the product, e.g. brushes. He points out that because the standard cost treatment is the same for indirect and miscellaneous material or operating supplies these accounts are grouped under the heading of indirect material.

c. Quantity and quality standards

It is desirable that standards should be established for material both in respect of quantity and quality. This is confirmed as follows:-
Goetz (1949, 105):

Materials needed by each organisational unit in performing each assigned task should be predetermined both qualitatively and quantitatively.

Scott (1958, 67):

On the material side standards may be set for:

- (1) the quality of price of material to be used and
- (2) the quantity of material to be used for a particular process, job or operation.

The ascertainment of the standard for material can be done on one or both of the under-

/ mentioned

mentioned bases:-

(1) Calculation

The facts normally supplied in the manufacture of the material are used for the estimating or calculation of the exact material necessary to execute the order or manufacture the product.

(2) Tests

Tests may be made to determine the material, quantity and quality required for the manufacture of the product.

The standards so determined are used for measuring the effectiveness of the actual manufacturing operations, and also for the initial standard cost for price determination.

d. Replenishment

In industry, purchasing is the procuring of materials, supplies, machines, tools and services required for the equipment, maintenance and operation of a plant.

The purchasing department is the department entrusted with the procurement duty. The function of the purchasing department is to procure needed materials, supplies, machines, tools and services at an ultimate cost consistent with economic conditions surrounding the item being purchased and safeguarding the standard of quality and continuity of service, and to establish and maintain the company's reputation

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for fairness and integrity. Modern trends in legislation make it essential that the purchasing department should also watch carefully the enactment of new laws as to taxes, business regulations, etc. and ensure the company against their violation (Alford and Bangs (1948, 253)).

In planning quantities to be procured it is desirable that a proper replenishment budget be compiled based on the forecast consumption and subsequently controlled by the establishment of maximum and minimum stock levels and the predetermination of the most economical quantity to be ordered at the time of replenishment.

e. Prices

All issues of material from the store to the factory should be converted into a monetary value not only to ascertain the value of the material consumed in the factory but also to facilitate the determination of the value of the balance of stocks on hand in the store.

Various methods of pricing such issues are in use, of which the following eleven are listed by Lang (1948, 710):

- (1) Specific cost
- (2) First in first out
- (3) Simple average

/ (4)

- (4) Weighted average
- (5) Periodic average
- (6) Moving average
- (7) Standard cost
- (8) Last in first out
- (9) Replacement cost
- (10) Normal or base stock
- (11) Cost or market, whichever is lower

It is not the intention to discuss all the abovementioned methods but for illustration purposes only reference is made to some of them.

As regards the average method of pricing attention is drawn to the fact that the occasion may arise where certain prices may be outstanding and, therefore, this method could lead to inaccuracies when determining the average prices, as is illustrated in the following example:-

Table No.11:

Average price method.

Date	Quantity.			Value.			Average unit price.
	In	Out	Bal.	In	Out	Bal.	
1. 7.57.			50	R	R	R	R.1
20. 7.57.	150		200	150		200	R.1
29.12.57.		300	100 Cr.		300	100 Cr.	R.1
5. 1.58.	150		50	300		200	R.4

(Personal observation).

/ In

In the above example 50 items at R.1. each were in stock when a further 150 were received at R.1. each, making the total value of the stock R.200. and the average unit price R.1. An issue was then made for 300, of which an invoice in respect of 150 was outstanding but, as the latest available average unit price was R.1., the 300 items were charged out at this rate and the transaction recorded in the Ledger accordingly. When the invoice for the 150 was received it was found that they had been priced at R.2. each and not R.1., thus making the total value of the 300 items charged out R.450. and the average unit price that should have been applied, R.1.50. As the 300 items in question had been charged out at R.300., a balance of R.150 remained uncleared which, when added to the R.50. in respect of the value of the items on hand, would make the total ledger value R.200. against a stock quantity of 50 items, i.e. a new average price of R.4.

Van der Schroeff (1953, 103) favours the system of evaluating issues on the replacement cost basis and in this connection points out that where there is a time lag between the date of procurement and the date of subsequent issue, a difference in price may be experienced. An example of this occurs in shipbuilding where the material is procured long after the predetermined

/ cost

cost of building the ship was calculated. The importance of basing issue prices on replacement value cannot, therefore, in instances of this nature, be overemphasised.

This approach is in contrast with the views held by Schmalenbach who favours the system of evaluating stocks at the day value in order to ensure the correct calculation of the "zeitvergleich" (time profits).

In cases where management control is required in connection with the procurement of material a system of standard prices is strongly advocated.

In his theory on standard prices for stores, Henrici (1947, 78) states:

Since the standard price is to be employed only as a filter for removing all variations in the cost of materials prior to the entry of those materials into the cost centre, there is no reason why it cannot be based on actual costs. In fact, a standard price can well be the average price for, say, the year preceding the time of its establishment. Or again it may be the price that is expected to prevail in the ensuing year.

In the above definition the prime function of setting standard prices for stores, namely that of the control of the prices of purchased material, would appear to have been largely overlooked, in as much as that if standard prices are based, as stated above, on actual costs or on the average price for the preceding year, control will be lost because

/the

the actual cost or the price paid in the preceding year might not necessarily be the most favourable. In addition, if actual costs are used as the basis, the buyer is not enforced to procure goods at the most economic prices.

The only instance in which a departure from the proper setting of standard prices should be permitted would be in the case of the early stage of an initial introduction of such methods.

f. Stores department

The question arises as to whether the control of the stores department should be vested in the technical or administrative heads of an organisation.

The entrusting of this section to the care of a senior administrative head is favoured because the importance of the financial control of the large investment normally tied up in stocks cannot be overemphasised.

g. Conclusion

For cost accounting and control purposes, material is classified into direct and indirect and, whilst standards are set for direct material in relation to the product, indirect material is considered as an overhead and controlled as such. Replenishment of material should, where possible, be carried out against material budgets and a method of standard pricing of issues is favoured.

4. Labour costs.

a. Introduction

Labour costs form an important part of the total manufacturing costs which are also, according to Rautenstrauch (1957, 127) subdivided into direct labour, direct material and factory expenses. A satisfactory control of such costs, therefore, is an essential part of the cost accounting and control methods, and in this subsection the various classes of labour costs are defined and the fixing of labour time standards and rates are discussed.

b. Classification of labour

Labour costs are defined by Henrici (1947, 55) as follows:-

Direct labour is that labour whose earnings can be related to p.s.h. earned on specific operations.

Indirect labour is that labour associated with production which, because its earnings cannot be accurately related to p.s.h. earned on specific operations, must be averaged over groupings of p.s.h.

In addition to the two classifications of direct and indirect labour there is a third type of labour which is the labour that is not directly associated with the production process but which also forms a part of the actual manufacturing and processing costs. Examples of the above are maintenance and cleaning of machines and buildings and sweepers. A true classification of labour costs should, therefore, be as follows:-

(1) Direct production labour

This can be defined as labour spent directly on a specific job, product or item when the value thereof is sufficiently large to warrant its cost apportionment to the item, etc. or as defined by Blocker (1948, 20) as follows:-

Direct labour consists of labour of employees which can be identified, as in the case of direct materials, with the manufacturing of a product or a group of products in a manufacturing concern.

(2) Indirect production labour

This is production labour where the amount involved in respect of its contribution to the manufacturing process is relatively small and, therefore, does not warrant direct cost allocation to the product or item. For example where a native labourer assists a european artisan in the repair of a motor vehicle when it is often customary to debit only the cost of european labour direct to the job, the non-european labour is debited to overhead and subsequently apportioned over-all.

(3) Indirect labour

Indirect labour cost would merely comprise the cost of that type of labourer necessary for the manufacturing process but who never actually touches the product or item, and under this category would be included boiler attendants for the development of steam used in the manufacturing process. / c.

c. Fixing labour time standards

The setting of standards for labour operations is set out by Goetz (1949, 106) as follows:

Operations also exhibit qualitative and quantitative aspects. Both setup and operating labour are divided into qualitative jobs of different values and quantitatively measured in hours required to complete the work. Thus each operation tends to require four labour cost standards: setup labour grade, setup labour hours, operating labour grade and operating labour hours.

and by Scott (1958, 70), as follows:

- Labour standards may be set for:
- (1) Grade of labour to be used, i.e. wages rates.
 - (2) The standard time for each process, job or operation,
 - (3) The operations to be performed.

The way, however, of setting out the determination of labour standards should very broadly be as follows:-

(1) The determination of the operations to be carried out and the quality required of the final product.

(2) The grade of labour to be used.

Certain operations may require highly skilled operators and in other cases the work could be done with semi-skilled or unskilled labour. Due consideration should also be given to employ the most economical labour for carrying out the operation. Highly skilled labour might demand a high wage rate but, on the other hand, unskilled labour may turn out a poor quality job.

(3) The methods to be used by the labour employed: the most efficient method should be employed.

(4) The standard time should be set for conditions based on the quantity to be produced at the predetermined quality.

Once standards have been fixed for the operations concerned the actual performances can be measured against the standards. There are various reasons why the actual may deviate from the standard. Various reasons are given by Van der Schroef (1953, 63) and may be summarised as follows:-

- (1) Incapability of the labourer.
- (2) Unsuitability of material and machines.
- (3) Waiting for material.
- (4) Unavailability of machines.
- (5) Machine break-down.
- (6) Machine setting and die changing.
- (7) Insufficient co-ordination of production lines.

Apart from the above, an important reason also is that there may be no work available for the workman. This could happen during a recession period.

Management should make every effort to prevent or reduce any losses caused by delay or idle time. Such idle time should be costed and

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expressed as a percentage of the total labour cost and reported to the management.

Improvements in efficiency and the labour productivity can be achieved as follows:-

(1) Stricter supervision

An increase in the supervisory staff both in regard to quality and quantity often has the effect of improved production. The quality of supervision could be improved by giving better training to the supervisors in order to improve their knowledge of the work to be done, their attitude towards the work and the fact that they should realise that as supervisors they actually represent the management in the capacity in which they are employed and should therefore, whilst looking after the interest of the men, also ensure that a fair day's work is received from them in return for their normal day's wages.

(2) Bonus incentive scheme

The installation of bonus schemes normally has the effect of increasing labour productivity, since for additional effort additional money is paid. A major advantage experienced in connection with the installation of a bonus incentive scheme is that the workman is given an incentive to book any idle time. Although he earns no bonus thereon he is not penalised for idle time and the reflection of this information may result in the necessary steps being

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taken by management to eliminate or reduce it.

Idle time may be occasioned by:

(a) waiting for material: a matter which can be taken up with the stores department in order to reduce it to a minimum.

(b) waiting for work: which means that either the staff establishment is in excess of requirements or that insufficient work is being obtained. The mere knowledge of this will encourage management to either reduce their staff complement or place more emphasis on sales promotion.

(c) waiting for instructions: this takes place when work is available but the foremen or planning department are in arrear with the issuing of works orders.

(d) waiting for tools and equipment.

It is often found in factories that the phase in which the biggest time saving occurs is the elimination of idle time and the importance thereof cannot therefore, be over-emphasised.

The wage incentive method has often been claimed as an important pre-requisite to the installation of a system of standard costing. This is stated by Henrici (1947, 60), as follows:

Except in processing or highly mechanised industries, standard cost installations can succeed only when there is a smoothly operating wage-incentive system.

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This statement does not bear examination because a wage incentive method will cover only the labour cost of the entire cost structure of the organisation and may in many instances form less than 50% of the total cost. Therefore if the statement was correct it would be impossible to instal any standard cost system in industries where the quality of the product and not so much the quantity is the prime consideration.

A standard cost system where no labour incentive is in operation has the advantage of labour efficiency and utilisation, at least, being measured. This in itself may form a strong incentive for an increase in productivity. A continuously measured productivity through a standard cost system will also reflect whether a bonus incentive scheme would be warranted, i.e. where continuous debit labour variances due to too low a productivity are shown up.

There are a great variety of bonus incentive methods in operation in various manufacturing and other activities throughout the world. Alford and Bangs (1948, 1184) alone mention 26 types. A brief survey of some of the more significant of these methods follows:-

The first successful effort in the development of incentive schemes is found in

/America

America in approximately 1895 (Alford and Bangs, 1948, 1173). This was by Taylor and his associates in the form of task improvement and task measurement, i.e. "job standardisation". In his incentive scheme Taylor provided for two different rates, a low or punitive rate for the low task and a high rate for the high task. This system is not found in common use to-day and the provision of the two rates mentioned above can be regarded as the most important reason therefor. The workman cannot appreciate that because of the step increase a very much higher wage is earned for only a small amount of extra effort. If, for example, the step increase becomes effective at an output of 100 units the worker who produces 99 cannot understand why another who turns out 101 units or only 2% more earns so much more in wages.

The Halsey scheme originated in 1890 (Alford and Bangs 1948, 1173) only five years prior to Taylor's epoch-making paper on his piece rate scheme. Because this scheme provided only for a fixed percentage of the sharing to the employees it brought about neither a great increase in productivity nor a great risk to management. This scheme is highly suitable for jobbing work where a large percentage of the times has to be estimated and the estimate must, therefore, be inaccurate. In

/ South

South Africa this scheme or modifications thereof are extensively employed. The main reason is that, because of the limited local market which is, for example, less than 10% of that of the United States of America, industry has resorted largely to jobbing techniques, manufacturing mainly according to customers' requirements. The first successful bonus scheme of this nature found in operation in private undertakings in South Africa, by the writer of this thesis, was in 1949 in a clothing factory in Johannesburg, the staff complement of which was approximately fifty employees. The principles adopted were basically those applied by Halsey with 50% sharing to the employee. To-day successful wage incentive schemes are found in operation in printing firms, the production of which is mostly of a jobbing nature, motor car repair workshops, engineering fabrication and workshops and other manufacturing and repair shops.

d. Labour rates

In the above discussion mention was made of the standardisation of the grade of labour to be used, and this is also related to the rate of wages to be paid for a particular operation or process. The use of the standard rate for labour in the process of standard costing will reveal whether any highly paid labour is used in the carrying out of the more inferior

/ type

type of work. If in the organisation production is largely seasonal and labour which is required only for the season has to be employed on a permanent basis, it may sometimes be advisable to utilise such labour on inferior work. The cost apportionment thereof, however, should be done in such a way that the inferior process is not debited with the full wage rate of the highly specialised seasonal worker, and in this way maintenance programmes normally carried out during off-season periods could be undertaken with staff waiting for the season to commence.

e. Conclusion

Labour is, therefore, subdivided into direct and indirect. The productivity can be measured by the setting of standard times and a high productivity can be achieved and maintained by the introduction of a system of bonus incentive schemes. For purposes of labour cost control the standardisation of labour rates forms an integral part of the cost accounting and control methods and procedures.

5. Overhead costs.

a. Introduction

A study of overhead costs covers methods

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of accounting and recording of overhead costs and also methods of overhead distribution, the implications of the recovery of overheads at various levels of activity, and the controlling of such costs in order to operate at the highest possible profitability. Also there is a great variety of types of overheads, such as, depreciation, shop supplies, etc. and the accounting for each separately will facilitate control. Lang (1948, 893) points out that overhead expenses represent the most important topic under the heading of cost accounting. It is endeavoured in this section to set out the definition and classification of overheads, the fixing of overhead standards, overhead rates and to discuss samples of overheads.

b. Definition and classification

Lang (1948, 893) refers to manufacturing expenses as being those which embody all items of production cost excluding cost of raw materials and direct labour. He also refers to a large number of synonyms used for overhead expenses, such as, factory expense, burden, plant expense, plant and service expense, factory overhead, overcost, etc.

Blocker (1948, 21) refers to overhead as those charges which cannot be identified directly with the unit, a production order, a service or a department, and also points out that

/ other

other terms used instead are "indirect expenses", "burden", "supplementary costs" and "manufacturing expenses".

Rautenstrauch (1957, 132) does not define overhead as such but merely analyses the behaviour of such expenses and states that included in the overhead are items which are variable, fixed and regulated. This matter, however, is more fully discussed in the introduction to this chapter.

The definitions of Lang and Blocker are supported and, although they may appear to differ in actual fact, they do not, as only direct material and labour can be identified directly to a unit, production order, a service or department.

c. Fixing overhead standards

Since overhead is that cost which cannot be directly identified with a unit, a production order, a service or department, the determination of physical standards based on the output of the particular item becomes difficult. The standardisation of such expense is carried out by fixing standards in relation to other activities, investment or other costs. Overhead costs are considered by Goetz (1949) as a heterogeneous lot and physical standards associated therewith are multitudinous, varied and difficult to reduce to an ordered classification.

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d. Overhead rates

In order to arrive at an all inclusive cost of operations or product items it would be necessary to apportion overhead on some or other predetermined basis to the product item, cost centre or operation concerned. The method of doing this is the proper allocation of the correct share of overhead element of cost either directly to the product or indirectly to the producing centre and thence to the product itself and the main objective of this detailed analysis is to ensure that each job is charged with its proper share of overhead expenses (Scott, 1958, 177, 179).

The method of arriving at a "product standard hourly" cost for overhead expenses is discussed by Henrici (1947, 124) as follows:

General overhead expenses that are not controllable by operating cost-centre supervisors are reduced to a p.s.h. cost either by means of a sold-hour rate or a direct distributive charge to p.s.h.

The method of using either a sold-hour rate or a direct distributive charge to product standard hour is interpreted to mean that the total overhead burden is distributed on any one of these bases. An important aspect which however, should be considered is the extent to which the factory is loaded.

/ Assume

Assume that the total overhead burden is R10,000 for a particular week. Then at varying levels of output the overhead burden rate will vary accordingly, assuming also that in the example quoted hereunder no change in the fixed cost is experienced.

Table No.12:

Overhead cost and capacity.

Description	% capacity		
	75%	90%	100%
Overhead cost	R 10,000	R 10,000	R 10,000
Hours sold	7,500	9,000	10,000
Cost per hour	R 1.33	R 1.11	R 1.00

(Personal observation).

The overhead cost rate varies from R 1.00 per hour at 100% to R 1.33 per hour at 75%. If the level of output is determined at 100% and only 75% of output capacity is achieved there will be a loss of recovery which is calculated as follows:-

Table No.13:

Loss of recovery.

Cost per hour	R 10,000
Hours sold capacity	10,000
Rate per hour	R 1.00
Actual hours sold	7,500
Overhead cost recovered	R 7,500
Loss in recovery	R 2,500

(Personal observation).

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Since the production capacity is not being fully utilised a loss of R 2,500 in manufacturing expense (overhead) recovered is experienced, and this is a loss brought about by too low a utilisation (Van der Schroef (1953, 74)).

It would be unfair to the cost of production if all overhead costs related to the general operating of the organisation were to be charged to the manufacturing recovery rate, since the low utilisation may be caused by a shortfall in the sales programme or to managerial policy in providing buildings too elaborate for the purpose. If these costs are all added and provided for in the cost rate, the cost price of the product will eventually be relatively high, a factor which may serve as a pressure to increase sales prices. This tendency will force the product's competitiveness down and again further reduce the hours sold, and therefore further increase the rate of overhead per product standard hour or hours sold.

A sound policy to follow in this respect is to base the recovery of any overhead or burden on a reasonable production capacity. The difference between the rate based on the capacity planned and the subsequent rate on the actual output is then written off to the profit and loss account, e.g. the R 2,500 as calculated above would be written off to the profit and loss account.

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e. Examples of overhead

The treatment of examples of overhead items in the costing system is briefly as follows:

(1) Depreciation

There are various methods of providing for depreciation in the cost structure. One important consideration in regard to the provision for depreciation is whether depreciation should be based on the original procurement value or on the replacement value. Van der Schroeff (1953, 37) summarises this problem as follows:

The original cost forms an unsuitable basis for cost price calculation because it is coupled with the incorrect idea that the true cost of the product is the sum total of all the costs incurred prior to its procurement.

This statement is correct and in the development of any business or organisation on an economically sound basis it is essential that provision for the depreciation of all fixed assets should be on the replacement value, as otherwise with the tendency of rising prices of plant, machinery and building costs, organisations may find themselves in a position where insufficient funds will be available for the replacement of assets so essential for the continuation of their existence.

This approach is in contrast with the views expressed by Schmalenbach (1930) who

/ favours

favours the calculation of depreciation on the historical purchase price.

In South Africa especially, with its industrial history of only about half a century, the importance of this proviso may not yet be realised to the fullest extent, as investigation and personal enquiry into many of the co-operative undertakings has proved that the method of depreciating on the original capital cost value is favoured.

The accounting procedures for depreciation are either based on a straight line method or on a reducing balance method. Although it is possible that the reducing balance method has the advantage that in the early stages depreciation is high when maintenance cost is low and later, when maintenance cost becomes high, depreciation drops to a low level, two distinct disadvantages are attached to this method. The first is that the asset is never completely written off and apart from the first year or two the actual amount written off in the form of depreciation becomes very low. The following illustration will suffice to indicate this: Assume rate of depreciation is 20% on the reducing balance, and the capital value of asset is R 100.

/ Table No.14:

Table No.14:
Depreciation.

Year	Depreciation written off Rand	Capt.value balance Rand	% of de- precia- tion on original value
1st year - 20%	20	80	20%
2nd year - 20%	16	64	16%
3rd year - 20%	12.4	51.6	12½%
4th year - 20%	10.2	41.4	10%
5th year - 20%	8.3	33.1	8%

(Personal observation).

In five years' time the actual percentage of depreciation written off expressed as a ratio of the original capital value has dropped to 8%.

The second major disadvantage of this method is the clerical complexity attached thereto. The actual depreciation written off is different every year and necessitates a re-calculation every time it is used. This is of special importance where a large number of plant and machinery items is concerned and the original cost values differ from item to item.

The method of providing for depreciation on a straight line basis is much simpler and easier to operate and once the life of the asset has been established the true amount to be provided for annually can be ascertained and used

/repetitively

repetitively.

A third method which could also be used for the provision of depreciation is the running hours method. In this case it is assumed that depreciation is a variable cost in direct relation to its usage.

To summarise, there are two main classifications into which methods of depreciating the value of an asset could be placed.

Firstly, those methods that can be grouped under the category in which it is attempted to depreciate the asset on a time basis, i.e. the straight line method and the method of providing for depreciation on a diminishing balance.

These methods assume that the value of an asset depreciates in proportion to the period of time it is in use irrespective of the extent to which it has been used.

Secondly, there is the method of providing for depreciation based on the actual usage of the asset.

There would appear to be a confusion on the question of depreciation. Solomons (1952, 292) says:

Writers on depreciation seem to agree on nothing except that other writers on the subject are somewhat confused.

On the same page, points, in order to reconcile the confusion are listed, of which the following are quoted:-

Clear differentiation should be made between three fundamentally different depreciation concepts. And these three concepts are (ibid, 293):

/ Decrease

Decrease in value, amortised cost, and difference in value between an existing old asset and a hypothetical new asset taken as standard of comparison.

In order, however, to appreciate the problem of depreciation only two distinctions need to be drawn, namely:

Obsolescence and depreciation. Obsolescence is a time factor cost and is related to new innovations, improvements in techniques, fashion and bargain purchases. The methods of depreciating on the time factor as summarised above, apparently attach more value to the depreciation of the asset on a time basis because the obsolescence factor is considered more important.

Depreciation on the other hand is the true reduction in the production value of the plant and tends to be in direct correlation with the usage. If, e.g. the total life of the asset, e.g. a motor vehicle, is estimated at 100,000 miles, the asset will have depreciated after 25,000 miles by 25% although the sum of the depreciation and obsolescence might be far in excess of this percentage.

In the accounting method and book-keeping procedures provision for the depreciation cost for these two factors separately will, however, add to the clerical effort and, therefore, the rates for depreciation should be set in such a way that sufficient provision is made for the actual consumption of the asset in the

/production

production process as well as an allowance for the obsolescence factor. It is important that both these factors should be fully borne in mind when the set-up of the rates is established.

(2) Interest

The basic problems relating to interest in cost accounting are as follows:-

(a) Can interest be regarded as a cost?

The opinions of some writers are briefly:

Van der Schroef* (1953, 83) discusses interest as follows:-

In the same way as wages can be considered as both a cost and income factor so also can interest be regarded as such. The classification of interest as a cost, he further qualifies and divides into money required for the manufacturing and not invested in wasted equipment and then the interest on the owned money which is

"de Prijs van het vermogen" (ibid 96).

He also emphasises that interest is payable on capital borrowed and own capital and that interest on the former is a cost but on the latter is merely a price of what has been invested (ibid, 81 - 96).

Scott (1958, 183) expresses the following views on interest:

The question of inclusion of interest as an item of cost has caused endless argument.

Overdraft interest is often included in administration expenses, as may also be interest on other temporary loans. Where, however, there is a large amount of borrowed capital in the

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form of loans and debentures, the question increases in importance. It is quite common to include such interest in administrative costs,

It has been argued that if it is included, costs will not be comparative with those of firms where no borrowed capital is employed. Such an argument, however, cannot carry much weight as the true object of costing is to find the cost of running one's own business - though the excesses which may affect competitive prices should be shown up.

From the costing point of view one of the occasions when the inclusion of interest is urged is to afford the comparison between the cost of running two departments (or machines), one employing expensive and the other cheap plant.

The system of charging interest on work-in-progress in each department as part of cost control has been referred to. The calculation of interest on capital locked up in stocks and in debtors can also be envisaged as having an effect on the attitude towards large balances on those accounts.

In general it is considered that fictional interest charges should be introduced only into statistical memoranda, and should be excluded from the bookkeeping system. In any event such notional charges should be excluded from stock valuations.

Interest on capital borrowed can be considered as a cost, on the same basis as the wages paid for labour hired is a cost. This principle has been accepted by both the writers quoted above. Interest on own investment, however, is not a cost since it is merely, as put by Van der Schroeff, "de prijs van het vermogen (ibid, 96)" and should, therefore, not be provided for in the cost accounts.

In the case of borrowed capital where interest is regarded as a cost, if the borrowed money is used on, or merely dumped into, idle or unproductive capacity, such interest should not

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be provided for in the cost of the product, for the reason that the same principle applies as in the case of the recovery of other overheads on overprovided capacity.

The conclusion, therefore, is that interest paid on borrowed capital invested in sound productive capacity can be considered as a cost.

In the case of plant and machinery used in long-term processes, e.g. maturation, it is desirable that the interest on such an investment be calculated not as a cost factor, since the theory discussed above applies, but merely because a comparison of the relative profitability of the various products is essential. An example of this occurs in the case of the maturation of wine, where young wine will require less investment and, therefore, a lower interest charge than long-matured wines. Only when the demand is of such a nature that production capacity for either young or matured wines may be limited, or when special sales promotion programmes are contemplated, should interest be taken into consideration for the determination of relative profitability.

(b) How should interest be calculated and provided for? Where interest is an actual expense, provision should be made for the actual amount or budgeted amount subject to the

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qualifications discussed under (1) above.

The rate used to budget for future interest should take into consideration the prevailing interest rates and possible future changes therein. This is confirmed by Van der Schroeff (ibid, 95) who criticises the idea of interest being calculated on the agreed rate as this contains the same defects as the system of depreciation on actual price instead of on replacement value.

f. Conclusion

Overhead, therefore, means all expenses other than direct labour and material (Lang, 1948, 893) and should be controlled by fixing overhead standards in relation to the activity. Care should be taken when establishing rates to use output levels which are for a "reasonable" production capacity.

6. Product unit costs.

In the calculation of the product unit cost a product cost card is used. Provision is made on this card for the calculation of all the various cost items and for a total. The product cost card, according to Henrici (1947, 48) has the following characteristics:

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- a. Part name and number.
- b. Date of compilation.
- c. Material requirements, including provision for losses.
- d. The standard price of material.
- e. Operations performed.
- f. It shows the cost centre and the operation number within the cost centre applying to the job.
- g. It lists the p.s.h. (production standard hour) per piece for each job.
- h. The standard cost per p.s.h. and in total for each operation is shown.
- i. The accumulative standard cost by operation and the total is shown.
- j. An allowance is deducted for scrap and the nett total standard cost is exhibited.

The cost card, as described above, can be considered as complete in so far as the items provided for thereon are concerned, except for one weakness, which is that no mention is made on the card of the variable cost of the product, operation or item concerned.

Information building up to a total cost price will only be of significance when it serves as an over-all guide in connection with the fixation of prices. Under competitive conditions it may not be possible to sell the products at a price beyond that of total cost, and in some

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cases it may even be necessary to sell the product at a figure considerably lower than that of the cost price. At all times, however, such a price should not be less than the variable cost of the item.

It is important therefore, that, in the design of the cost card, provision should be made for the reflection of the accumulation of cost items to be included in the variable cost under a separate sub-total.

Chapter V.Cost control.1. Introduction.

For basically the same reason that a private individual may find it necessary to plan for his future financial needs, so also will any organisation find it desirable to plan its future revenues and expenses as, in the long run, it is the excess of revenue over expenses that will ensure the survival of the independent firm. The advance knowledge of such information is of vital importance not only for the purpose of planning the future but also for adopting the necessary remedial action if and when required. Such a future plan of revenue and expenses may be referred to as budgeting, a subject which to-day is probably receiving more attention than any other, since it is not only a means by which the individual can forecast his financial requirements but it is widely used in modern industry to exercise satisfactory control.

2. Budgeting.a. Introduction.

A great number of writers have attempted

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to define the budget and to describe its basic functions. Some of these are briefly referred to with a view to developing a definition commensurate with the true meaning of the term.

Henrici (1947, 29) refers to a budget as a statement of requirements and states that it is nothing more than a device to indicate whether or not anticipated expense requirements are being met or exceeded.

This description can be interpreted to mean a mere listing of the expected future revenue and expenditure which is not a satisfactory description of the meaning of the term. It is correct to state that such a listing operation may be found desirable during the initial stages of budgeting but little control can be expected from expectations which are not properly planned.

Matz, Curry and Frank (1957, 473) refer to it as a "compass by which a business may keep as closely as possible to a charted course", and this approach is far more realistic since a "charted course" can be regarded as a definite predetermined plan. Supplementing this view is the description by Blocker (1948, 9) that

The budget system is a co-ordinated plan of action for every executive, salesman and foreman which, by means of the cost system, can be compared with actual results monthly or more frequently.

In their booklet on the "Terminology of Cost Accountancy", the Institute of Cost and Works Accountants (1952) define a budget as:

A financial and/or quantitative statement, prepared prior to a defined period of time, of the policy to be pursued during that period for the purpose of achieving a given objective.

Evans-Hemming (1952, 33) provides, inter alia, the following on this subject:

A principle of budgetary control is that the executive head of any section of the business should have the responsibility of carrying out the plan, or budget, for his section. By the same reasoning the executive should be consulted with regard to the plan for his section of the business and the plan finally adopted should have his agreement.

The budget can, therefore, be defined as a pre-established financial and/or quantitative statement to ensure that a given objective is achieved in the most effective and efficient way with predetermined or existing methods and procedures. When compiling this statement care should be taken to ensure that the head of the department for which the plan is being predetermined is duly consulted so that the plan finally decided upon will have his consent.

From the above definitions it is obvious that the prime functions of budgeting are planning, co-ordination and control (Matz, Curry and Frank, 1957, 475). Yet a budget is not a control in itself but merely a plan on which control can be based. The carrying out of the plan rests with the executives of the organisation and since such a function is not only an important one but also one in which a large amount of clerical and other work is involved,

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the position of controller has developed. The origination, development and duties of this position are set out hereunder. Thereafter reference is made to the various types of budgets and, because confusion exists in regard to the true meaning of budgeting and standard costs, this matter is also discussed under this section.

b. The controller .

In the report of a group of European Experts Technical Assistance Mission No.50 (1952, 25) it was pointed out that the post of "Controller" with special emphasis on control rather than recording, accounting or controlling, was created, mainly because during the great economic crisis of 1929 - 1933 a great number of companies operated at a loss and serious doubt arose as to the effectiveness of management and the accounting function in particular. This function it was further pointed out is generally represented in top management.

The group of European Experts Technical Assistance Mission No.50 (1952, 26 - 27) summarised the work of the "Controller" under four headings as follows:-

Organisation and method: the organisation of his own department; the application of budgeting, costing, accounting and control principles; the working out of procedure.

Operation: accounting for the business processes; measuring actual performance against

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approved forecasts, budgets, targets or standards; collecting internal or external statistical data.

Interpretation: at the appropriate level of the results of all operations.

Recommendation and presentation: presentation of budgets, forecasts, targets or standard costs to the management concerned; information for sales pricing; submission to the respective levels of management of the results of all operations and other relevant data - whether of an internal or external nature - in a form suited to the needs of each.

Basically the function of control of costs is divorced from the normal administrative production, accounting or other managerial function. The main objective of the manager of a department or section is "to get the work done", i.e. to perform a specific task within a definite period of time. The main objective, however, of the control of costs, etc. is to ensure that this particular task is performed in a way which will result in the highest possible financial or other benefits for the organisation.

The difference can best be explained by the following example:

Assume the normal monthly demand for a particular item amounts to 1,000 units. The first objective of the production manager would naturally be to produce the required 1,000 units, and the importance of the cost of manufacturing may to him only be of secondary consideration. Where, however, the function of cost control is properly recognised, the prime objective emphasised would be the production of the units at the

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most economic level. This may, for example, include proper co-ordination between the sales programmes and the production activities.

Although many firms realise the significance of proper cost control this important function is often left exclusively in the hands of the departmental managers and heads of departments. Effective cost control, in many instances, can only be obtained by divorcing this activity from the routine managerial function.

In the above example the production manager may produce the 1,000 units in the most economic way and nothing can be done by the controller to reduce such costs but by varying the sales and production levels an increase in the profitability may be experienced.

It is possible to delegate these functions to separate personnel only in a relatively large organisation. In small organisations, however, it is common practice for the controlling function to be performed by the general manager or managing director personally.

Appreciation of the importance of the segregation of the controlling function from that of the normal managerial activities seems to be growing in South Africa since more and more firms and organisations are introducing the post of controller whose prime duties are those of

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financial planning and cost control.

c. Types of budgets.

The following budgets are normally found in an undertaking where budgeting procedures are in use:

(1) The sales budget

The sales budget forms the basis on which all other budgets are based. This budget outlines the main volume of expected activity of the organisation and to this is hinged all relevant material labour and other costs. This budget can be compiled with due consideration to the factors listed by:

Scott (1958, 18), as follows:

- (1) Past sales figures and trends.
- (2) Salesmen's estimates.
- (3) Plant capacity.
- (4) General trade prospects.
- (5) Orders on hand.
- (6) Proposed expansion or discontinuation of products.
- (7) Proposed alterations in quality and price.
- (8) Seasonal fluctuations.
- (9) Potential market.
- (10) Availability of materials and labour.
- (11) Trade cycle.
- (12) Financial aspect.

This budget forms the basis for sales effort direction and deviations therefrom are immediately reflected in profit results.

It is, however, controlled by the plant and equipment capacity on the one hand and the market position on the other.

Long-term expected sales in excess of
/ production

production capacity may involve extension of the latter in order to provide for the increase in sales expectancies.

(2) Production or output budget

Although the plant capacity may be affected on the long term by the sales expectancies the output capacity on the short term governs the maximum level of the sales budget. The true sales budget in turn really governs the production budget on the short term provided it is within the existing production capacity.

Before the output budget can be finalised due consideration should be given to the relative incidence of the various cost items, because this may reveal the profitability of a product, a line or a department, and may even necessitate the discontinuation of all or one of these.

(3) Material, labour and expense budgets

From the prepared production budget showing the budgeted volume of output, the cost of procuring such output is to be obtained.

This is subdivided into:

Material.

Labour.

Expenses are further subdivided into:-

Works expenses.

Administrative expenses.

Sales and distribution expenses.

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When the budget for material expenses is prepared due consideration should be given to the stocks on hand, work-in-progress and raw materials for manufacturing. The required material should be calculated as follows:

Quantity as per)
sales budget) minus (finished stocks + work-in
progress on hand)

= Items for which raw material is to be procured.

The material content of this is then computed and adjusted with the raw material in stock.

In all cases of material the budgeted stocks at the end of the period should be provided for in the above calculation.

Labour will be of a dual nature and will be budgeted for:

Fixed labour - related to time

Variable labour - calculated on the basis of budgeted output.

Expenses as shown above are of a works administrative and sales nature. These expenses are again divided into fixed and variable and it may be necessary to prepare a flexible budget for the expenses subdivided into the mentioned types:

Flexible budgets are defined by Gillespie (1952, 45) as follows:

A flexible expense budget is a tabulation of direct expenses by department for particular levels of operation. Flexible budgets are used in current standard cost systems:

(1) To compute standard service department expense rates.

(2) To compute standard producing department expense rates at the beginning of the cost period and computing standard product costs.

(3) To draft an expense budget for each foreman for any desired level of operations, for measuring spending performance.

(4) Financial cash budget

From the sales, material, labour and expense budgets it is possible to compile the financial cash budget by taking also into account:

The credit terms allowed by the suppliers.

The credit terms allowed to clients.

Urgent expenses payable regularly.

Expenses payable periodically.

(5) Capital budgets

The capital expenditure programme is to be budgeted.

(6) Profit and loss account and balance sheet

The profit and loss account and the balance sheet can now be budgeted for the period covered by the budget.

d. Standard costs versus budgets

Generally there would appear to be confusion in regard to the concept of budgeting and standards. An example of this is quoted and discussed hereunder:

Henrici (1947, 232):

The first distinction between standards

/and

and budgets is one of purpose. Budgets are statements of expected cost. At the beginning of the period for which they are prepared they are used to forecast requirements of finance, man power and other variables related to production and sales. Standards, on the other hand, do not necessarily show what costs may be expected to be but rather what they might be if certain highly desirable performances are attained. For this reason they cannot be used alone for forecasting.

A second distinction is one of emphasis. A budget emphasises cost levels that should not be exceeded. But a standard emphasises the levels to which costs should be reduced.

A third distinction is one of completeness. Budgets are customarily set for all departments in the company from sales to manufacturing. But standards are frequently set only for the manufacturing divisions and can, indeed, be confined to controllable costs in a limited number of cost centres, although this is not a recommended practice.

Furthermore, budgets customarily include both income and expense, whereas standards are more frequently set for expenses or costs only.

A fourth distinction is one of analysis and breakdown. If costs are within the budget, well and good. There is no danger signal; it is not necessary to investigate the reasons for the savings. But when actual costs differ in any marked degree from standard, the nature and cause of the variance are thoroughly investigated so that steps may be taken to reduce this amount.

Knowing why actual costs differ from standards enables us to go after economies. Knowing why it differs from budget, if it is less, merely tells us of good performances already obtained - if it is more, it tells us of a highly perilous situation.

These distinctions can be summarised by saying that a budget is a market for keeping out of trouble whereas a standard is a compass that points the way to improvement.

The differences outlined may be discussed as follows:

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The first distinction mentioned by the writer is that it is one of purpose. In this description standards are referred to as what they might be if high performances are attained. Standards may, however, be based on expected actual, expected normal and best attainable performance. If, therefore, the standards are based on expected costs they will be the same as the writer's description of budgets, and therefore the difference falls away.

If standards are based on any one of the three, a standard may not be set in such a way that it will emphasise the levels to which costs should be reduced, which is the second statement made. This second statement is therefore also invalid.

The third distinction mentioned is that standards are only partial while budgets are complete. This is not a valid distinction since it is only an assumption and does not in any event attempt to point out a difference.

It is not correct to state, as is done in the fourth distinction, that no investigation is made when figures differ from the budget - i.e. when it is a saving. Consider, for instance, the position when a clerical error has occurred.

A more useful and true definition is given

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by Scott (1958, 9):

Standard costs refer more particularly to the costs of individual orders, products or processes, and are so applied. The budget is used more as a plan and measure of efficiency of departments and of the business as a whole.

Any system of standard cost and budgetary control is not an end in itself. Its aim is to assist management in the task of organisation and conducting the affairs of the company on the most economical basis. For this reason the costing system and the budgetary control system are each developed for a specific purpose and their respective fields should be clearly demarcated in the mind of management. Misappropriation and misunderstanding of this may lead to the application of control measures on deviations where they may not only be inapplicable but may be the cause of embarrassment to personnel not responsible for such deviations. Other reasons why clear demarcation of the fields of each is essential are:

(1) Where the budgeting procedures tend to develop into the field of standard cost procedures, complexity may prohibit smooth and efficient functioning thereof.

(2) To outline clearly the responsibilities in regard to compilation and deviations in each case.

The difference between standard costs and budgets is this: With budgets the amount it is

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decided to spend is budgeted for the department, or section where such expenditure will take place, without the further subdivision of such expenses on any arbitrary basis. In the case of standard costing methods, such budgeted costs by section or department are further broken down to cost centre operations or product items as required.

Examples which illustrate the difference between budgeting procedures and standard costing are as follows:

Electricity: The total is budgeted for the department if an electricity meter is maintained. The budgeted amount is used as a yardstick for the control of the subsequent actual cost of the meter consumption. The apportionment thereof to the individual machine or operation is the function of standard costing.

Coal: The coal consumed by the boiler house can be budgeted for but the actual estimate of the value of coal allowed for in the product item cost is a standard costing procedure. Budgets and standard costing may in many instances coincide. Where, for example, in the erection of a building the cost is budgeted for, such capital expenditure and the standard cost for the building as a unit will be the same.

3. Management controls.

a. Introduction

In the early stages of the development of industry, ability to meet liabilities and over-all insolvency was probably the only tool available to management as a means of controlling the activities of the concern (Brech, 1953, 547). Whilst this might have been satisfactory in those early days, with the development of manufacturing techniques and keen competitive conditions the modern business has become so complex that the need to continually measure the effectiveness of the organisation with a view to improvement has become essential. The most satisfactory method of achieving this is to provide targets for such activities and to measure deviations therefrom with a view to forcefully eliminating those which do not contribute to over-all effectiveness.

The first essential, therefore, in order to effect management control in the manner described above is to provide management with data in which the actual progress is compared with the predetermined goal. This information should be presented to management in such a form that it can be easily understood and interpreted, remembering at all times that management control data is only a means which

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will facilitate the control of costs and is not a control in itself. By presenting such information to management a means is created whereby management will, by studying the facts, be in a better position to control costs and reduce unnecessary expenditure.

It is obvious that in order to be useful, information required for management control purposes should comply with certain purposes and characteristics. In this section these are examined and detailed, and examples of methods setting out control information are discussed. Finally, various methods of presenting information to the management are referred to briefly.

b. Purposes of management control data

The importance of useful information and the development of a sense of consciousness in regard to costs have been very well accepted in America. This is summarised by the group of European Experts Technical Assistance Mission No.50 (1952, 30) as follows:

The primary purpose of cost accounting in America appears to be to assist management to control costs, and to create or intensify an awareness of the importance of costs to the well-being of the company and, in other words, to stimulate "cost consciousness". The ascertainment of product unit cost, although by no means disregarded, is of secondary importance. This attitude is natural in a country where prices are largely set by free competition and the accepted way to increased profits is through achieving greater volume or lower cost of production.

/ Koepke

Koepke (1949, 551) expresses himself as follows on this question:

The successful management of modern industrial establishments requires the measurement and comparison of results accomplished in different periods.

Comparisons of this nature must be made by studying the records of two comparable periods and expressing the results in common terms and identical units.

It would appear that the writer places great value on the comparison of results accomplished in different periods but, although this may be useful, qualifications may have to be made regarding one or both sets for the two periods in order to bring them on an equal footing. Many factors may influence the validity of such a comparison, e.g. capital expansion programmes and major increases or decreases in output. A true and more useful comparison would be that of the predetermined cost or budget, period by period, with the actual results.

c. Characteristics of management control data:

It is essential that the costs presented to the management should be easy to understand. The mind works best when it can concentrate its energies on decision rather than on interpretation. (Henrici, 1947, 3).

In the second place such information should not be in too great detail and the reason for this is that management should be left free, as far as possible to devote more

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time to the more important problems and planning for the future. The phrase that "management should have time to think" is often of great significance.

Management operates through persons and personalities, not through mere figures, and budgetary control systems should be devised to ensure that the facts shown by the figures are interpreted into action by the persons responsible. (Scott, 1958, 7).

d. Examples of management control data

Management should be presented with a summary of the information which is of vital importance for the control of their business. A simple system of a monthly profit and loss account under a system of standard costs is as follows:

/ Table No.15:

Table No.15:
Monthly profit and loss account

	Current month Actual Rand.	Accumulative		% Actual to Budget
		Actual Rand.	Budget Rand.	
Sales A				
Cost of sales: material labour direct overhead				
Total cost of sales B				
Gross profit (A - B)				
Less: manufacturing overhead administrative overhead sales and dis- tribution				
Sub total over- head C				
Nett profit (A - B - C)				

(Personal observation)

In the above statement a comparison between the accumulative actual and the accumulative budget is shown. The main reason for this is that a month is normally too short a period to make a useful comparison between the budget and actual for the month in question, especially

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in firms where the nature of the business fluctuates from month to month.

Profit and loss statements based more on the operating side of the organisation should be supplied to management in a simple understandable form. An example of this type of statement is given by Scott (1958, 82) as follows:

Table No.16:

Profit and loss statement

Sales	£	£
Less cost of sales (at standard cost)		
Deduct variances from standard.		
(a) Variance in material price.		
(b) Variance in material usage.		
(c) Variance in wages rates.		
(d) Variance in labour efficiency.		
(e) Variance in excess costs.		
(f) Variance in volume (of activity).		
(g) Variance in works overhead.		
(h) Variance in selling and administration overhead		
Nett profit after variances £		£

This statement gives a useful summary of the various variances from the standard. The statement could, however, be improved upon somewhat by showing not only the current month but

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also the accumulative. In addition the sub-total by each major class and the total would be useful, e.g.

Total material actual.	R 550
Total material at standard.	R 500
Material price variance.	R 20
Material usage variance.	R 30

Finally, information presented to the management as representing the over-all financial and liquid position of the firm will contribute largely to the over-all planning and control. Ratios that may be useful are summarised as follows by Koepke (1949, 553):

Table No.17:

Summary of annual ratios.

What is to be measured	Unit of measurement	Standard of composition
1. Turnover of fixed capital	Dollar	Volume of business Total fixed capital
2. Effective use of factory personnel	"	Volume of business Total factory payroll
3. Turnover of inventory	"	Cost of yearly sales Average yearly inventory
4. Trend of operating results	"	Cost and expense Volume of business
5. Operating efficiency	"	Operating profits Total capital
6. Effectiveness of production planning	No.of jobs on time No.of jobs delivered	% delivery - promises kept

Although the above ratios can be regarded as useful the following should be noted:

(1) Stock turn ratio

The stock turn ratio or the turnover of inventory referred to by Koepke should be continually measured and not only once per annum as suggested above. The main reason for this is that one year is too long a period to wait before effective action is taken. Because, however, one month can be considered as a proportionately short period of time in the normal life of an organisation, the calculation of a monthly figure may, without major cause, be subject to violent fluctuations. The stock turn ratio should, therefore, be calculated on a three-monthly, six-monthly or annual moving average trend basis calculated month by month. This is illustrated in the following example:

Assume that stocks on hand and the cost of sales for the eight months January to August are as follows:

/ Table No.18:

Table No.18:

Stock on hand and cost of sales .

Month	Stocks on hand	Six month-ly total	Cost of sales	Six month-ly total	Moving aver-age ratios
	A.	B.	C.	D.	E.
January	1000		500		$B \div D$
February	1200		800		
March	1500		800		
April	2000		500		
May	1800		1000		
June	1500	9000	800	4400	2.0
July	2000	10000	500	4400	2.3
August	1800	10600	1200	4800	2.2

(Personal observation)

In the above example the stocks on hand are shown in column A and the six-monthly total in column B. The same information in respect of cost of sales is shown in columns C and D. The stocks on hand are expressed in column E ($B \div D$) as number of months stock on hand, compared with the consumption. The first figure established was 2.0 months stock on hand, the second 2.3 and the six-monthly moving average for August was 2.2.

An analysis on this basis smoothes out the month-to-month fluctuations, overcomes the long delay in calculating the annual figures

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and reflects a true trend in the investment tied up in stocks.

(2) Profitability

The daily and cumulative sales and orders received against the budget and break-even figures should be made available to management. This is of special importance where the concern operates under highly competitive conditions and the slightest shortfall calls for immediate action.

(3) Productivity

Where standards are known the actual performances can be measured and the productivity calculated and reported to management. This should also be carried out on a day-to-day basis with weekly and monthly averages and calculations.

Other similar control information for example which can be compiled and presented to management are liquidity ratios and current assets to current liabilities.

e. Graphic presentation of information to management

The simplest method of presenting data to management is merely to list such information. This, however, is never very informative except where the data in question is simple and easy to interpret. Such information can, however, be made more informative by being reduced to percentages or ratios and a further step to improve

/ the

the comprehensibility of such data is for it to be arranged in a systematic form according to magnitudes. An arrangement by size of the data to be observed is called an array and when the array is summarised so as to show the number of items of each magnitude it is referred to as a frequency distribution (Lang (1948, 1376).

The simplest form, however, in which to indicate the significance of figures is to present same in a graphical form, of which many types are in existence. Lang (1948, 1386 - 1400) mentions the following:

- (1) Arithmetic scale line graph
- (2) Semi-logarithmic scale line graph
- (3) Bar graph
- (4) Component column graph
- (5) Correlation or dot graph
- (6) Gantt charts.

Of the above-mentioned graphs the most commonly used for management control data are the arithmetic scale line graph which, as the name implies, shows the data in relation to time and readily displays any rhythm in events, and the bar graph which gives a clear comparison of sizes in regard to a given position in time.

The Gantt chart was originated by H.L. Gantt for the purpose of planning work and the subsequent comparison of the progress of the work as against that planned.

/ There

There are a great variety of such plans in use for machine loading and progression, purchasing and stock replenishment, transport control and other purposes. The correlation or dot graph is used mainly to determine the true trends of data and also to calculate deviations for the average trend. In job evaluation schemes this system is also used in order to establish the true wage earning line on which the salaries and wages of the entire organisation are planned.

f. Conclusion

Budgets and management control data should be compiled in such a way that it can serve as a basis on which corrective action can be taken. The information so produced should be simple and easy to understand and should cover the essential factors in the framework of the organisation. To facilitate and speed up the interpretation by management of such information, graphical methods are in common use.

4. Conclusion.

Cost accounting can be regarded as an important section of industrial management because not only does it form the basis of a sound guide

/to

to those responsible for the fixation of prices, but it can also be most valuable in the control of costs.

Of the systems in operation in present-day industry the most suited to these requirements is a system of standard cost accounting in which costs are predetermined and used as a guide for price fixation and also as a means of measuring the deviations of actual from standard cost in order that the necessary remedial steps may be timeously taken by those in authority.

It is, however, necessary in order to take these steps that management be properly informed and this is achieved by processing the information presented to management on an organised basis. The information so compiled is often referred to as management control statements.

SECTION C.

EXISTING METHODS.

A discussion of and comments on the
existing cost accounting and control
methods.

Introduction to section C.

The methods found in operation at the time the investigation started, i.e. in the second half of 1956, are set out and commented upon in this section. Attention is also drawn to the weaknesses in these methods and the necessity for the alteration thereof.

The management of the K.W.V. was entirely aware of the shortcomings of these methods and in order to maintain their high level of managerial effectiveness decided to have them analysed, both objectively and critically, and amended where necessary. The task of conducting this analysis and the development of the recommended methods was made measurably easier by the active co-operation and assistance not only of the management but also of the entire staff of the organisation.

In order to facilitate the discussion and comments on this phase it is sub-divided into three chapters: organisation and methods related to cost accounting and control, cost accounting and cost control. As was pointed out in the introduction to section B, a discussion on the clerical procedure analysis was incorporated under the discussion of the various headings and is not discussed separately in this section as is done under the Theory. (section B).

/ Chapter VI.

Chapter VI.Organisation and methods related
to cost accounting and control.1. Introduction.

The methods that were in existence are discussed under the headings, cost centres, ledger keeping and integration, and the organisation of the cost department.

2. Cost centres.

No provision was made in the costing system for the accumulation of costs under the respective production centres, but an attempt was made to allocate costs direct to the particular product. This matter is discussed in greater detail under ledger keeping and integration.

3. Ledger keeping and integration.

After a careful investigation of the existing manual ledger system and the cost and financial accounting integration, the following summary was made of the basic principles pertaining thereto:

/ a.

a. The studies showed (see appendix 4 - Code of accounts existing methods) that cost accounting was an integral part of the financial system in which provision was made for the detailed asset accounts, detailed liquid stocks accounts and also detailed accounts for the various overhead and direct labour charges. Separate accounts were kept for each individual building, including those in the process of construction, and in the case of liquid stocks, accounts were provided for each type, i.e. wine for maturation, moskonfyt, blended brandy, good wine sales, and spirits. In so far as labour and overhead costs were concerned, separate accounts were maintained for each head of allocation, such as electricity, insurance rates and taxes and consumable material and to these accounts were posted a proportion of the respective costs as and when they were incurred.

b. In order to maintain these various accounts within the nominal ledger it was necessary to apportion each amount individually to the various accounts concerned, e.g. when a payment was made for the salary of the chief engineer, it was allocated immediately, on an arbitrary basis, to the various depot administrative accounts. In other instances, namely, electricity, insurances, etc., the charging of amounts to the various accounts

/was

was also on an arbitrary basis. The peculiar characteristic of this method was that all the accounts were kept under the allocation head in the nominal ledger but no attempt was made to maintain records of the total amounts paid in respect of such items. For example, in the case of the electric light and power account, no total of the actual expenditure was available because the monthly totals had been apportioned to various accounts, i.e. perfume manufacturing, head office administrative charges, depot administration, boiler house, bottling department, etc. In order therefore, to arrive at the total amount paid for this service, it was necessary to ascertain which accounts had been debited with a portion thereof and the respective amounts. This procedure involved a detailed analysis of the various accounts and in certain cases was complicated by the fact that expenses were first charged to accounts in respect of servicing departments and, thereafter, re-allocated in bulk to manufacturing department accounts. The charges for electricity to the boiler house account illustrates this point, as such charges were debited in the first instance to a servicing account and were subsequently re-allocated, together with expenditure incurred on coal and wages, to the production departments served. It will be seen therefore

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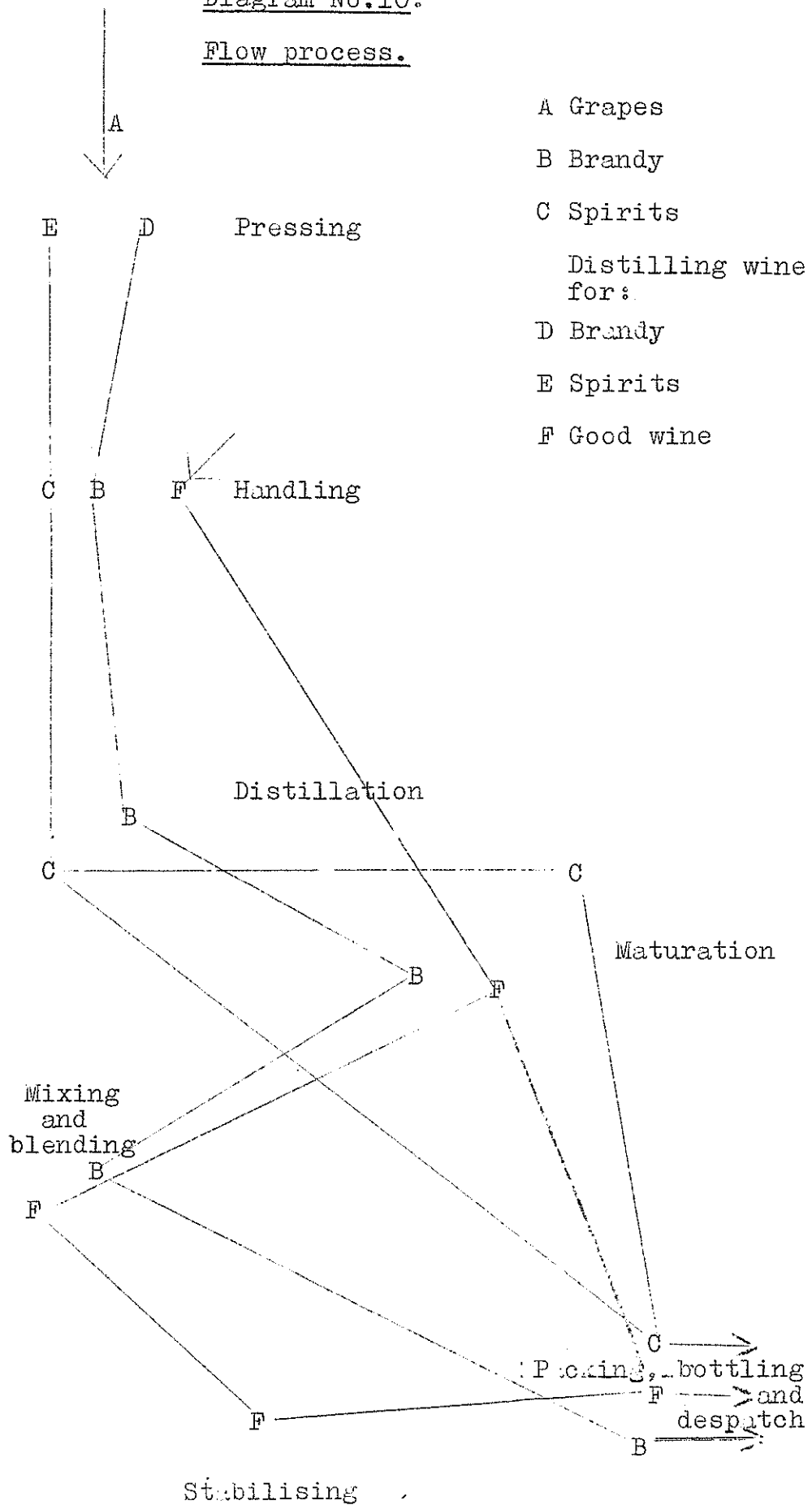
that the system was not a truly integrated one, but could more correctly be described as a costing system within the financial accounts. This was confirmed by the considerable difficulty which was experienced on numerous occasions when endeavouring to isolate amounts actually paid from the apportioned or allocated costs.

c. The basis on which expenditure was apportioned was that all expenses, as and when incurred, were charged direct to the product. The object in mind was to arrive at the actual cost of processing a group of products as well as that of each individual item within the group and also to determine the annual profit per product. The activities of the organisation, however, were of such a nature that the allocation of costs direct to a product was extremely difficult and, to illustrate this, diagram No.10 reflecting - in broad outline - the flow of the major products through the various processes is appended.

/ Diagram No.10:

Diagram No. 10:

Flow process.



(Personal observation).

On the diagram are shown some of the basic processes, namely, pressing, handling, distillation, mixing and blending, maturation, stabilisation, bottling, packing and despatch. The major products which pass through these manufacturing processes are grapes, spirits, distilling wine, good wine and brandy. The lines indicate the order and manufacturing processes through which the various product groups pass.

In an endeavour to ascertain the group product cost, an attempt was made to apportion all expenses incurred in connection with the processing by direct allocation of such costs to the products. To have achieved this, it would have been necessary for the cost of distilling to have been allocated direct to items such as rebate brandy and spirits, as these form the major product groups distilled and, similarly, in the case of maturation, the costs thereof would have to be apportioned to good wine, spirits and brandy.

The correct allocation of such costs, however, could not be done with any degree of accuracy because the distillation of brandy and spirits is carried out simultaneously by different machines, usually accommodated in the same building and normally under the supervision of the same staff, and, therefore, the actual time spent by the staff on each of these processes could not be accurately ascertained and the allocation of such time resulted in nothing more than a mere guess.

/In view

In view of the above, it follows that if it was virtually impossible to allocate costs accurately to the various product groups on an actual cost basis, the determination of the actual costs of product items could not be achieved under the existing methods

In the case of the bottling of good wine, brandy and other products, direct allocation of costs was equally difficult because the same labour was used for the bottling of the various products and the speed at which this phase of the work was undertaken was, in many instances, influenced by the amount of work on hand.

As previously pointed out, the methods of ledger-keeping and integration were carried out in such a way that the system was within the financial accounts. This system not only had the effect of obscuring information required by management for control purposes but it also failed to provide a costing system which could supply the actual cost data required. One of the main reasons for the actual cost data produced being of little significance was that too many product groups were handled to make possible the determination of actual unit costs for each product group.

4. Organisation of the cost department.

Because the costing and the accounting records were not only integrated but the apportionment
/of costs

of costs was also carried out within the financial accounts, no separate cost department was in existence at the time the investigation was undertaken. The chief accountant who was in charge of the entire section was assisted by the assistant accountant who, in turn, had thirteen individual sectional departmental heads who were directly responsible to him and the nature of their activities was such that they embraced the field of costing and financial records. Briefly, the duties and responsibilities of the thirteen subsections were as follows:

a. Nominal ledger section

This section was mainly responsible for the financial accounts in which were incorporated the cost accounts and covered also the financial duties and records appertaining to insurance, salary cheques, the allocation of salaries, leave records and investments.

Although the duties which were undertaken in this section were mostly of a financial nature, the extent to which cost apportionment took place could not be overlooked.

b. Account sales division

The main duties in this subsection were connected with the accounting work related to the deliveries of the crop by the farmers. These included the preparation of the account sales which was a document prepared as a basis for the payment to the farmer and the maintenance of membership lists.

/This

This section could be regarded as purely financial as no cost apportionment was carried out nor were any cost records maintained therein.

c. Invoices - merchants quotas

The work entailed in this section covered distilling wine and rebate brandy allocations, local trade orders, invoices and pool committee work and could therefore be considered as being entirely of a financial nature.

d. Merchants section

The great variety of work undertaken in this section could be summarised as good wine debit notes, account sales, interest, distilling wine debit notes, merchants ledgers, payment vouchers for farmers, fustage records and the valuation of liquid stocks.

The records and accounts maintained for the merchants and farmers could be considered as being entirely of a financial nature but the valuation of the liquid stocks and the maintenance of fustage records fell more correctly within the duties of the costing personnel because they were tied up with the method of stores and material evaluation, work-in-progress and stock control.

e. Sundry creditors section

All records related to the payment of creditors (excluding farmers) and the allocation of purchases for maintenance and packing stocks, and other sundry requirements were maintained in this

/section.

section. The duties were of a dual nature, i.e. the payment of the amount due being financial, whilst the allocation of the cost thereof to the appropriate expense or cost allocation head would apply to costing.

f. Farmers section

This covered all duties related to payments to farmers, i.e. income tax statements, bonus calculations and ledger accounts. No cost apportionment nor summaries in connection therewith were undertaken in this section.

g. Machine room

Keyboard machines were in use and a number of sections were mechanised, e.g. farmers ledgers, farmers liquor accounts, perfume accounts and wages (Paarl depot only).

h. Cashiers section.

Receipting of cash, bank deposits and cash books as well as financial statistics were carried out in this section.

i. Sundry debtors and perfumes

In this section, in addition to maintaining the debtors ledger, perfume orders and perfume stock records were taken care of. Other activities undertaken in this section included salary deductions, directors fees and expenses.

/j. Wages

j. Wages allocation section

In addition to the allocation of salaries and wages, this section was also responsible for the control of wages payments. This necessitated the study and performance of industrial legislation accounting work.

k. General relief

Relieving staff for all administrative sections were included under this head.

The above organisational set up is illustrated pictorially on the attached chart.

This pictorial illustration of the personnel organisation reveals that 13 subsections were all directly responsible to the assistant accountant. The co-ordination of the activities of thirteen independent separate little sections could be considered as too widespread for one senior officer to control effectively, and he could not be expected to be fully aware of the detailed activities in each of the subsections in order to solve expeditiously problems which arose.

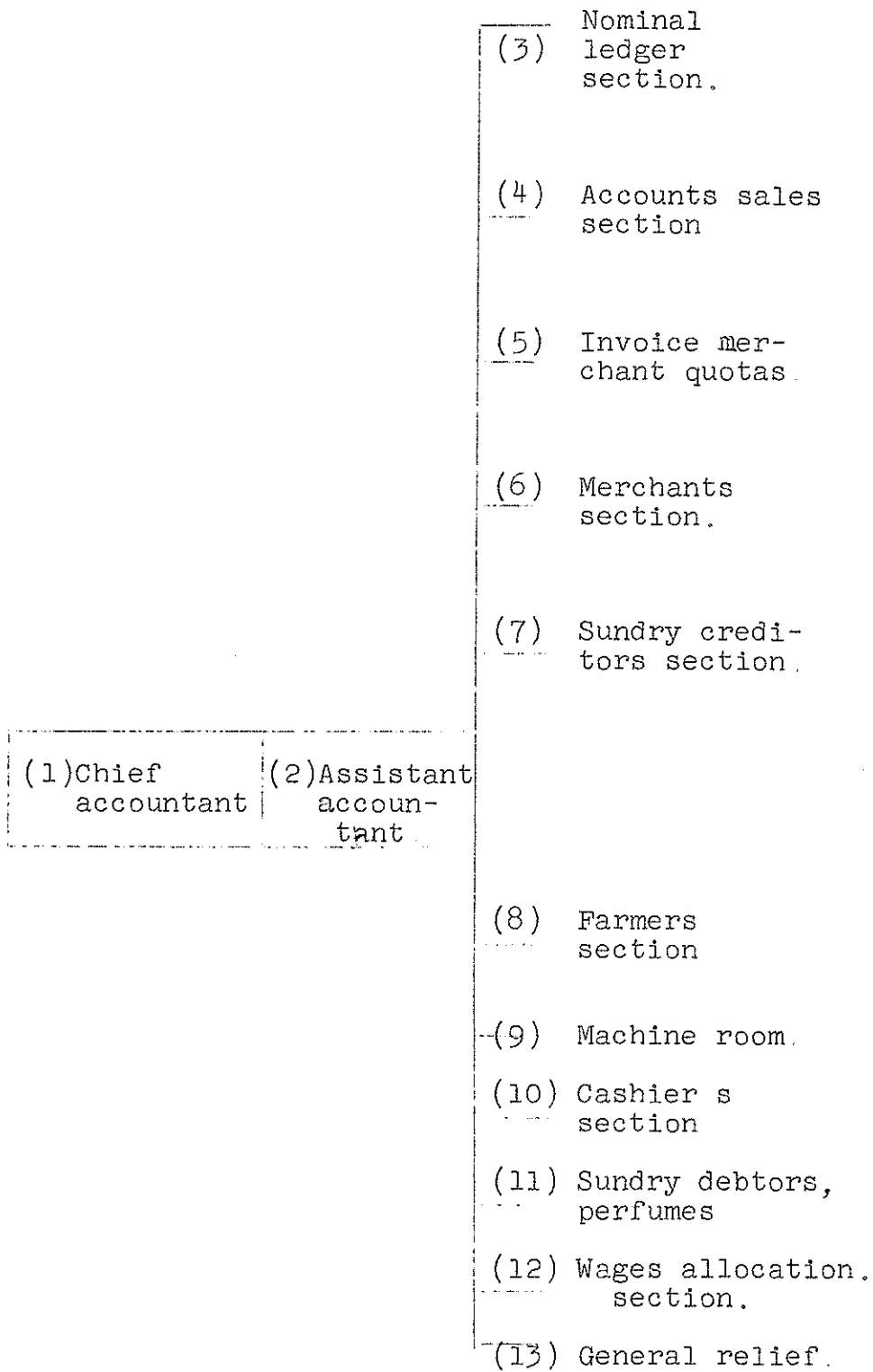
A further weakness in this particular set-up was the combination of duties of too widespread a nature, e.g. the supervision of wages payments and at the same time the responsibility for the apportionment of the costs. These two important factors made it essential that the line construction of the accounts and costing departments be re-framed in order to ensure that effective supervision and control could be exercised and that departmental duties were in line with the activities normally undertaken within the appropriate department.

/ Diagram No.11

Diagram No 11Organisational Chart.

Accounts department 22/10/56

Showing functional divisions.



(Taken from KWV records)

/ 5. Conclusion.

5. Conclusion.

The investigation revealed that the cost accounting was carried out within the financial accounts and this not only obscured the usefulness of the financial information but developed too complex a system of cost and financial accounting.

The cost accounting was based entirely on an annual basis and the information in regard to product unit costs, profits, etc., only became available about four months after the end of the financial year, and therefore, because of this long delay, it was of little use from the point of view of the control of activities.

Because of the considerable amount of detail and clerical work necessitated by the method of actual costing, coupled with the late availability of the information, it was decided to discard the existing system and to investigate the possibility of arriving at more equitable methods and to reorganise the cost and accounting departments.

/Chapter VII

Chapter VII.Cost Accounting.1. Introduction.

The cost accounting method in operation at the time the investigation was undertaken is described and commented on in this section under the headings, cost systems, material costs, labour costs, overhead costs and product unit costs.

2. Cost systems.

The costing system adopted was based on the principles and theory of actual costing methods and was designed in an attempt to determine the following:

- a. The actual cost of processing a particular group of products.
- b. The annual unit-cost of each product within the particular group.
- c. The determination of the annual profit per product.

A basic approach such as this to cost accounting could not succeed in this instance because of the fact that as they were governed by the large number of products manufactured, a tremendous number of detailed cost allocations were required in order to arrive at such factors.

/ 3. Material

3. Material costs.

a. Introduction

The method used for the costing of material is discussed under the following headings:

Classification of material

Liquid Stocks.

Maintenance Stocks.

b. Classification of material

The material used can be classified under four major heads, namely: Manufacturing material, maintenance material, packing material and other material.

(1) Manufacturing material

The material classified under this head is comprised of liquid stocks and other manufacturing material. Liquid stocks are the raw materials used in the distillation of brandy and spirits and for the manufacturing of good wine and related products. Other manufacturing material includes chemicals used in the process of producing wine, brandy, spirits, etc. The chemicals, however, are housed in the maintenance storeroom and will, therefore, be covered in the discussion on maintenance stores.

(2) Maintenance Material

All general and miscellaneous material used for the maintenance of machinery, plant, buildings and other equipment, and for the capital
/construction

construction of new assets falls into this category.

(3) Packing material

This material comprises bottles and the packing material used in the bottling department. These items are housed in the stores department, together with the maintenance material and are, therefore, discussed under that section.

(4) Other material

In this section are placed fuel and miscellaneous material. Both these items are controlled through the maintenance stores department, and are therefore discussed under that section.

From the above it is clear that the major items of material could be classified under two main heads, namely, liquid stocks and maintenance stocks. Therefore further discussion on this subject is carried out under these two main heads.

c. Liquid stocks

(1) Introduction

The classification of liquid stocks under raw material, work in progress and finished products is extremely difficult because at any one stage of processing the liquid could fall into one or all three of these categories, because immediately the grapes are pressed the liquid

/ flows

flows into containers and the use to which such liquid is to be put determines whether it is to be regarded as raw material, work in progress, or a finished product. If, for instance, the liquid is to be used for distillation into spirit or brandy, it would be considered as raw material and at the same time could be regarded as work in progress. The liquid at this stage could also be disposed of as a consumable item, in which case it would be a finished product.

(2) Standards, quantity and quality

In the establishing of recipes for the manufacture of wine much progress had been achieved by the wine experts but, although this information was available, no attempt had been made to utilise it for the purpose of material cost control and the measurement of the effectiveness to which material had been used and maturation expectations achieved.

(3) Replenishment

The replenishment of distilling wine is very much beyond the control of the organisation and depends entirely on the size of the crop and the percentage thereof that will be delivered to the K.W.V. as, in terms of constitutory law (see chapter II (2)) the organisation is compelled to accept whatever distilling wine is offered by the producers. In the case of good wine, however, replenishment was tied up with expected sales requirements, a matter which was, in the absence of a long-term sales programme,

/and

and budgets, extremely difficult. In actual fact the requirements of the wine could have been largely ascertained well in advance, if a long-term sales plan had been in existence. This factor is of particular importance because the farmer has to be encouraged a long time in advance to grow grapes required for wine for future sales. In the absence of a sales forecast, replenishment could not be carried out efficiently and, therefore, one of the first factors encouraged was the development of sales budgeting on a basis which would enable the production departments to predetermine their requirements.

(4) Prices

Distilling wine and grapes delivered to the K.W.V. as surplus for processing and subsequent disposal are received free of charge, and therefore the cost of such products is nil. For good wine, the prices used for costing purposes were the approximate average prices paid and as little variation occurred in these from year to year the method used was considered satisfactory.

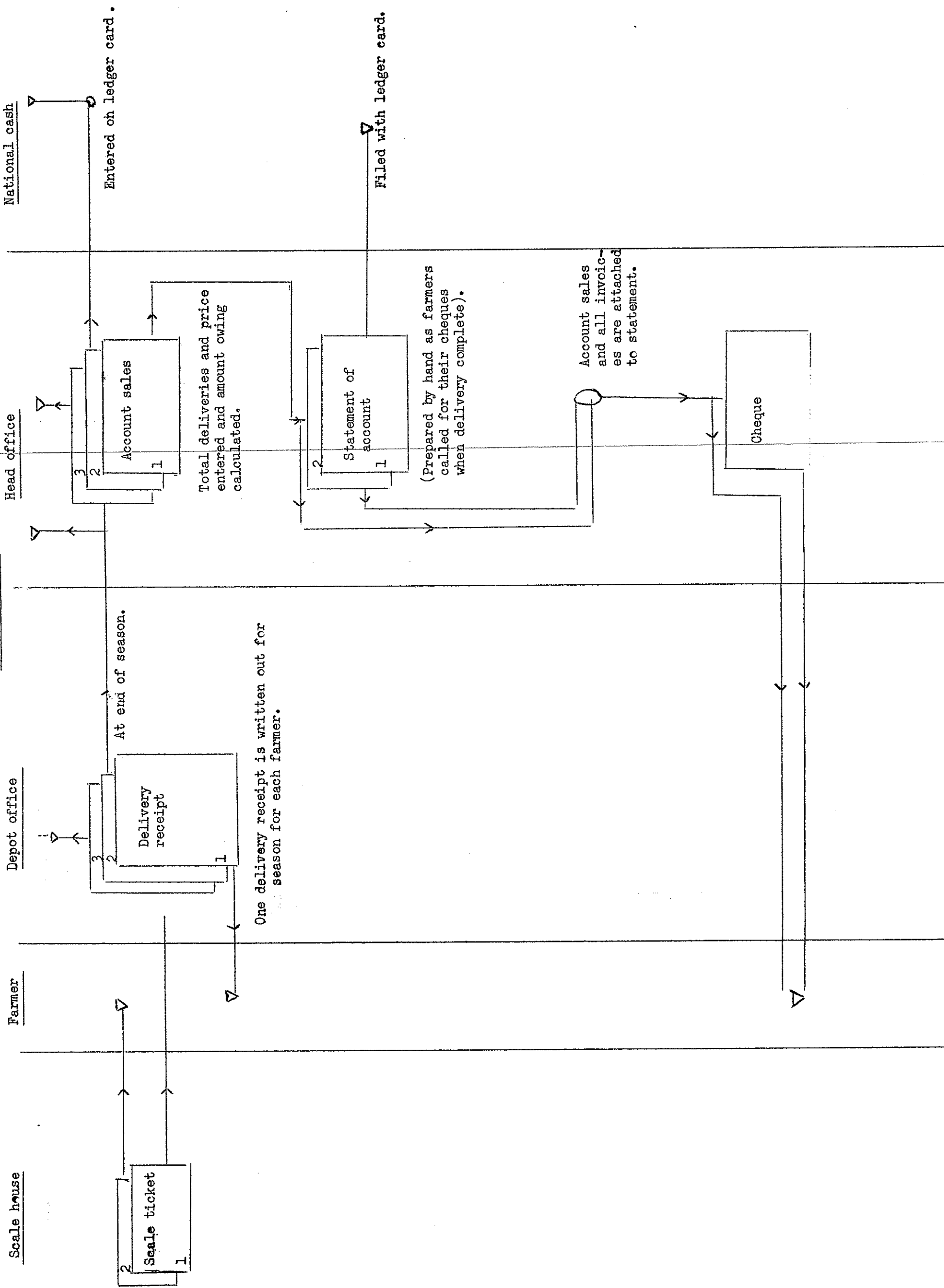
(5) Documentation

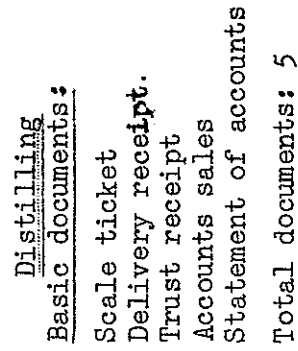
The documentation and subsequent accounting procedures followed in connection with the receiving of grapes and distilling wine are pictorially presented on diagrams Nos 12 and 13 respectively

/diagram

Documentation : Grape receiving

Existing system





The flow of the documentation and the clerical procedures connected therewith, as illustrated in the diagrams, were briefly as follows: For grapes received for pressing, each lorry load delivered was weighed at the scale house where a scale ticket was prepared, in duplicate, the original of which was forwarded to the depot office and the copy handed to the farmer. One delivery receipt per season was compiled, in triplicate, progressively, in the depot office, for each farmer, by transcribing thereon from the scale tickets, as and when received, the quantity recorded thereon. On completion of the deliveries for the season the total weight received was determined and entered on the delivery receipt. The original of this document was given to the farmer. Copy no 2 was filed in the depot office and copy no 1 was submitted to the head office where the total weight of the deliveries, together with the price to be paid, were recorded on the account sales, on which the amount due to the farmer, after being calculated, was also entered. The total of the account sales was entered in the ledger account and a statement of account was then prepared in duplicate, the original of which was filed with the ledger card and the copy together with all invoices and cheque, were submitted to the farmer.

The documentation and clerical procedures in connection with the receiving of distilling wine

/ were

were very much the same as those for the receiving of grapes, except that a daily delivery receipt for each farmer, on which the deliveries for each day were summarised, was handed to the farmer and an additional document, namely "the trust receipt", was introduced. One trust receipt per season was compiled in triplicate in the depot office for each farmer and on this form was entered, from the daily delivery receipt, the total quantity delivered. When deliveries for the season were completed the total quantity received was determined and entered on the trust receipt. The original of this form, together with a copy of each daily delivery receipt, was then submitted to head office for payment purposes and from here on, broadly, the same procedure as for the receiving of grapes, in regard to the account sales, ledger account and statement of account, etc., was followed.

The main criticism of the above procedures was that information was being copied from one document to another which meant a duplication of work with the possibility of errors in transcription and unnecessary clerical effort.

(6) Organisation of liquid stocks department

The investigations carried out in connection with this phase of the organisation showed that inadequate stock records were maintained. At some of the outside depots, for instance, it was found that no records were kept of rebate brandy and maturation,

/ which

which meant that for such information the organisation was entirely dependent on the records of the excise department. The efficiency of stock control was also considerably reduced, as the responsibility for stock control was not specifically determined and no clear demarcation of responsibility existed. Where stock records were maintained it was not always clear whether the officials responsible for them were under the control of the production or the accounts department.

(7) Conclusion

The study of the activities in this section revealed that much improvement could be achieved by way of introducing effective cost control in order to measure the effectiveness of the maturation and manufacturing processes. Replenishment should be tied up with sales forecasts and the duplication in regard to documentation and clerical procedures should be eliminated.

It was quite obvious that the organisation of the cost department could be improved and that there was a clear need for the introduction of a proper system of cost and material control and also for the streamlining of clerical procedures and documentation.

d. Maintenance stores

(1) Introduction.

/The

The items which are discussed under this section include bottles, packing material and fuel. During the financial year 1955 the entire maintenance and sundry stores reflected the following account:

Table No 19.

Stock account.

Descriptions.	Value.
Stock on hand at beginning ..	£ 93,300.
Purchases at cost	181,700.
Subtotal	275,000.
Issues and sales at cost ...	166,150.
Stock on hand at end	£108,850.

(taken from KWV records)

The average stock on hand therefore was:

$$\begin{array}{r} \frac{93,300}{£} + \frac{108,850}{2} \\ = £101,075. \end{array}$$

With the issues at cost amounting to £166,150 the stock turn ratio was:

$$\begin{array}{r} \frac{166,150}{£101,075} \\ = 1.63 \end{array}$$

and the number of months stock on hand, as compared with the issues, was:

$$\begin{array}{r} \frac{101,075}{166,150} \times 12 \\ = 7.3 \text{ months} \end{array}$$

A stock figure equivalent to 7.3 months of issues may be considered as high and control therefore was
/desirable

desirable.

(2) Prices

A method of average pricing was maintained and the issues were charged out at the latest available average price. Attention is drawn to the fact, however, that this system is subject to the same inaccuracies as pointed out under the theory (section B).

(3) Documentation and methods

The basic procedures in the maintenance stores were as follows:

- Replenishment
- Receiving
- Issuing
- Stores records

The documentation is discussed under each of these sections:

(a) Replenishment

Replenishment falls mainly into two categories:

- Bulk replenishment.

- Interim replenishment.

The requirements for bulk replenishment were estimated on a twelve months stock basis and supplies were either imported or purchased locally.

For interim replenishment of items for which supplies could be obtained locally, without undue delay, the buying department invited quotations and awarded a contract to the tenderer who quoted the most favourable price. This department then

/prepared

prepared a buying order in triplicate, the original of which was forwarded to the supplier, copy no 1 was sent to the stores department for reference purposes when the material was subsequently received and copy no 2 was filed for record purposes

The initiation of replenishment was largely in the hands of the storeman with no predetermined minimum or maximum stock levels and no budgets were in existence for the replenishment of material required for capital extensions of plant.

(b) Receiving

On receipt of the material, reference was made to the copy of the purchase order and the stores department then made out a goods received note, on which was indicated the name and address of the supplier, the order number and particulars of the material received. In addition to the goods received note a daily record of goods received was compiled and on this was listed, for reference purposes, in sequence of receipt of a daily basis, the particulars of the goods received.

Obvious duplication of information on documentation took place in this instance as the same information appeared on three different documents, viz. the purchase order, the goods received note and the record of goods received.

(c) Issuing

Material was issued on the presentation of

/a signed

a signed requisition properly allocated to the head of charge concerned. This procedure appeared to be entirely satisfactory.

(d) Stores records.

A bin card system was in operation on which the receipts, issues and balances were noted. These cards were located in the store and the entries were made from the receiving and issuing documents by the stores personnel. No prices nor other financial information appeared on these bin cards.

A second set of stock cards on which was shown the same information as that recorded on the bin cards but in addition reflecting financial information, was maintained in the office. These stock record cards reflected:

Date of receipt or issue
Quantity received or issued
Balance in units on hand
Value of receipt or issue
Balance in value on hand

Here again duplication of information on documentation was obvious and because two separate sets of records were maintained, reconciliation which, if such duplication had not existed would not have been necessary, had to be carried out to ensure that the two sets of records corresponded.

(4) Conclusion

The investigation in this section revealed the following shortcomings:

(a) The investment in maintenance stocks was too high.

/b

(b) The method of average pricing used was unsatisfactory.

(c) The replenishment of stocks should not be under the entire control of the storeman and due consideration should be given to the introduction of predetermined stock levels and budgeting for material requirements.

(d) Duplication of documents which should be eliminated.

A method of proper maintenance material cost control was highly desirable because it would contribute to the control of costs and would tend to eliminate the possibility of plant being idle because of shortage of maintenance material.

4. Labour costs.

a . Introduction

The methods of labour costing which were in operation when the investigation was carried out are described and commented on in this section under the following headings:

- Classification of labour.
- Fixing labour time standards.
- Labour rates.
- Documentation, allocation and payroll methods.

b. Classification of labour

For costing purposes the labour was basically sub-divided into two classes: Firstly, that in

/respect

respect of the wages of wine cellar foremen, permanent staff and boiler house labour, etc., which could be regarded as fixed costs and was a very important cost factor because such wages formed 90% of the total labour bill. Labour costs placed in the second category were the wages of casual staff which varied according to demand. Such costs formed only a small portion, i.e. 10% of the total labour bill, but nevertheless its importance could not be overlooked because such labour might have performed a fruitful service from a control point of view such as the filling and loading of casks for export or local sales.

Pressing labour, employed temporarily for the season was also regarded as falling into this class, but here it must be mentioned that a large percentage of such labour could be regarded as fixed because provision had to be made for an establishment which was capable at least of handling any reasonable quantity of grapes delivered at any one time. On the other hand, however, to have provided a staff complement capable of handling maximum capacity at all times would have been costly and was, therefore avoided.

A further classification of both fixed and variable labour was into production labour, which could be either direct or indirect and maintenance labour.

Since the activities of this organisation

/were

were largely of a seasonable nature, efforts were made to employ only a skeleton labour force for the maintenance work and to supplement it during off-season periods with production personnel whose services could not have been utilised during such periods for any other purpose.

c. Fixing labour time standards

No attempt was made to determine a staff establishment based on labour standards in relation to output, but such establishments were fixed largely at the discretion of departmental heads. This might prove satisfactory in some instances but in all such cases the possibility of over-estimating staff requirements cannot be lost sight of.

d. Labour rates

The labour time booked to the allocation head was evaluated at the individual rate of the employee concerned.

A summary was made of the labour rates in existence and is diagrammatically set out on the accompanying schedule.

/ Table No.20:

Table No.20:

Labour rates analysis (coloureds and natives)

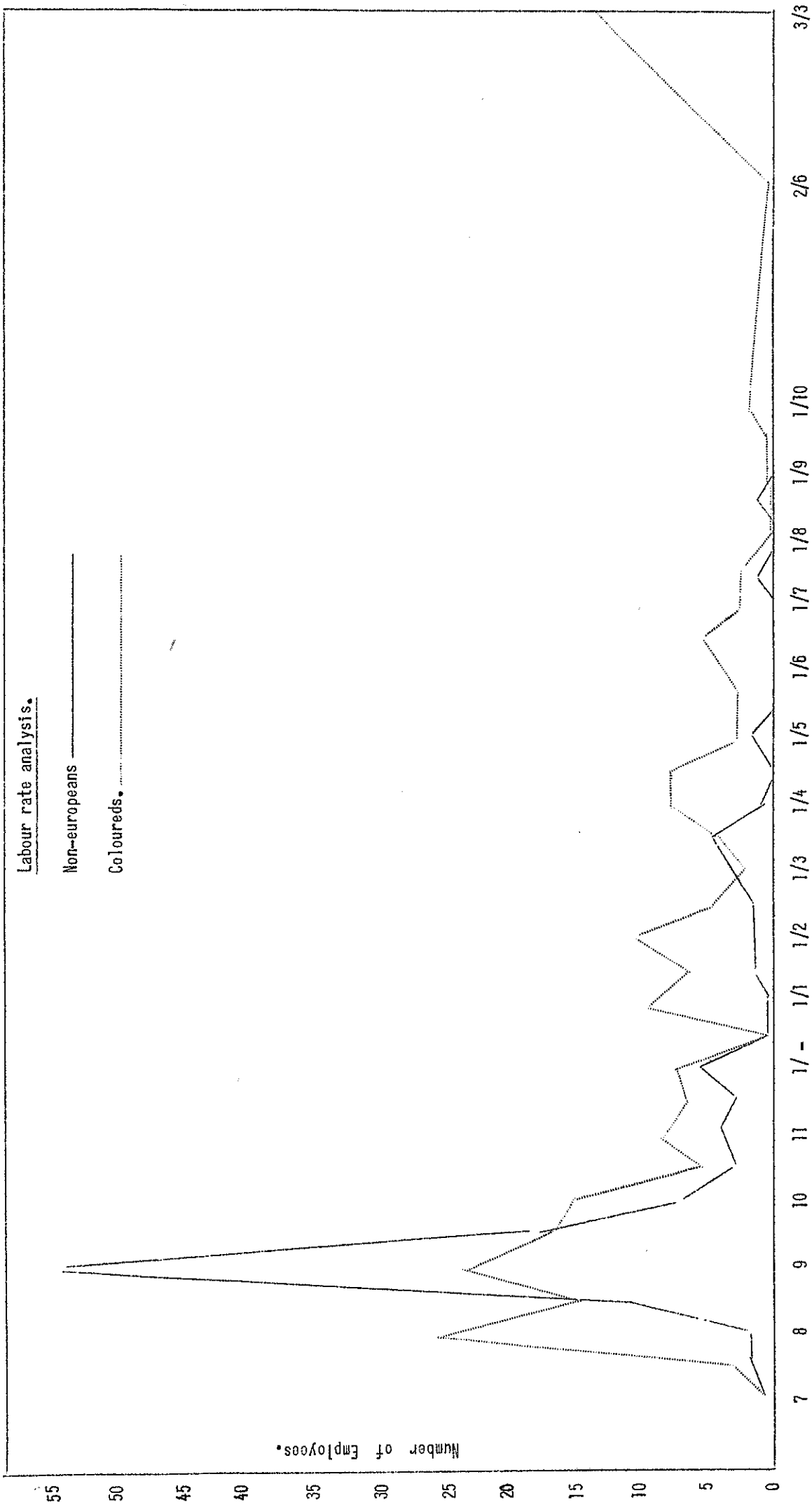
Rate	Number of employees											
	Paarl		Worcester		Robertson		Stellenbosch		Montagu		Total	
	C	N	C	N	C	N	C	N	C	N	C	N
3/3	11						2				13	
2/6							1				1	
1/10	1						1				2	
1/9½			1								1	
1/9	1	1									1	1
1/8½	1										1	
1/7½	2	1			1						3	1
1/7			2				1				3	
1/6½	5				1						6	
1/6	3				1						4	
1/5½	3										3	
1/5	3	1						1			3	2
1/4½	7						1				8	
1/4	3	1			2		3				8	1
1/3½	4	5									4	5
1/3	1	1			2			2			3	3
1/2½	1	1	1		3			1			5	2
1/2	3	1	1	1	3		1		3		11	2
1/1½	2			1	5			1			7	2
1/1	4	1	1		1		2		2		10	1
1/0½		1			1						1	1
1/-	6	1			1	5			1		8	6
11½	4				3			3			7	3
11	6	1		1	1	1		1	2		9	4
10½	5				1			3			6	3
10	15	4						3	1		16	7
9½	13	10	1	6	2		1	2			17	18
9	21	30		7	1		1	17	1		24	54
8½	12	1			2			11			14	12
8	20		1		5	2					26	2
7½	1				2	2					3	2
7					1	1					1	1
	158	61	8	16	39	11	14	45	10		229	133

C: Coloureds
N: Natives

(Taken from K.W.V. records)

Labour rate analysis.

Non-europeans —————
 Coloureds.



Labour Rates in shillings and pence, per hour.

Table No.21:

Labour rates analysis (europeans)

Rates per month	Paarl	Worces- ter	Robert- son	Stellen- bosch	Montagu	Total
£137.10.-.		1				1
£117.10.-.	1					1
£100. 0.0.			1			1
£ 95.16.8.					1	1
£ 91.13.4.	1					1
£ 87.10.0.				1		1
£ 85. 0.0.		1		1		2
£ 83. 6.8.	1					1
£ 81.13.4.	1					1
£ 80. 0.0.	1					1
£ 78. 6.8.	1					1
£ 76.13.4.	1					1
£ 75. 0.0.	1	1	1			3
£ 70. 0.0.	1					1
£ 69. 3.4.	1					1
£ 67.10.0.	2	1				3
£ 66.13.4.	1					1
£ 65. 0.0.			2		1	3
£ 63. 6.8.	2					2
£ 62.10.0.	1					1
£ 61.13.4.				1		1
£ 60. 0.0.	1	1	1	1		4
£ 58. 6.8.	2					2
£ 57.10.0.	2	1	1			4
£ 56.13.4.				2		2
£ 55. 0.0.	4	2	1			7
£ 54. 3.4.					1	1
£ 52.10.0.	1	2		1		4
£ 50. 0.0.	5	3	1			9
£ 49. 3.4.	1					1
£ 47.10.0.	4	2	4	1		11
£ 45. 0.0.	4	3	6	3	3	19
£ 44. 3.4.	2					2
£ 42.10.0.	2			5	2	9
£ 40.16.8.				1	1	2
£ 40. 0.0.	7	5	1			13
£ 37.10.0.	2	1	1	1		5
£ 35.10.0.	1	1	3		1	6
£ 34. 3.4.	1					1
£ 33. 6.8.	1					1
£ 32.10.0.	4	1	2		1	8
£ 30. 0.0.	1		1	1	1	4
£ 28. 6.8.	1					1
£ 27.10.0.	2		3			5
£ 25.16.8.	1					1
£ 25. 0.0.	7	1				8
£ 23. 6.8.	1					1
£ 22.10.0.	1		1			2
£ 20. 0.0.			2			2
£ 15.10.0.	3					3
£ 14.17.8.	1					1
£ 14. 0.0.	6		2	1	1	10
£ 13. 8.4.	1	1				2
£ 12. 0.0.	1					1
	86	28	31	23	13	181

From Table no 21 the following summary can be made:

Table no 22.

Labour rates summary (european).

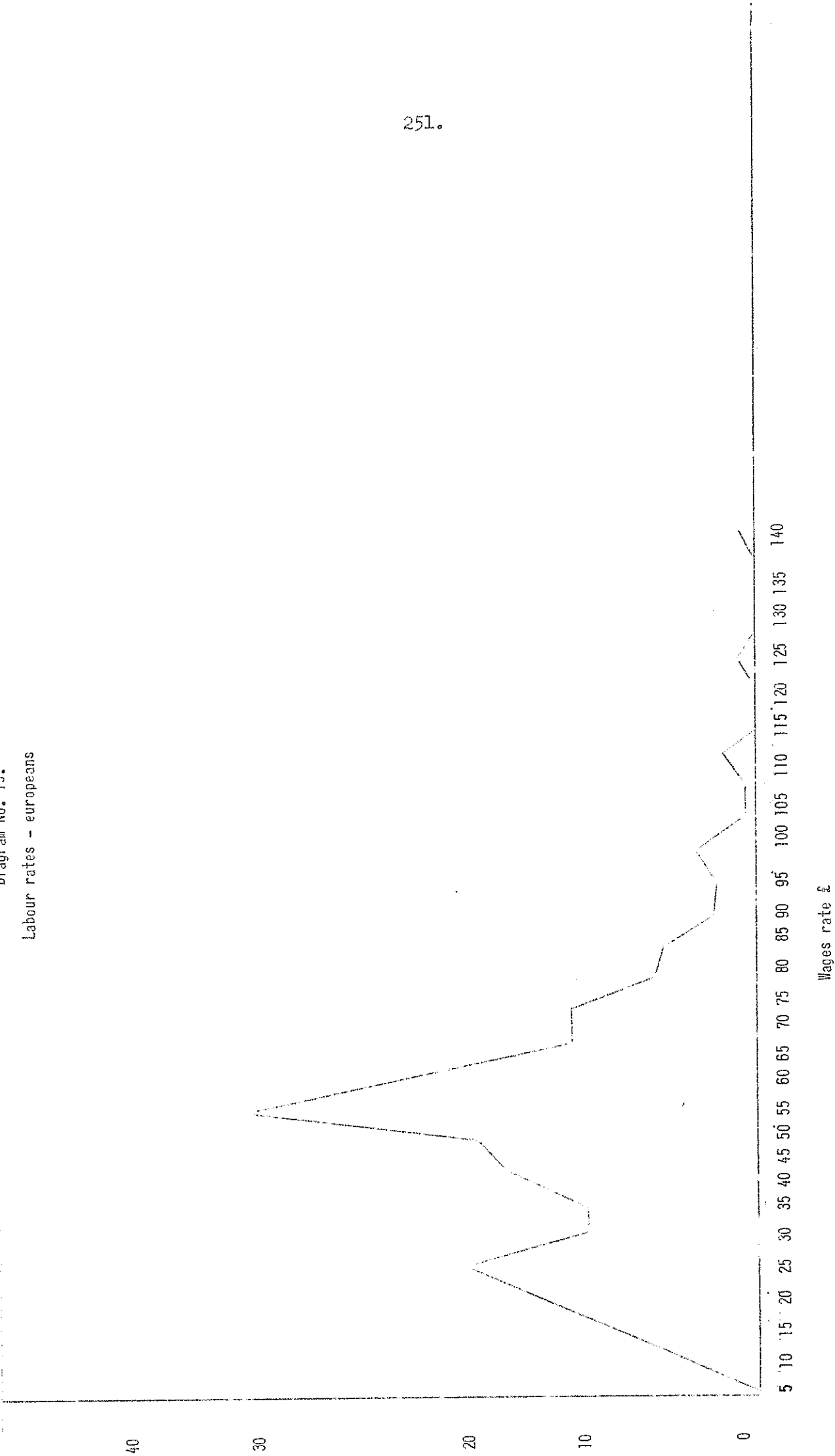
Range of Salary scale			Number of employees
0	-	£ 20	19
£20	-	£ 25	11
£25	-	£ 30	11
£30	-	£ 35	16
£35	-	£ 40	18
£40	-	£ 45	32
£45	-	£ 50	21
£50	-	£ 55	12
£55	-	£ 60	12
£60	-	£ 65	7
£65	-	£ 70	6
£70	-	£ 75	3
£75	-	£ 80	3
£80	-	£ 85	4
£85	-	£ 90	1
£90	-	£ 95	1
£95	-	£100	2
£100	-		2
			181

(Personal observation from table 21)

This summary can be illustrated pictorially as

/diagram no 15

Diagram NO. 13.
Labour rates - europeans



In table No.20 is shown the labour rate analysis for coloureds and natives separately by depot and in total and this is graphically represented in diagram no 14.

In tables nos 21 and 22 and diagram no 15 similar information is reflected in respect of european employees.

A summary of the information shown in table No.20 is as follows:

Table No 23:
Labour rates per hour.

Labour rates	Total number			
	Natives		Coloureds	
	No.	%	No.	%
Up to and including $8\frac{1}{2}$ d	17	13%	44	19%
9d to $10\frac{1}{2}$ d	82	62%	63	28%
11d to $1/0\frac{1}{2}$ d	14	10%	25	11%
1/1d to $1/2\frac{1}{2}$ d	7	5%	33	14%
1/3d to $1/4\frac{1}{2}$ d	9	8%	23	10%
1/5d to $1/6\frac{1}{2}$ d	2	2%	16	7%
1/7d to $1/8\frac{1}{2}$ d	1	-	7	3%
Above $1/8\frac{1}{2}$ d	1	-	18	8%
	133	100%	229	100%

(summarised from table no 20)

From the summary of the native and coloured labour rates it will be seen that 62% of the natives
/fall

fall within the rates of 9d. to $10\frac{1}{2}$ d. and that for the coloureds, although more scattered, the concentration is within the scales up to $1\frac{1}{4}$ d.

In so far as the european employees are concerned, it will be seen from diagram No.15 that the concentration is up to £55 per month.

e. Documentation allocation and payroll methods

(1) Introduction

The methods found to be in existence at the time of the investigation are discussed under the headings of labour allocations and payroll methods.

(2) Labour allocation

A time sheet on a weekly and monthly basis was used by all depots and the depot manager was responsible for the compilation of the form and for its submission to the wages allocation section.

A specimen of the form in question is shown in appendix 6.

This form provided for the names of all employees at a particular depot and also for the allocation head being entered in the columns provided. The hours worked by any employee were then entered opposite the respective name under the appropriate allocation head and at the weekend the totals were obtained and added both by employee and by allocation head.

/ These

These sheets were then forwarded to the wages allocation clerk, who in turn evaluated the hours, entered the money in the space provided and then summarised and entered the total cost per allocation head. These summaries were then posted to a wages journal and the grand total per allocation head was obtained.

Under this method the time of every individual employee was allocated each week although, from week to week, a large number of employees very seldom changed from their normal duties. An example of this is the cellar personnel who worked in the same section practically the whole year.

The main idea underlying this method of allocation was to obtain a summary of the entire staff on one document but, whilst achieving this, it meant that the booking of the time of the individual was left largely to the discretion of the depot manager.

This system was, however, very well and thoroughly executed by the wages allocation section and was also in sufficient detail to serve as a basis for the initial labour budgeting for the organisation.

(3) Payroll methods

A complete analysis of the various pay rates applicable is shown and it is doubtful whether such a large variety is necessary for financial purposes. The scale of $\frac{1}{2}$ d increments may not only complicate the wages calculations and payroll, but does not serve as a strong incentive in so far as increments

/are

are concerned, as the $\frac{1}{2}d$ is only 1/14th or 7% of the lowest basic rate, namely, 7d. and very much lower than this for the all inclusive wage, i.e. basic plus cost of living allowance. It is, however, appreciated that this basis was decided upon after very careful and thorough consideration of all possible factors.

The wages payroll methods in use were:

The use of clock cards was common for the clocking on and off duty of the Staff to all depots, but thereafter the procedures at Paarl differed from those followed at the other depots.

At Paarl the wages payroll was done mechanically on the keyboard type of machine, and the wages payroll, income tax card and pay slip were produced simultaneously, whilst at the other depots, manual methods were employed for the payroll compilation and, although these methods were sound and worked satisfactorily, they were regarded as being too slow. Therefore more up-to-date methods should be introduced. The speeding up of this phase of the work at the depots will be of the utmost importance when activities during the peak of the season are at their height and all available time can be fruitfully spent on production or the controlling thereof.

f. Conclusion

In the absence of predetermined labour standards, all labour costing bore no significance as a basis for labour cost control because the

/labour

labour costing was merely an apportionment of actual costs and no figures by way of predetermined standards, indicating what such costs should have been, were available for purposes of comparison.

The apportioned labour cost could only serve as a rough guide for purposes of future cost price determination as a basis for sales price fixation because such costs only became available after the expenditure had been incurred.

In view of the above, it was desirable that a system of labour cost accounting should be introduced in order to overcome the deficiencies in the existing methods.

5. Overhead costs.

a. Introduction

The methods of costing overhead charges which were in operation when the investigation was undertaken are described and commented on in this section under the same headings and in the same sequence as that followed in the theory, namely, classification of overheads, fixing overhead standards, overhead rates and examples of overhead.

b. Classification of overheads

The overhead costs were classified under two main heads, namely fixed and variable. These are illustrated in the table below:

/table no 24

Table no 24Overhead.

<u>Description of overhead</u>	<u>Fixed</u> <u>%</u>	<u>Direct</u> <u>variable</u> <u>%</u>
Insurance	7	-
Rates and taxes	10	-
Electricity	2	-
Coal	-	15
Depreciation	57	-
Water	2	-
Railage	7	-
Total	85	15

(Taken from KVV records)

In the cost apportionment, however, no provision was made for a different approach to these two types of overheads and the overhead costs were allocated to the product item on a basis of direct allocation.

c. Fixing overhead standards

Because of this failure to distinguish between fixed and variable overheads it was not possible to establish standards of overheads in relation to time and variable overhead in relation to output.

d. Overhead rates

The overhead costs were wherever possible allocated direct to the product but, where direct allocation was not practicable, such costs were sub-

/sequently

sequently apportioned on an arbitrary basis. In considering overhead costs in the final cost price calculation, no account was taken of the degree of utilization of the particular items of plant. The total overhead was taken and the cost price based on that.

The important difference had also been neglected in the costing procedures and required attention, especially if cost price calculations were to be carried out in respect of products to be sold on keen competitive markets.

e. Examples of overhead

Important overhead costs were:

(1) Insurance

Provision for this was made and the cost allocated annually to the products on a predetermined basis.

(2) Rates and taxes

The same procedure as for insurance was followed.

(3) Depreciation

For buildings the policy followed was to depreciate on the straight line method, on the original or purchase value. The life of the building was estimated approximately and the annual depreciation was determined. This fixed amount was written off annually and the value of the asset reduced accordingly.

For machinery the depreciation was also 1

/based

based on the original cost or purchase value of the item and the annual depreciation was determined by the diminishing balance method.

In both the abovementioned cases the depreciation was based on the original cost or purchase value of the asset concerned but on this basis the tendency of continuous cost increases would not have been catered for with the result that insufficient provision would have been made for the replacement of the asset. In order to ensure that this weakness did not arise, depreciation should have been raised on the replacement value of the asset.

With regard to the method of depreciating on a diminishing balance, this system normally requires the recalculation of the depreciation annually, which may involve heavy clerical effort. This is undesirable, especially at the year end. Not only has all the other work peculiar to the financial year end to be undertaken then but the close of financial year almost coincides with the new crop or season. Another disadvantage of this basis of depreciation lies in that the value of the asset is never completely written off or reduced to a very small figure, whilst the usefulness of the asset, from a physical point of view, may have been reduced to zero. With regard to the allocation of depreciation costs, the procedure followed was to debit the department concerned with depreciation on the book value basis. In some cases casks, for

/which

which the estimated life was based on, say, 20 years, were still in good working order and were as suitable for production requirements as a brand new cask. Because the casks had been in use for the 20 years the depreciation on the diminishing balance method would obviously be far less than the depreciation, on the same basis, of the new cask. From an actual costing point of view this might be an accurate approach but would result in the cost of wines matured in old casks being cheaper than wines matured in brand new casks. This method would also appear to create cost allocation difficulties in that wines matured in casks of different book values would have to be identified accordingly. This point is, however, further discussed under the methods recommended.

(4) Electricity

Electricity meters did not exist in a large number of sections or buildings and meter readings in respect of the amount of electricity used per product could therefore not be obtained. This expense item was therefore apportioned to the products on an arbitrary basis.

(5) Water

The same procedure as for electricity was followed.

/ f. Conclusion

f. Conclusion

The method in operation in regard to the costing of overhead charges did not produce information suitable for cost control purposes and neither did it serve as basis for obtaining data which was sufficiently accurate for the fixation of prices. The main reason for this was that the extent to which the plant was utilised was completely ignored.

In view of the above and other factors revealed in the discussion on overhead charges, it was desirable that the treatment of such costs be placed on a more satisfactory basis for cost accounting purposes.

6. Product unit costs

a. Introduction

The methods of calculating product unit costs which were in operation when the investigation was undertaken are described and commented on in this section under the headings: the principle of cost calculations and examples of cost calculations.

b. Principle of cost calculations

The principle followed was to endeavour to determine over-all all inclusive unit costs and no attempt was made to provide the sales department with unit costs showing separately direct and variable manufacturing costs, as distinct from the
/apportioned

apportioned indirect and fixed expenditure. This factor is of the utmost importance especially where prices are to be fixed in respect of products to be sold on keen competitive markets.

c. Examples of cost calculations

For good wine the unit costs were calculated as follows:

The cost of material required in accordance with the formula in regard to quantity and quality, as established by the wine experts for the product item concerned, was calculated at the current ruling price. To this cost was added the cost of processing the wine which was divided into two categories, namely, cost of handling and maturation costs.

To deal with handling provision was made for the costs of transportation from the farm to the cellars, the cost of receiving, blending, mixing stabilisation and manipulation of the wine. It was accepted that the wine would be handled at the time of receiving, stacking for maturation and again when the various blends were made up for distribution purposes. This cost was expressed per leaguer. With regard to maturation costs, provision was made for the maturation cost of one leaguer of wine per annum. This took into account depreciation and maintenance on the casks used, depreciation and maintenance on buildings in which the casks were stored and other similar charges.

/In order

In order, therefore, to arrive at the total processing costs of a particular type of wine, the annual cost of maturation multiplied by the number of years matured, was added to the cost of handling. This is illustrated in the following example:

Assume cost of handling is £a per leaguer.

Assume cost of maturation is £b per leaguer per annum.

If the wine is 5 years old, the total cost would be £a + £5b

The basic data for the calculation of the processing costs was not obtained from the financial accounts but the cost thereof was determined by a mere rough calculation of the various cost elements in the processing procedures. This figure had been established a number of years prior to the date of the investigation and during the period which elapsed had never been amended to provide for any changes in the cost structure. This embodied a great weakness in the particular method used for unit cost calculation purposes and the incorrectness of the initially established figures was proved in the first attempt made to calculate a unit cost using basic data properly co-ordinated with the financial accounts. A comparison of the processing costs calculated at the time of the investigation with those determined under the method which was in existence at the time is given hereunder:

/Assume

Assume handling costs under
old method .. £x per leaguer

Assume maturation costs
under old method ... £y per leaguer
per annum

Assume that $y = 1.5x$

The figures calculated under the new method in
proportion to x and y were as follows:

Handling costs ... £3.65 x

Maturation costs.. £ .50 y per annum

but $y = 1.5 x$ (as assumed)

Under the old method the young wines were costed
at a cheaper rate and the matured wines at a more :
expensive rate than that at which they should have
been This is proved in the following example:

Two-year-old wine (one leaguer)

	Old method	Provisional calculation
Cost of handling	£x	£3.65 x
Cost of Matura- tion	2 x £y	2 x £.50 y
But $y = 1.5 x$ thus total cost=	£4.0 x	£5.15 x

Under the old method the young 2 year old wine
was £1.15 x cheaper than under the provisional new
method.

Ten-year-old wine (one leaguer)

	Old method	Provisional calculation
Cost of handling	£x	£3.65 x
Cost of maturation	10 x £y	10 x £.50y
But $y = 1.5x$ thus total cost ... =	£16 x	£11.15 x

/Under

Under the old method the well-matured wine was very much more expensive than the same wine under the provisional new method. This error in the unit cost was of great significance, especially where keen competition on the overseas markets from established wine growing countries was to be met and therefore the necessity for accurate cost data could not be over-emphasised as, with wrong cost accounting data, it might have meant that the sale of wines, which were in actual fact less profitable than others, were promoted.

d. Conclusion

In the absence of a costing department and consequent lack of proper cost information, the wine experts themselves undertook the calculations of unit costs and in this direction did well, especially in regard to the preparation of the formulae in order to ascertain the material costs. This work done by them in respect of material costing was found very valuable when the new costing system was designed.

7. Conclusion.

The whole method of cost accounting was designed in an attempt to determine actual costs, but this was never achieved because the calculation

/ of

of the material costs for good wine product items was based on standard formulae developed by the wine experts and not on the actual material used.

Another feature which militated against the procedures in existence was the volume of clerical effort occasioned by the considerable amount of detailed cost allocations necessary in order to arrive at the cost of product items.

In addition to the above, the information produced was of little or no value from the point of view of material cost control as no attempt was made to compare actual costs with predetermined standards as determined by the wine experts. Further it served no purpose in so far as the control of labour costs were concerned, because no predetermined standards existed and, in regard to overhead costs, no control could be achieved since no distinction was made in the treatment of fixed and variable overheads.

For price fixation, the information furnished to the sales department could not be of maximum benefit because the unit costs were all-inclusive and did not reflect fixed and variable costs separately.

Finally, duplication existed in a large number of the clerical procedures and documentation and this factor, together with those mentioned above, made it quite obvious that there was a clear need for the introduction of a system of cost accounting on a more sound basis which would overcome the shortcomings in the existing methods.

Chapter VIII

Cost control

Under the existing system only annual accounts were provided for, and these were finalised four to six months after the end of the financial year. Prior to the completion of these accounts no information in regard to the profit position was available and when, ultimately, this information was produced, its true value from a control point of view was lost because of the complete absence of any system of budgets.

As the annual accounts were finalised so late and as no figures existed with which to compare the information produced, management was absolutely in the dark in regard to the profitability of the organisation. So the accounting and cost accounting system, by way of facts produced, contributed very little towards an increase in the effectiveness of control.

In addition to the above, responsibility for the cost control function was not clearly delegated and this, together with the absence of pre-determined budgeted figures, caused the control of costs to suffer.

It was obvious, therefore, that the introduction of a system of budgeting and management controls was an urgent necessity.

/Section D

SECTION D

RECOMMENDED METHODS

A discussion on the recommended cost account-
ing and control methods

1. Introduction

The need for the development of a system of budgeting and standard costs arose mainly as it was realised that the profit and loss statements and the balance sheet are documents of a historic nature and give no indication of future plans. In addition as such statements only become available months after the end of the financial year concerned, little can be done to rectify unfavourable balances.

There are, however, serious difficulties which will delay the rapid development of such budgets and standard cost systems and of these the most important are:

(1) It is practically impossible to forecast crops for any length of time.

(2) The determination of the "surplus" by the board of directors is done in January, thereby delaying the advance compilation of the budget.

(3) The estimating of liquid stock requirements in advance is difficult because the organisation does not purchase any of such requirements but is compelled to accept all distilling-wine produced and not sold direct to merchants.

(4) The saleable portion of the crop which is placed into a pool is pre-estimated by the board of directors. If the surplus determination is estimated accurately, the total income from the pool account is paid to the producers.

In contrast to the difficulties experienced

/in the

in the application of budgetary control, the following factors largely facilitated the introduction and development thereof and also that of standard cost accounting.

(1) The majority of the items of expense is fixed, thus facilitating the pre-planning, budgeting and subsequent cost control; and the fluctuations involving the level of activity handled on a short-term basis have little or no influence over these expenses.

(2) Of the remaining expenses, the total cost varies in close relation to the volume handled, and, therefore also takes the form of a fixed cost per unit of output. The standardisation of such a unit cost is fairly simple to ascertain and forms a sound basis for the control of expenditure, with ultimate increases in the effectiveness of the organisation as a whole.

(3) Income to be derived from the exporting of wine and related products can be fairly accurately predetermined. This is facilitated to a large extent by useful statistics which were kept in the past and also by a close study of the markets and other overseas conditions.

The necessity for the installation and development of a system of budgeting and cost control may briefly be stated to be as follows:

/(1) The

(1) The setting of targets against which actual performances can be measured and variances investigated and explained will have the effect of increasing efficiency and reducing cost.

(2) The mere fact that costs are predetermined and frequently compared with the actual costs will develop a feeling of responsibility and cost consciousness in the minds of departmental managers and other personnel.

(3) The determination of responsibility and the demarcation of duties will be facilitated because responsibilities in regard to cost control, expenditure and output are allocated to particular personnel.

(4) The budgeting and cost method will simplify to a great extent the clerical procedure, thereby reducing the effort in so far as cost allocations are concerned.

After the management had accepted that a budgetary control system together with a method of standard costing was desirable, a comprehensive study of the accounts, etc. was carried out. After thoroughly investigating the existing accounting and cost allocation methods, documents and the technical processes involved, a preliminary framework for the future methods was drawn up in order to establish the initial installation and development thereof. The framework covered the re-allocation of costs, cost methods and budgets, as opposed to the old method whereby costs were allocated direct to the product.

/The application

The application of budgets, budgetary control and standard costing was somewhat new to the organisation, and therefore it was necessary to compile a complete initial formal budget. This budget was intended mainly for illustration purposes and primarily to establish the principles and the over-all framework of the suggested budget and methods. Therefore the accuracy of the figures was not of great importance.

The profit and loss, trading and other accounts for the financial year 1955 were analysed and the totals reconstructed so as to ascertain the total amount spent under each expense heading, e.g., for electric light and power, the amounts apportioned to the various allocation heads were abstracted and the total amount paid for the one year determined, and in this way a true financial profit and loss statement was constructed.

As the method of apportioning of costs in the financial system was followed, the cost history of only one year was taken. This involved a large amount of analysis work and, because of the time factor, could not be extended to a more accurate basis of three years. Certain of the items, however such as depreciation, taxes, insurances and other similar charges, could be accurately estimated and, in the case of the labour budget, the figures for the years 1953, 1954 and 1955 were available and these presented a more reliable basis for cost estimating.

/After

After the completion of this analysis, the basis for the budgeting and cost accounting methods were outlined and the installation and development thereof are discussed under the headings, organisation and methods related to cost accounting and control, cost accounting, cost control and summary of results.

/Chapter IX

Chapter IX

Organisation and methods related to cost accounting and control.

1. Introduction.

It is pointed out under the theory that the main purpose of an organisation and method study is to examine and ascertain the effectiveness of the methods in operation with a view to their improvement. The recommended clerical methods and organisational set-up for the accounts department are discussed in this chapter under the headings: Cost centres, ledgerkeeping and integration, and the organisation of the cost department.

2. Cost centres.

a. Introduction

The detailed analysis of the existing methods clearly revealed that a new basis for cost allocation was necessary in order to develop the proposed system of cost and budgetary control. For this purpose a new code of accounts was developed (see appendix 4 - recommended methods) and in the process of this development due consideration was given to requirements for cost data, budgetary control information, financial accounting require-

/ments

ments and integration and mechanisation.

b. Cost data

For cost purposes the existing methods of cost apportionment were completely inadequate. An attempt was made to apportion costs per product, but this resulted in complicated cost apportionments and inaccurate ultimate costs. This also obscured the true financial position for the reason that wages, for instances, were in the final accounts broken down per product, and therefore the actual amount spent per depot on wages could not be readily seen. In order to overcome the shortcomings in the existing methods, the first and most important basic alteration was the introduction of cost centres, whereby the costs for such centres could be accumulated and then be available for both cost and financial purposes.

The final design of the cost centres to be introduced was naturally determined by the particular manufacturing processes peculiar to the organisation and, as the manufacturing activities include direct processing and maintenance, cost centres were classified under these two main headings. After a careful investigation, the following were decided upon:

/(1) Production

(1) Production or processing cost centres

Vinegar

Bottling

Brandy blending

Good wine : receiving and blending

" maturation in small casks

" maturation in vats and tanks

" stabilisation

" dispatch

Liqueurs and vermouth: processing

Moskonfyt: Sulphurising and handling

" boiling

Grape pressing

Rebate brandy : storage and handling

" " : maturation

Perfume manufacturing

Spirit : storage and handling

" maturation

Distilling wine: receiving and storage

Distilling : spirit and rebate brandy

Boys' wine.

(2) Servicing or maintenance cost centres

Garage

Cooperage - casks assembly

Cooperage - repairs of casks

casks - cleaning

Boiler house - distillation

" " bottling

Transport: good wine and general.

/Maintenance

Maintenance stores
 Workshop - engineers
 " carpenter
 Building operations

An important feature in the design of the cost centres is the operation of five depots which are situated at Paarl, Worcester, Robertson, Stellenbosch and Montagu respectively and, for costing and budgetary control purposes, it is essential that separate cost records be maintained for each depot. For this reason the names of the towns at which the depots are situated are used in combination with the cost centres, for instance,

Pressing : Robertson
 Pressing : Paarl
 Pressing : Worcester
 Pressing : Stellenbosch
 Pressing : Montagu

All expenses allocated to cost centres are in addition grouped under a common expense heading, as follows:

Direct processing or manufacturing material
 Packing material

Maintenance material : buildings
 " " machinery and
 equipment
 " " fustage

Direct processing or manufacturing labour

Maintenance labour : buildings
 " " machinery and
 equipment
 " " fustage

/Insurance.

Insurance

Rates and taxes

Electricity

Fuel

Depreciation : buildings

" : machinery and equipment

" : fustage

Water

Railage

Sundries

The following example shows how the expense headings are combined with the cost centres and depots:

Robertson pressing: direct labour

" : depreciation buildings

" : depreciation machinery
and equipment

" : electricity

All the expenditure to be allocated under the expense headings shown above can be subdivided into two main categories:

Firstly, expenses that can be conveniently apportioned to the cost centre concerned as and when incurred.. Such expenses are debited to the cost centre concerned under the relative expense heading. Example:electricity where meter readings for separate cost centres are available

Paarl - pressing - electricity

Paarl - bottling - electricity

Paarl - engineering workshop - electricity.

/Secondly

Secondly, expenses which cannot be identified exactly with the particular cost centre. Such expenses are apportioned annually on a pre-determined basis. For example for electricity charges where no meter readings for separate centres are available. Here the expenses are grouped and accumulated under the heading for the over-all total per depot and are not combined with the particular centres:

Robertson - 00 - electricity

c Budgetary control information

The existing methods of cost and financial accounting were completely inadequate for the introduction of a system of budgetary control.

The relationship and the particular field of costing and budgetary control is clearly defined in Chapter V where it was established that budgetary procedures are concerned more with over-all control and policy matters, than with that of a particular product and/or operational cost of standard costing. Therefore in devising the accounts for budgetary control purposes, the main problem after the establishment of the accounts for costing purposes was the adaption of the cost records for budgetary purposes. This, however, proved to be fairly simple, as the accounts which were developed for costing purposes made provision for the following:

- (1) Depot
- (2) Cost centre
- (3) Expense heading

/from the

From the definition of costing and budgetary control it is clear that these three component parts are essential for costing purposes. For budgetary purposes, however, classification under the depot and expense heading only are necessary. Whilst the allocation of expenses under the expense headings, per cost centre, is an essential requirement for costing purposes, it is not necessary for budgetary purposes (see discussion under budgets chapter V). Thus all that was required in the classification of expenses under expense heading was to find a common classification suitable for both costing and budgetary purposes.

Such a classification was arrived at, as shown above under cost data. Although, as can be seen from the proposed accounts procedure, some expenses under expense headings are broken down or allocated per cost centre, all that is necessary for budgetary control purposes is the summarising of the various expense headings.

d. Financial accounting requirements

The annual financial accounts under the existing methods were unnecessarily complicated, because an attempt had been made to arrive at a profit per product figure through the financial accounting system. With the variety of products handled by the organisation such an approach called for an endless number of allocations and

/ apportionments

apportionments within the final financial accounts. This obscured vital financial information and delayed the completion and finalisation of the financial accounts and balance sheet at the end of the year.

With the development of a costing system it is no longer necessary to arrive at the product profitability within the financial accounts because this can be conveniently ascertained from other sources. In view of this it is therefore possible to prepare a simple manufacturing, trading, and profit and loss account. For the financial accounts the classification of accounts under expense headings is sufficient but, in order to present a more informative picture to the management and the board of directors, a breakdown per depot becomes quite useful. Furthermore in the designing of the financial accounts, care was taken to ensure that the breakdown of the expense headings was adequate for costing and budgetary control purposes.

e. Integration and mechanisation

From the discussion on the requirements for costing, budgetary control and financial purposes, it can be clearly seen that it was possible to design a system of integrated accounts to provide all the information necessary, at the same time avoiding unnecessary duplication. After the design of the accounts, the main problem was not a question of integration but because the finan-

/-cial

cial accounts are drawn up annually after the end of the financial year, and for budgetary and costing purposes monthly figures are considered essential whether or not the information could be made available as and when required.

It was also of great importance that these figures should be made available with the least possible delay. This, however, also had to be tied up with consideration being given to the mechanisation of the accounts and the statistical data requirements of the organisation.

Under the existing methods little advantage had been taken of the latest development in the field of office mechanisation and it became obvious after a thorough analysis that with the large volume of entries to be processed, some degree of mechanisation was desirable. After a careful investigation of the whole matter, complete mechanisation under a system of punch card accounting was eventually decided upon and, in doing so, it became possible for the punch card department to produce a monthly trial balance soon after the end of the month. Thus the provision of the required figures actually facilitated the integration of cost, budgetary and financial figures.

In the mechanisation of the accounts all the essential features in the design of the cost centres, etc. were, by means of the application of a five digit code, retained and thus the combination:

Depot:	1st digit;
Cost centre:	2nd and 3rd digits;
Expense headings:	4th and 5th digits;

/ was

was coded as follows:

First digit: Depot code.

Paarl	(5)
Worcester	(6)
Robertson	(7)
Stellenbosch	(8)
Montagu	(9)

2nd and 3rd digit: Cost centre, for example:

Bottling dept.	(11)
Pressing	(34)
Rebate brandy storage and handling	(16)
Garage	(50)
Boiler house distillation	(56)

4th and 5th digit: Expense heading for example:

Insurance	(18)
Electricity	(26)
Packing material	(70)

Thus Paarl bottling department packing material was coded as follows :

5 - 11 - 70

In the discussion on the design of the accounts, reference was made only to production costs. The reason for this was that this was the most complicated as it was desirable to develop an integrated system of cost, budgeting and financial records.

It was also necessary to design accounts for the recording of sales, sales expenses, administrative expenses and assets and liabilities, /etc.

etc., and the remaining income and expenditure accounts had to be suitably designed for budgeting, statistical and financial purposes.

f. Conclusion

In the compilation of the code of accounts, which was preceded by the determination of cost centres, due consideration was given to the costing data requirements of the organisation as well as information necessary for budgetary control and financial accounts.

3. Ledgerkeeping and integration.

a. Introduction

A major decision on the mechanisation of procedure was necessary and the methods followed in order to arrive at such a major decision are set out in this subsection. In addition o. and n. and ledgerkeeping methods and their relation to a system of punch card machines are discussed.

b. Mechanisation

Because mechanisation coincided with the introduction of a system of standard costing and budgetary control coupled with organisation and method studies to simplify work procedures, these factors had to be taken into consideration in the selection of the type of mechanical equipment to be utilised.

/ The

The problem of selection was the choice between punch card systems and keyboard machines.

To facilitate the selection, the office procedures and related basic documentation were listed and the merits of the two systems were, in every instance, considered as follows:

Table No 25

Work method comparison of alternative systems of mechanisation.

Section and Function	Punch card system	Keyboard System
(1) <u>Farmers settlements:</u>		
(a) Basic documents	Scale ticket as prime document and all subsequent basic document work to be mechanised.	Present manual system to be retained.
(b) Account sales	By-product of 1.	Present manual system to be retained.
(c) Farmers ledger postings	All work to be mechanised but probably making out of cheques to remain as at present.	All work to be mechanised including cheque.
(d) Analyses statement	Obtained by mechanical sorting and tabulation.	Obtained by manual sorting of listing media and repetitive mechanical listing.

/ (e)

Section and function	Punch Card system	Keyboard system
(e) Bonus and dividend	All phases of work to be performed mechanically.	Statement and cheque to be prepared mechanically. All other work manually.
(f) Income tax work	Done by mechanical sorting and tabulation.	All work to be done mechanically.
(g) Grape transactions	All phases of work can be mechanised	Only posting can be mechanised.
(2) <u>Farmers liquor ledger</u>		
(a) Basic documents	Present manual method.	Present manual method.
(b) Postings	Mechanical.	Mechanical.
(c) Analyses	Reproduced mechanically from previous created cards.	Manually, sort and list. again mechanically.
(3) <u>Liquor (local) Merchants Accounts</u>		
(a) <u>Ex farmers:</u>		
(i) Basic documents	Prepared manually.	Manual preparation.
(ii) Ledger postings	Mechanical tabulation from previously prepared cards.	Mechanical posting but with repetitive process.
(iii) Distilling wine	Leave on manual basis.	Leave on manual basis.
(iv) Analyses and stats	Mechanical tabulation from previously punched cards.	Can be mechanised but only with repeated runs.

/ (b)

Section and function	Punch card system	Keyboard system
(b) <u>Ex K.W.V.</u>		
(i) Basic documents	Manually.	Manual preparation.
(ii) Ledger postings	Mechanical tabulation from previously prepared cards.	Mechanical posting, but with repetitive process.
(iii) Analyses and stats	Mechanical tabulation from previously prepared cards.	Can be mechanised but only with repeated runs.
(4) <u>Perfume debtors</u>		
(a) Basic documents	Can be completely mechanised but volume does not justify.	Retain present manual system.
(b) Ledger postings	Can be mechanically done.	Can be done mechanically.
(c) Analyses and stats	Mechanically tabulated from previously prepared cards.	Can be mechanised, but subject to equipment limitation.
(d) Payments - cash and bills	Manual.	Can be mechanised.
(5) <u>Export merchants accounts</u>		
(a) Basic documents	Specification can be mechanised including calculations but, due to fluctuation in daily volume and the urgent nature thereof, may not be warranted. Invoice - retain manual system.	Retain present manual system.

/(b)

Section and function	Punch card system	Keyboard system
(b) Ledger postings	Mechanise.	Mechanise.
(c) Analyses and stats	Mechanical tabulation from previously prepared cards.	Can be mechanised but only with repeated runs.
(6) <u>Liquid stock</u>		
(a) <u>Raw material and finished stock control</u>		
(i) Basic documents	Mechanically prepared from previously punched cards	Manual preparation.
(ii) Stock ledger posting	Mechanical tabulation from existing cards.	Can be mechanised in combination with stock ledger posting.
iii) Excise returns	Mechanical posting from existing cards.	Mechanical posting with special run.
(iv) Excise duty	Mechanical sort and calculation, if justified.	Manually.
(b) <u>Work in progress control</u>		
(i) Basic documents	Preparation manual. Rating and extending mechanised.	Preparation manual. Rating and extending manual.
(ii) Stock ledger posting	Mechanical posting from previously prepared cards.	Mechanical posting with double posting run.

/(iii)

Section and function	Punch card system	Keyboard system
(iii) Balances (insurance)	Mechanical sort and tabulation of mechanical punched balance cards.	Manual.
(iv) Cost apportionment	Mechanical calculation from previously prepared cards and then mechanical posting.	Manual calculation and mechanical posting.
(v) Annual stocktaking	Physical stocktaking with mechanical evaluation, verification and posting.	Physical stocktaking manual verification and evaluation and mechanical posting.
<u>(7) Creditors and general stores control</u>		
(a) Basic documents	Manual preparation rating and extending mechanised.	Manual preparation rating and extending manual.
(b) Ledger posting	Mechanise all phases.	Mechanise all phases.
(c) Stocktaking and verification	Physical stocktaking with mechanical evaluation, verification and posting.	Physical stocktaking manual verification and evaluation and mechanical posting.
(d) Payments	Statements and postings mechanical cheques manual.	All phases mechanical.
(e) Price control statement	Mechanise all phases.	Manual calculation with rest mechanised.

/Salaries

Section and function	Punch card system	Keyboard system
(8) <u>Salaries and Wages</u>	Cheque manually. Rest mechanised.	All work mechanised.
(9) <u>Cash accounts</u>		
(a) Receipting	Manual preparation of receipt, mechanical tabulation of cash book from previously prepared cards.	Receipts manual Cash book mechanised.
(b) Payments	Cheques manual. Rest mechanised from previously prepared cards.	All phases mechanised in combination with some ledger postings.
(10) <u>Cost and plant Accounts</u>		
(a) Production cost	Calculation and apportionment to cost centres to be done mechanically from master cards produced. Tabulation mechanical card used for subsequent work.	Calculation and apportionment to be done manually. Tabulation also manual.
(b) Posting to standard cost ledger	Mechanically done from previously punched cards.	Mechanically done on special run.
(c) Cost of sales	From previously prepared cards and reproduction of standard information from master cards mechanically tabulated.	Calculation manually Tabulation manually.
(d) Profitability per country.	From previously prepared cards, and reproduction ex master cards mechanical analyses per country.	Calculate manually. Tabulate mechanically after manual sort.

/ (e)

Section and function	Punch card system	Keyboard system
(e) Plant accounts	Mechanically done from previously prepared cards.	Mechanically done.
(11) <u>Nominal Ledgers</u>	Can be mechanised.	Can be mechanised but suggest manual compilation.
(12) <u>Vineyard stats</u>	Despatch, receipt and checking of returns - manual, excepting for present addressograph mechanisation. Tabulation and analyses mechanised. Membership and registration no lists tabulated as by-product.	Manual.
(13) <u>Output stats and crop budgets</u>	Complete mechanisation from previously prepared cards and some specially prepared cards.	Mechanisation by repeated posting, listing and tabulating runs.

(Compiled from KWV records)

From the above the following analysis
was made:

/preparation

(1) Preparation of basic documents

With the punch card system a wider range of basic documents could be mechanically prepared. This reduced manual copying and transcription to a minimum, as once the prime punched cards had been manually prepared, the cards could be used repeatedly for various purposes. Where any new cards were required, these could be punched automatically, or could insofar as static information is concerned, actually be reproduced on the machine.

This feature of the punch card system was of special importance considering the large variety of basic documents and the considerable volume of certain types, e.g. scale ticket.

(2) Evaluations and calculations

Various aspects of the clerical work performed entailed a large number of evaluations and calculations, and where this work is done manually each operation has to be checked. With the keyboard type of mechanisation most of these evaluations and calculations would still have to be performed either manually or by using auxiliary calculation equipment and would require a check for correctness by using punch card equipment, however, the bulk of these evaluating and calculating operations could be completely mechanised and subjected to an automatic mechanical check in the course of the normal work process.

/(3)

(3) Posting work

With a punch card system the posting media (punched cards) are sorted mechanically at high speed, whereas under the keyboard machine system all the sorting of the posting media (prime documents) has to be done manually at an obviously lower speed.

The posting work could be done as effectively, if not better, on the punch card system as on the keyboards and, given reasonably long runs of posting work, it could be done faster on the former than in the latter type of machinery.

With the punch card system the posting work is pre-checked which means that the posting errors are reduced to the absolute minimum. With the keyboard type of machine, posting errors are discovered only after all posting work has been done because checking can only be carried out after completion of the posting and this results in journal corrections.

(4) Tabulation and statistical analysis work

For statistical work the punch card system is much more flexible than that of the keyboard because with the punch card system most of the basic information is already available on cards punched for other uses and tabulation according to the different breakdowns required. With the keyboard type of machinery, however, the prime

/documents

documents have to be sorted manually and then repeatedly processed through the machines for each statistical breakdown group.

(5) Obsolescence Risk

The keyboard machines have to be purchased outright and the risk of obsolescence as a result of technological developments passes to the purchaser, whereas with the punch card system most of the machinery is hired and the risk of obsolescence rests with the supplier. Therefore, bearing in mind the rapid development in office machinery, this factor is of considerable importance.

(6) Specialised staff

The staff required to operate the punch card set-up does not require any highly specialised training other than that given by the punch card suppliers, whereas for keyboard machines, operators are specialised and must be experienced and may at times be extremely difficult to obtain.

(7) Management controls

The possibility of a punch card set-up producing more useful information from a management control point of view and as such information could be made available at greater speed and accuracy should result in increased management effectiveness.

(8) Economy

As set out in Chapter III/4 the economy of the proposed machinery can be tested by using the
/following

following formula:

$$\text{where } u > \frac{C (1 + \frac{1}{2} it)}{t.s}$$

With the great variety of items that can be mechanised on both the punch card and keyboard machines, the application of such a formula becomes extremely difficult and serves only as a rough guide, but nevertheless, taking these various factors into an over-all calculation, it appeared that the punch card equipment would be more economical.

Since the capacity of the punch card machines is sufficient to cope satisfactorily with the volume of peak loads, the test by using the formula as set out in Chapter III/4 b namely:

$$C \frac{W}{y.w.} \cdot \frac{x}{y.w.}$$

proved to be satisfactory and showed that the punch card machines are more economical than the keyboard types and could also cope with the peak loads of work. This made them superior to the keyboard machines in this respect.

(9) Variation in uses of the punched card

Apart from having to undertake a large volume of clerical work, the most important factor which prompted the recommendation of a system of punch cards was the number of purposes for which cards once produced, could be used. (See chapter X/3 b

(5) (b)

/Conclusion

(10) Conclusion

The punch card machines, according to the above analysis, were more suited to the requirements of the organisation, and were therefore recommended.

c. Mechanisation and organisation and methods

The introduction of the punch card installation called for radical changes in office procedures, clerical work methods, documentation design, staff organisation and a revision of the requirements of top level management.

In so far as office procedures, clerical work methods and documentation design are concerned, it was necessary to redesign documents and, often to discard them completely and to streamline the prior to and after machining clerical procedures.

The reconstruction of the staff organisation was necessary in order to utilise, as far as possible, the services of the existing staff.

With the introduction of mechanisation, a major policy which had to be changed was that of payment to farmers for deliveries of grapes and distilling wine. Under the existing methods, farmers were prone to insist on payment immediately the final delivery had been effected. A continuation of this policy would have hindered mechanisation because it would be most inconvenient to set up the machines in order to effect payment at odd intervals. In the new procedure payment for deliveries to all the farmers concerned is effected monthly. This change in policy not only streamlined / the

the procedures, but is more acceptable to the farmer because, instead of having to wait for his cheque until all deliveries for the season have been completed, he now receives current payment.

d Ledger keeping under a punch card system

From the discussion on cost centres, codes of accounts and mechanisation it was seen that an integrated system of budgetary control, standard costing and financial accounts was developed. For this purpose detailed accounts are maintained in the private nominal ledger, and this was largely made possible by all accounts being mechanised on a punch card system. The private nominal ledger is a by-product produced by the punch card department and the trial balance becomes available within a short time after the end of the month. With mechanisation many of the problems of ledger keeping fall away as it is no longer necessary to maintain separate costing and budgetary control ledgers.

To facilitate procedures in the punch card department the nominal ledger is produced in duplicate on continuous stationary giving a separate monthly statement for each account. The duplicate serves a useful purpose as this is forwarded to departmental heads giving them detailed information grouped per expense heading, of the costs incurred in the cost centres under their control. As the private nominal ledger serves a double purpose, detailed postings are essential. For

/maintenance

maintenance materials issued, every item is tested separately, and to make these accounts more informative an alpha description is given to every item.

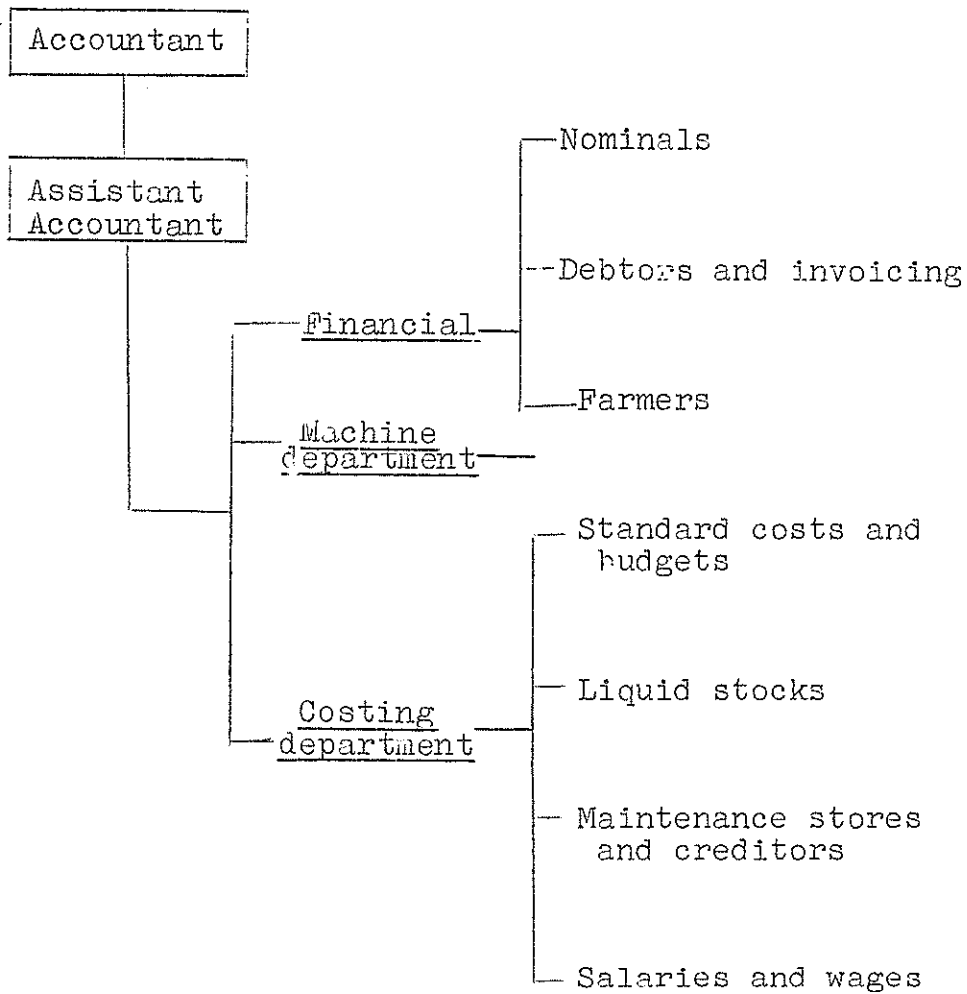
le Conclusion

The introduction of mechanisation not only contributed to the integration of cost and financial accounting and budgetary control, but also resulted in the streamlining and simplification of clerical methods and procedures.

4. Organisation of the cost and accounts department.

As a result of the over-all reorganisation in the accounts department, which included mechanisation, the introduction of a new costing system, and budgetary control, the line function of the department was reorganised and the personnel diagram constructed as follows:

/ Diagram No.16:

Diagram No.16.Organisation Chart

In the discussion on the system of a standard costing and budgetary control it was pointed out that these were closely integrated with the financial accounting. Although an attempt was made in the reorganisation of the accounts department to segregate the costing and budgetary functions from those of a purely financial nature, this could not be achieved entirely. For this reason, the particular

/set-up



set-up as indicated on the diagram, which cannot be regarded as purely functional, was decided upon.

Broadly speaking however, allocation of processing costs and the control over all materials and liquid stocks are concentrated in the costing section, whilst the pure financial functions, e.g. credit control and the allocation of sales and administrative expenses, are recorded in the financial department.

A comparison with the organisation as discussed under the existing methods reveals that the thirteen small sections were reorganised into six larger sections; the seventh is a completely new department; and these were again grouped into financial and costing departments. In the reorganisation it was envisaged that responsible and able officials, capable of taking responsibility, would be selected to be in charge of the sections and departments. The creation of sectional and departmental heads and the delegation of responsibilities was, therefore, the basis on which the accounts department was reorganised and it created greater depth in organisation.

5. Conclusion

A thorough analysis made of the various clerical requirements and their application under two basic types of mechanisation resulted in a system of punch card accounting being recommended.

/Major

Major advantages were achieved. Among these were speedy payment to farmers for deliveries, mechanisation of accounts up to and including the trial balance and the reformulating of duties and responsibilities which, because of the mechanisation, had become easier.

/Chapter X

Chapter X.

Cost accounting.

1. Introduction.

The recommended cost accounting methods and the benefits to be derived therefrom are described in this section under the headings: cost systems, material costs, labour costs, overhead costs and product unit costs.

2. Cost system.

a. Introduction

The main purposes for introducing and developing a system of cost accounting were:

(1) To provide a method for the production of cost data to serve as a basis for price fixing.

(2) To develop methods for cost control purposes.

These two principles have to take into consideration major factors which are peculiar to the activities of the K.W.V., and these are discussed under two basic groups of products, i.e. distilling wine products and good wine products followed by a discussion on the costing system recommended and adopted.

/ b. Factors

b. Factors relating to distilling wine products

(1) Uncertainty of the size of the crop: this is of particular importance since all distilling wine offered by the producers has to be accepted. This complicates the predetermination and establishment of volume levels for the calculation of plant capacity and subsequent utilization.

(2) The size of the crop is difficult to pre-estimate and the percentage of the crop to be delivered to the K.W.V. cannot be accurately forecast because the volume purchased by the trade may vary from year to year.

(3) The activities of the K.W.V. are of a seasonal nature and this results in a peak period from February to June every year and an off-season period for the remaining months, i.e. from July to January, when the production activities are largely reduced.

(4) The availability of labour with particular emphasis on skilled labour, which makes it difficult to reduce staff in the off-season. The employment of labour in the off-season is indeed one of the major problems, and it is partially overcome by undertaking maintenance and capital-construction programmes during the off-season.

(5) The particular distillation (production) process is frequently determined by the availability
/of the

of the storage capacity. For example, with rebate brandy, the distilling wine can be distilled to low wines and subsequently to rebate brandy, i.e. two separate processes, or it may be distilled in one continuous process from distilling wine to rebate brandy. In the first distilling process storage capacity is released because the low wines are reduced in volume to approximately one-fifth of the volume of the original distilling wine.

(6) Variations in the quality of the crop may result in a certain amount of redistillation. For instance, if the distillate is not approved by the Government Brandy Board, it may have to be re-distilled.

c. Factors relating to good wine products

(1) The amount of wine required for replenishment purposes is determined well in advance and once this has been decided upon, it will be procured. The annual intake of wine can be accurately assessed and, in addition, the actual intake from year to year shows little fluctuation.

(2) The production processes in the cellar are comprised of a large variety of activities, for instance, pumping wine from one container to another, cleaning of casks, filtration, treatment and the fortification of wine.

These activities may be / carried

carried out whilst the wine is in the wine tanks or vats, which makes it extremely difficult to relate the production activities to the actual output. Over a period of one year however, the production activities can be related to the total volume of wine processed in the cellars.

(3) For the manufacturing of good wines, particularly vintage ports and sherries, long periods, i.e. up to eight years or even more, of maturation are required, and this complicates the correlation between purchases and eventual sales.

(4) The value to be placed on the spirit used for the fortification of good wines because, in this instance, the distilling wine used for the distillation of the necessary spirit being a surplus product is obtained free of charge.

d. Factors relating to both distilling wine and good wine products

(1) An analysis of the processing costs of these activities is set out hereunder:

/Table No 26

Table No 26Overhead

	Fixed %	Variable %	Total %
Insurances	3		3
Rates and taxes	4		4
Fuel		7	7
Electricity		2	2
Wages (10% variable)	28	3	31
Material		2	2
Repairs - material	4		4
Railage		4	4
Packing material		8	8
Depreciation	33		33
Water		2	2
	72%	28%	100%

(Taken from K.W.V. records)

(If packing material is excluded, the percentage of fixed expenses is approximately 80%).

/The above

The above table reveals that 80% of the costs is fixed whilst 20% varies in more or less direct proportion to the volume handled.

(2) The stocks are all in liquid form, which gives rise to the inherent stock problems peculiar to all liquid stocks, such as evaporation losses, fluctuations in volume resultant upon temperature variations and the difficulty in establishing the exact quantity of the liquid in containers.

(3) A large variety of products is manufactured. For instance, for good wine, a total of no less than 200 types are produced (see appendix 3).

e. Costing system recommended and adopted

In view of the large variety of products manufactured, consideration of a system of actual costing was immediately discarded. This would entail numerous detailed and complicated cost allocations. A method of actual costing was proved to be impracticable since, in the existing methods, an attempt had been made to apportion actual costs on a product basis. This system was most involved, but nevertheless proved that it was not possible to apportion costs to the final end products in order to arrive at an actual product unit cost. In fact, it was only possible to apportion costs arbitrarily between distilling wine and good wine products. To apportion costs accurately in the good wine department, a far

/ more

more detailed breakdown of costs is required in order to obtain accurate data for price fixation purposes. With the numerous good wine types the breakdown required is so minute that the accuracy of such costs becomes doubtful. With wages for instance, labour time will require to be accurately booked by the foremen to the individual product concerned which is virtually impossible where a gang of, say, 20 labourers work over a period of one week on, say, 20 different blends. The total number of cost bookings involved would be anything up to 400 (20×20) allocations. Another example of the complexity that would have developed from a system of actual costing would be the charging of the cost of young and matured wine to the final product. A cost system in great detail would have been required in order to carry out such a procedure, and careful records would have to be kept for use when determining the correct raw material price chargeable to the product. With a variety of 200 types of good wine, a vast number of cost accounts would have to be maintained.

Apart from the clerical and administrative complexity of a system of actual costs, it is doubtful whether such a system would have been of any use for the purposes of price fixation and cost control because of the variations in actual product unit costs from order to order, and because such orders are costed only after completion the true

/value

value of such information would be obscured. The seasonal nature of activities would also affect the actual cost because costs would be low during the season and high during the off-season, thus necessitating the maintaining of special records in order to determine average costs.

One of the main advantages of a system of standard costing lies therein, that a system of cost centres could be introduced which, because the charging of actual costs to product items is eliminated, would simplify the cost allocation procedures.

For the reasons given above the system of actual costing was considered unsuitable and consideration was then given to the question of introducing a system of standard cost accounting. Broadly, the two main bases of standard costing are: basic standards, also referred to as bogey standards, and current standards, often referred to as annual standards (see Chapter IV).

At the time of the initial introduction of the costing system it was impossible to determine basic standards for manufacturing and processing costs for the following reasons:

(1) The introduction of a costing system coincided with a major capital expenditure programme which entailed the complete reconstruction or replacement of the spirit stills at all the depots.

/This also

This also necessitated the installation of additional boilers for steam development.

(2) In order to satisfy the increase in the overseas demand for moskonfyt an additional moskonfyt boiling unit at one of the depots was contemplated.

(3) An increase in the capacity of the stabilisation plant to handle the increased volume of exports of good wine, was also necessary.

(4) In order to increase the over-all efficiency of the production department, the brandy blending department was moved from Stellenbosch to Paarl, where a new and more up-to-date plant was installed.

(5) The introduction of a costing system was only part of an intensive complete reorganisation programme.

This included production method studies which, in some instances, resulted in a reduction of the staff complement allocated to production departments. This programme of production method studies is still in progress, resulting in further economies from time to time but, as the policy is not to discharge European labour, many of the economies can only be effected when members of the existing staff become due for retirement. In view of the above, it was decided that basic standards were not desirable in this instance, and that the merits of introducing a system of current standard

/costing

costing should be investigated.

An essential requirement of the costing system in this instance was that it should be adaptable to the present pattern of cost fluctuations for the reasons indicated above. A system of standard costing based on current standards is eminently suitable under these conditions, as current standards can be based on expected actual, expected normal, best attainable performance or past averages.

For the calculation of costs as a guide for the determining of prices, the cost is grouped under two headings, i.e. material costs and processing costs. For material costs, the price of the wine for cost calculations is based on the ruling current actual price paid to producers multiplied by the quantity according to the formulae for standards of quantity and quality based on expected normal.

Processing costs include, inter alia, the following:

Labour costs, and overhead costs such as depreciation, electricity and insurances on production plant and assets.

The determination of the processing cost in the cost calculation was based on the average costs of the past years as an accurate method of cost calculation is of great importance. One of its main functions is to develop overseas markets in order to dispose of the surplus (wine) products. Such

/markets

markets have to be developed in keen competition with established wine-growing countries, and therefore, in order to secure a footing in these markets, it is essential to know the lowest possible price at which the products concerned can be quoted. This necessitates an accurate cost price calculation. The development of a current standard costing system based on expected normal, expected actual or best attainable performance is a lengthy process which, because of the conditions outlined above, may initially result in inaccuracies. Therefore past averages were at the outset preferable. This however, does not mean that any one of the above-mentioned methods is permanently excluded and it is intended to review the entire matter at a later stage in the development of the costing system.

To summarise, therefore:

For the cost calculations used for price determination, current standard cost systems were developed, based on:

(1) For material quantity and quality standards : expected normal.

(2) For material prices: expected actual.

(3) For processing cost: the past averages.

In addition to the above, as one of the most important functions of management is the control function, another factor relative to price fixation is costing for control purposes.

/this is

This is fully discussed under "Management controls" (Chapter XI).

A major consideration for the development of a system of standard costing was, therefore, whether or not it would make an effective contribution toward cost control by supplying the management with valuable data, thus enabling, if necessary, timely remedial action to be taken. The items covered in this field include the following:

Material - liquid stocks	- quantity and quality prices
Other materials	- quantity and quality prices
Processing costs	- Fixed variable

A system of current standard costing can supply valuable data to management by relating the predetermined formula of the expected normal maturation period with the actual maturation period of the wine used. Any variations will result in a maturation profit or loss which is not reflected in the ordinary financial accounts or under a system of actual costing. The system of current standard costing based on expected normal being applied for cost calculations for price determinations is, therefore, also applicable in this particular case. The price of the raw material is largely determined by conditions beyond the control of the K.W.V., and therefore the need for material price control falls away. However, in order to arrive at the cost value of material put into the manufacturing process and the cost value of the output, i.e. to determine a

/maturation

maturation profit and loss, the method used for cost calculations as a basis for price fixation can be applied.

As regards other materials, standards can be fixed for items such as packing material and fuel, and provision for controls made accordingly. Standard prices can be predetermined and the purchase prices ~~actually~~ paid related to these prices in order to arrive at the economy of ^{the} current year's purchase activities. A sound basis for the predetermination of these factors is, therefore, a system of standard costing based on expected actual - taking into account possible changes in prices and the quality of the material procured.

To arrive at processing costs, standard costs can be used for control purposes by the establishment of standards and the measurement of actual cost against these predetermined standards. In this instance, a current standard costing system, where the standards are based on expected normal or expected actual, was considered the most suitable. As regards distilling wine, it is extremely difficult to predetermine the level of activity since the size of the crop is an unknown factor, and therefore, in setting up the standards for the coming year, it is impossible to arrive at the expected actual for variable costs. For cost control purposes the measurement of actual expenditure against expected actual will be a better yardstick, and variations will be of more signifi-

/cance

cance.

In the case of good wine production departments, the level of activity for the coming year which can be accurately predetermined does, in fact, show little fluctuation from year to year, and this makes it possible to base the current standards in these departments on expected actual.

The system of current standard costs for the control of processing costs is based on expected normal but, is in fact, adjusted in so far as expected actual can be predetermined.

f. Conclusion

It is interesting to note that in the developments of this costing system methods were developed to suit the particular requirements, rather than to adapt the records and methods to the principles and procedures of one particular system.

3. Material costs.

a. Introduction

Under the discussion on the existing methods, the material was subdivided into two main classes, viz. liquid stocks and maintenance material.

In this section the proposed methods are

/ dealt

dealt with under each of these two classes, and reference is made to the proposed methods of standards: quantity and quality, replenishment, prices, documentation and the organisation of the department.

b. Liquid stocks

(1) Introduction

As was pointed out under the discussion on the existing methods, liquid stocks are subdivided into raw material, work-in-progress and finished stocks. It was, however, further pointed out that for accounting purposes these could not be dealt with under separate headings owing to the difficulty in deciding, at any one time, the stage of manufacture of the product. Wine, for example, may be ready for delivery and kept in casks and this may mean further maturation. The liquid stocks are therefore all dealt with as one stock item.

(2) Standards: quantity and quality

The formulae for standards of quantity and quality as determined by the wine experts serve as a basis for the actual quantity and quality of material to be used but, in practice, the actual consumption may not conform strictly to these predetermined standards. For example, to produce Canada medium, 70% brown sherry and 30% sweet sherry are mixed, each type matured for five years in small casks. It may be found that a four-year-old / brown

brown and a six-year- old sweet sherry might have been used, depending upon the degree of maturity reached.

From the above example it is obvious that continual profit or loss may be expected from blending operations, and therefore the importance of being in a position to measure the extent of such profit or loss cannot be over-emphasized. This important function, although recommended, has not yet been introduced, but could be achieved by abstracting the information in regard to the period of maturation from the liquid stock record cards and, since this would represent the actual consumption as regards quantity and quality, it could be compared with the quantity and quality as provided for in the formula. This comparison should be presented to management in the following form:

Table No 27

Blending profit and loss account

Product items	<u>Accumulative month of:</u>		
	Standards	Actual	Profit Loss
Sherry			
Sweet wine etc.			
Totals:			

(Personal observation)

In the above statement (Table 27) because a period of one month is too short to be of any significance, the profit or loss per type and in total is shown on an accumulative basis.

(3). Replenishment

Because wine as a basic material is procured and matured before marketing in the far distant future, it is necessary that the stocks of wine on hand should be critically analysed at least once per annum. This involves a detailed comparison of the total stocks under maturation by type and age with the set stocks required for distribution or selling, and it may show up surpluses and shortages.

A method recommended for the establishment of the true levels of stocks is set out below. Such an analysis forms the basis for the replenishment of stocks and also materially affects the maturation programme:

(a) The final products budgeted for sales are analysed into basic substances according to age. This will give the qualities required.

(b) The actual quantities in stock are listed next to the calculated quantities and compared.

(c) Surpluses and deficiencies are determined for each basic type.

(d) The surpluses and shortages are

/tabulated

tabulated as a guide for reduction or increase where required.

An example for the calculation of the required quantities is as follows:

Table No 28

Sales budget - volume leaguers

Quantity in leaguers

Age of wine	1958	1959	1960	1961
4 years	<u>100</u>	120	80	100
5 years	400	<u>350</u>	450	500
6 years	200	150	<u>200</u>	175
7 years	100	50	150	<u>50</u>
8 years	50	20	25	30

(Personal observation)

In the above table the sales for four, five six, seven and eight years were budgeted in 1958 for four years in advance.

The wine in stock in 1958 at four years of age will be sold as a five-year-old wine in 1959, as a six-year-old in 1960, and as a seven-year-old in 1961, the reason being that the maturation process continues all the time.

Budgeting the total requirements of four-year-old wine in 1958 for four years in advance will be the sales requirement of 100 in 1958, plus

/350 in

350 in 1959, plus 200 in 1960, plus 50 in 1961: a total, therefore, of 700 leaguers. Similarly, the requirements of the five-year-old wine for the budgeting of four future years will amount to 730 leaguers.

The amount of good wine four and five years old in stock in 1958 should, therefore, be 700 leaguers for four-year-old and 730 leaguers for five-year-old. In addition provision should be made for maturation losses at the standard percentages laid down.

In order to ensure that sufficient stocks are carried, but that no excess stock is held, these calculated figures are compared with the actual stocks on hand.

Assume that the actual stock holdings for the two types are:

4 year old	:	1200 in 1958;
5 year old	:	600 in 1958.

Then the surplus of stock in four-year-old will be $(1200 - 700) = 500$ less maturation loss provision. The shortage of stocks in five-year-old will be $(730 - 600) = 130$ plus maturation loss provision.

After the shortages and surpluses have been determined, it is necessary to take steps to rectify the position.

Some steps are:

(a) To alter replenishment of wine so as to be in line with future requirements.

/(b)

(b) To mix and blend the surpluses in one category with surpluses in another category in order to make up the shortages, for example: Assume a surplus in four-year-old of 500 leaguers. Assume a surplus in six-year-old of 150 leaguers. Assume a shortage in five-year-old of 150 leaguers. Then 100 of four-year-old plus 100 of six-year-old = 200 leaguers of five-year-old, and this should be sufficient to compensate for the shortage in the five-year-old. This, however, can only be achieved in certain instances, and therefore a well-planned procurement programme, coupled with experience of replenishment and market conditions, is essential.

(4) Prices

As the price paid for wine is largely beyond the control of the management, the prices used for liquid material are required only for product item costs as a guide to price fixing.

(5) Documentation

(a) Introduction

The recommended documentation and related clerical procedures are discussed under the headings of: receiving and accounting for grapes and distilling wine, and liquid stock records and control.

The documentation discussed in this section is only a sample of the entire documentation and clerical procedures recommended and gives an indi-

/ cation

cation of the simplification and other improvements which were achieved in this direction.

(b) Receiving and accounting for grapes and distilling wine:

The documentation and clerical procedures in this connection are illustrated in diagrams Nos. 17 and 18.

The flow of the documentation and clerical procedures connected therewith as depicted in the diagrams are briefly as follows:

In regard to the receiving of grapes and distilling wine, a scale ticket is made out on the same lines as under the old method but in triplicate instead of in duplicate. The farmer receives one of the scale tickets as proof of delivery as before but, instead of the information on the scale ticket being summarised on an intermediate document, one of the scale tickets is forwarded direct to head office, where the necessary cards are punched and monthly accounts sales are mechanically produced. For every account sale produced a summary card is punched automatically. These summary cards are used for the following purposes:

(i) To credit the producers' personal account.

(ii) To compile the producers' monthly statement of account.

(iii) To tabulate the receipts of distilling wine and grapes for posting to the nominal ledger.

Documentation : Grape receiving

New system

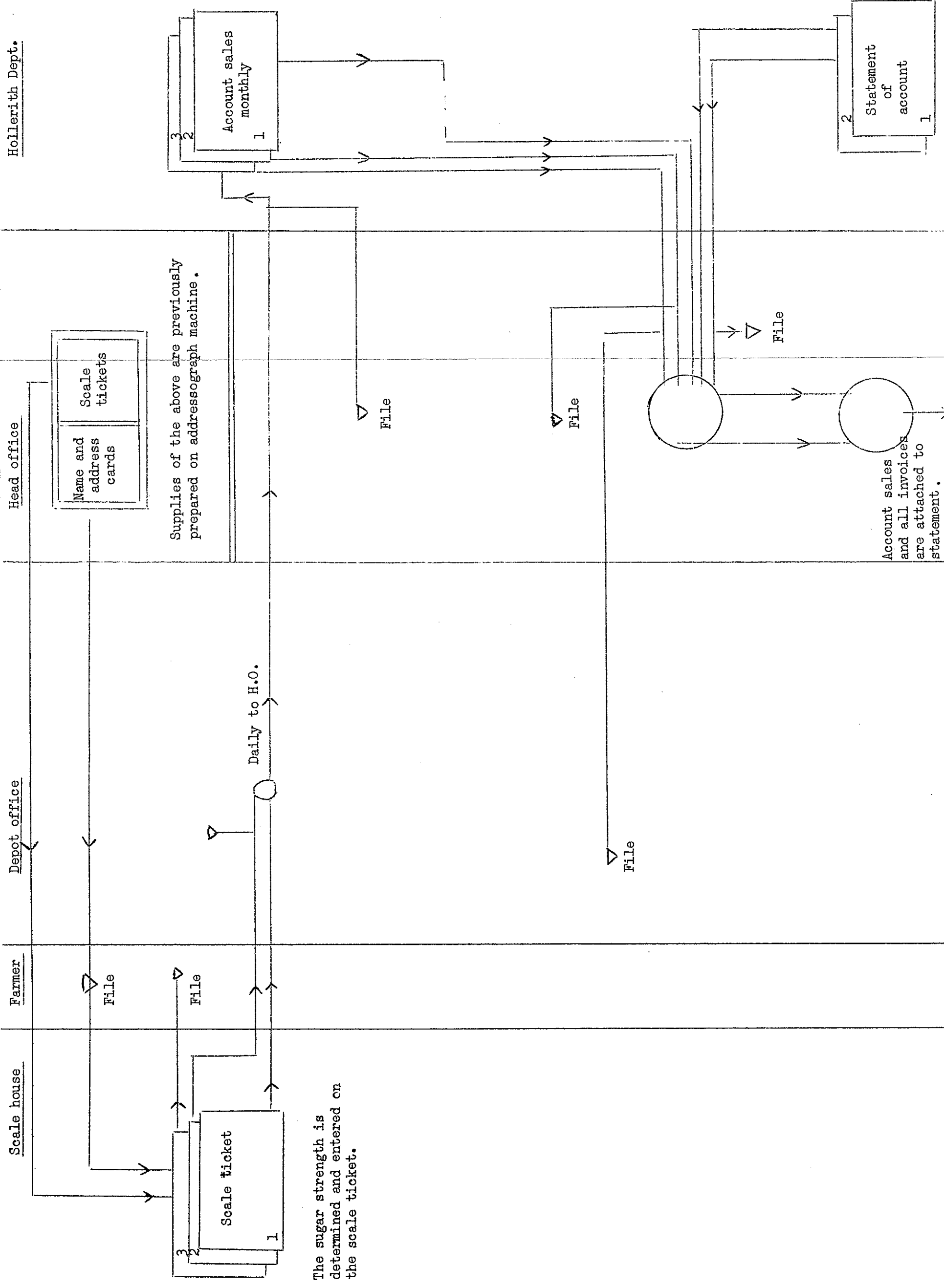
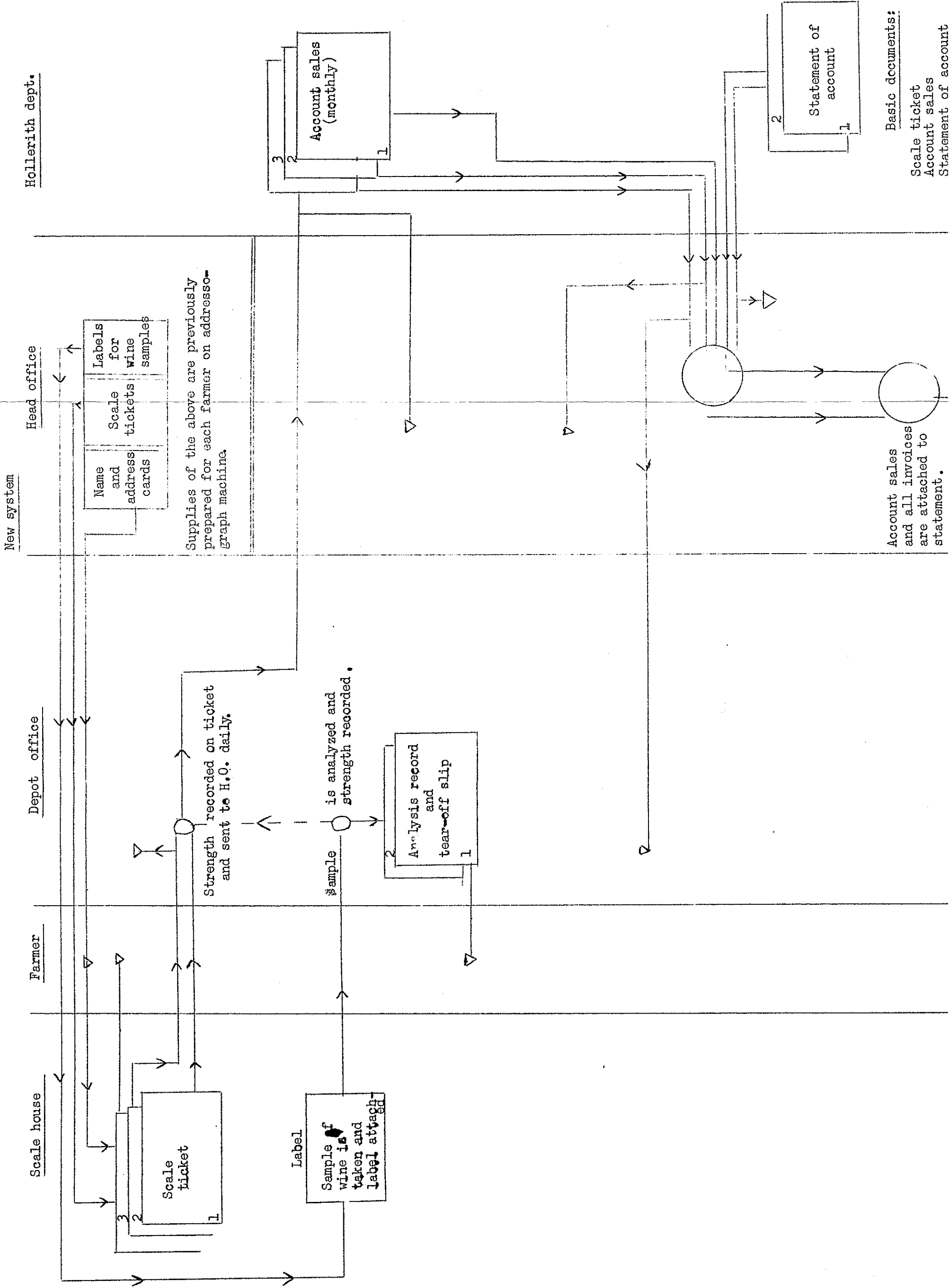


Diagram No. 18:
Documentation : Distilling wine



Basic documents:
Scale ticket
Account sales
Statement of account

(iv) To compile a tabulation of deliveries per producers for production quota purposes.

(v) To calculate the annual bonuses to producers.

(vi) To compile income tax returns for producers and the Receiver of Revenue.

Under this method the scale ticket is regarded as a basic document and a number of the previous clerical and documentary procedures are eliminated.

(c) Liquid stock records and control

The documentation and clerical procedures related to this phase are shown as an example in the following diagram:

/ Diagram

Control system for spirit and brandy stocks.

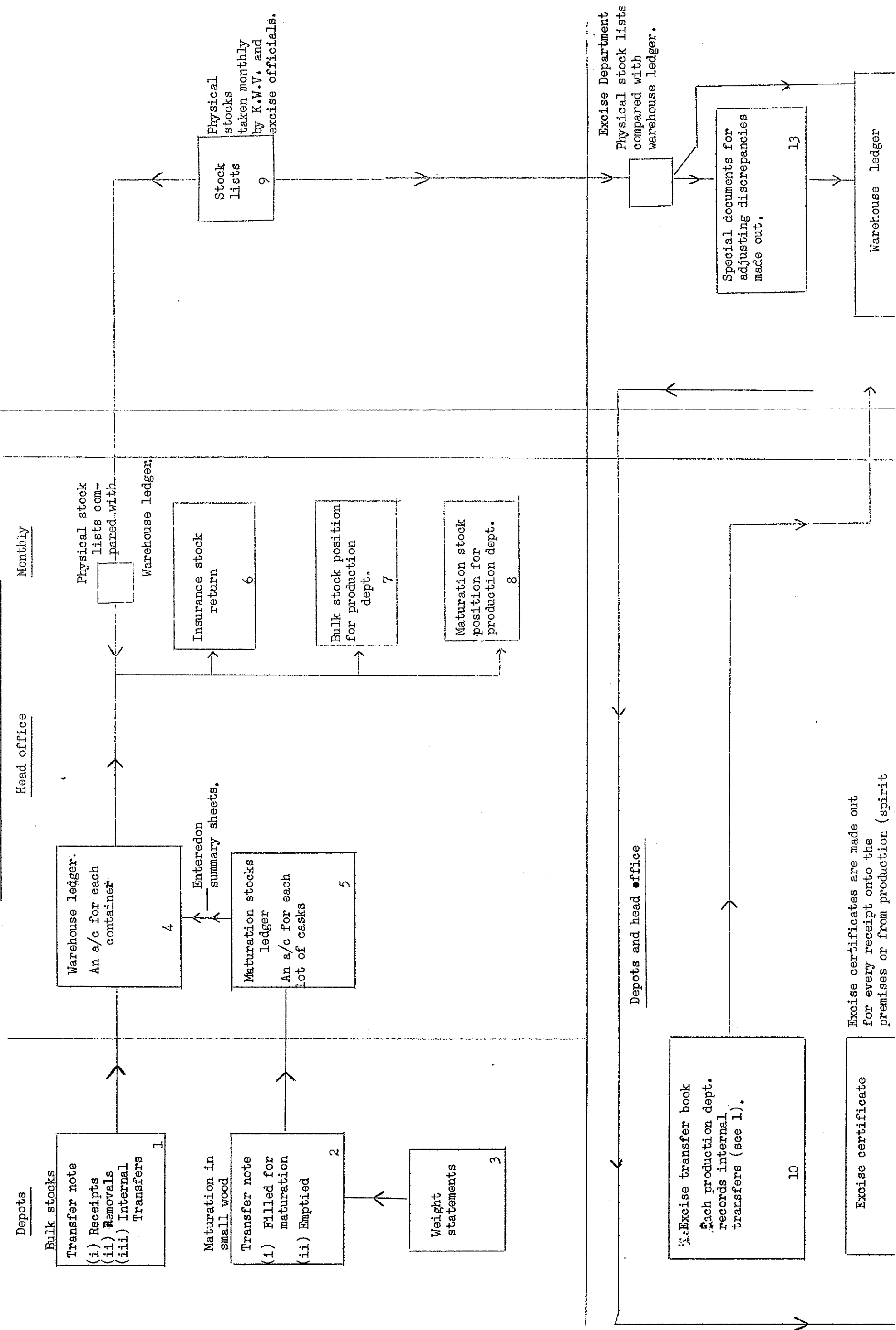
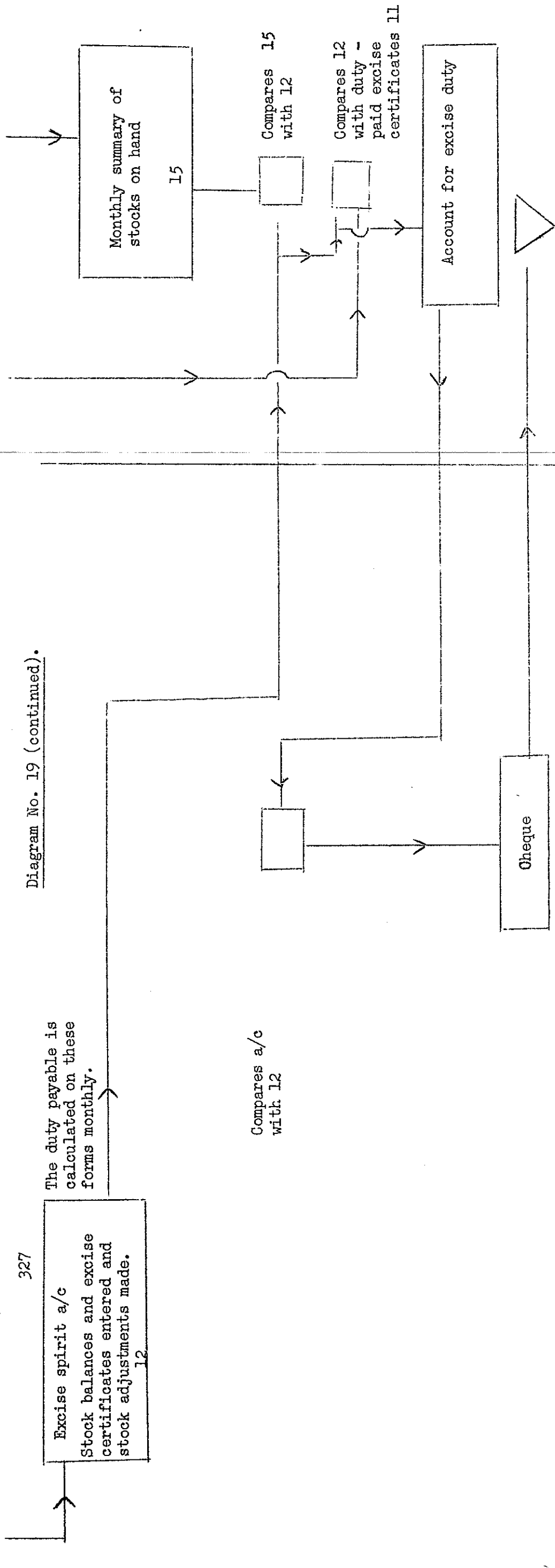
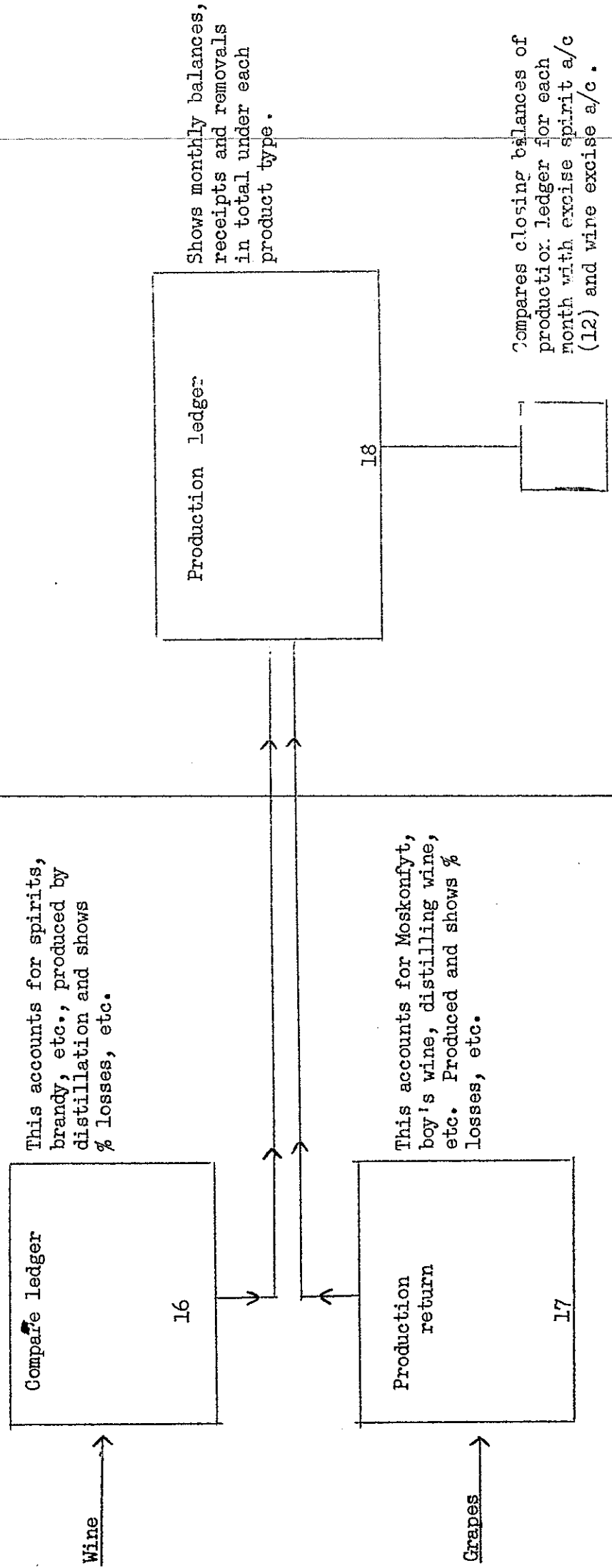


Diagram No. 19 (continued).



Depots

Head office.



The foregoing diagram reflects brief details of the flow of the documents and related procedures for head office, depots and the excise department. It also shows that head office maintains warehouse records for all depots resulting in complete information in regard to stocks. This makes possible effective control of stocks and facilitates the compilation at head office of monthly returns and other stock control information.

It further overcomes the deficiency in the existing methods, whereby the almost complete lack of such records made the organisation dependant upon the excise department for this information. Another feature reflected on the diagram which warrants special mention is the compare ledgers and production returns which are now used to better advantage in that they serve as a means for the determination of distillation and other processing losses, thus enabling management to exercise more effective control.

(b) Organisation of liquid stocks department

Administrative control over liquid stocks is obviously essential and, in order to overcome the shortcomings discussed under the existing methods, such a control was centralised in the accounts department. For this purpose a liquid stock section was created where proper stock records of all liquid stocks were developed. The

/introduction

Introduction of this procedure made it possible to develop uniformity of stock procedures throughout the organisation.

The maintenance of stock records is also closely related to the returns to be submitted to the excise department and, in some instances, such records are prescribed in that department. By centralising the stock records, negotiations with the excise department in regard to the simplification of records and returns were facilitated, and this enabled the organisation to insist on uniform interpretations of regulations and their application.

c. Maintenance stores

(1) Introduction

The various factors considered and discussed under maintenance stores control are: prices, replenishment, documentation and methods.

(2) Prices

In order to reduce the clerical work involved in the re-averaging of stock item unit prices, and in order to effect an accurate cost charge to the cost accounts, it is desirable that a system of standard prices should be used.

The prices are based on ruling prices paid and are fixed annually by a committee consisting of the storeman, accountant and the buyer. Such prices are reviewed if a permanent increase or decrease of 10% takes place. All receipts are priced at standard prices

/ and

and the variation between the actual and the standard value is charged to a price variation account. This variation account serves as a control, and exceptionally large variations should be investigated and reported to the management.

An added advantage to be obtained from standard prices is that, as prices used for accounting purposes are always the standard, no values need be shown on stock ledger cards.

(3) Replenishment

It is most necessary to reduce the value of the maintenance stockholding. The procedures in order to achieve this are:

(a) The consumption of each item should be carefully studied by a committee consisting of:

- the buyer;
- the accounts clerk (stores accounting);
- the maintenance engineer.

All items where excessive stocks appear to be held should be frozen in so far as additional replenishment is concerned. The level of stocks to be maintained will vary from type to type, e.g. imported stocks may be maintained up to a level of twelve months. Locally procured stocks should be kept as low as possible and, where replenishment can be effected within one week, stocks should be reduced to about one months supply. Due consideration should be given to the benefits of bulk buying.

These methods should, however, not be too rigidly applied since certain stockholdings of which

/the

the consumption is very low may have to be kept as emergency stocks in order to meet an urgent demand.

Marginal instances should be carefully scrutinized by the committee.

Finally, as regards replenishment, the tendency should not be to cut stock levels to an absolute minimum since the purpose of these stocks is that they be available for maintenance and urgent repairs. The non-availability of such stock items may cause serious hold-ups in the manufacturing procedures and should where possible at all times be avoided.

(4) Documentation and procedures

In order to simplify the documentation, the following recommendations are made:

(a) Receiving

A redesigned purchase order is recommended and shown in appendix 5. The form is so designed that the original serves as the purchase order, and the copy as a goods received note. In order to overcome the possibility of information being inserted in the columns provided for the standard values of the receipt at the time when the purchase order is being prepared, certain notes in regard to the rendering of accounts by the supplier are printed on the original copy.

/(b) Stores

(b) Stores records

Only one set of stock cards should be kept and, as it is necessary for the storeman to have immediate access to the records, these cards should be maintained in the stores. Under a system of punch cards, however, stores records can be produced as a by-product.

d. Conclusion to material costs

In the development of the system of cost accounting for materials, particular emphasis was placed on the making available of information which could be used for effective control of the cost of material. This was most important, not only because the quantity of liquid normally stored is in the neighbourhood of 20,000,000 gallons, but also because of the complex nature of the manufacturing processes which may result in an accumulation of losses, particularly in blending and other operations.

In addition to the above, another phase of control which was considered to be of the utmost importance was that of a sound basis of replenishment. This was advocated because of the peculiar nature of the production processing of wine which, in the case of maturation, may be spread over a number of years.

All the data and information necessary for

/effective

effective material cost accounting and control flows from the documentation and related clerical procedures and, therefore, in the development of the costing and control methods, attention was given to the streamlining of the documents and clerical procedures which resulted in simplification, elimination of duplication and the making available of adequate and useful stock records.

The reconstruction of the liquid stocks department resulted in the stock record maintained at the head office as well as at all depots being uniform and simple.

The system of material costing and control introduced has overcome the deficiencies which were described in the discussion on the existing methods.

4. Labour costs

(a) Introduction

Labour cost is an important cost item because it represents approximately one-third of the processing costs, material liquid costs and packing material excluded, and although the activities are of a seasonal nature, the organisation is compelled, because of the highly specialised nature of many of its activities, to employ a large permanent labour force. Even though during peak periods extensive use is made

/of casual

of casual labour, the permanent labour force still predominates and the utilization, during the off-season, of the permanent employees is one of the major problems of the management.

The control of labour costs and the apportionment thereof are discussed under the following headings:

Fixing labour time-standards;

Documentation and allocation procedures;

Standard labour rates for allocation purposes;

b. Fixing labour time standards

The fixing of standards for labour is set out as under:

(1) Pressing

In the establishment of proper standards for the pressing activities the following difficulties were experienced:

(a) The uncertainty of the total crop for the year, because the volume to be processed has an important bearing on the labour requirements.

(b) The total quantity that will be processed in the pressing cellars is determined by the percentage of the total crop which will be delivered to the K.W.V., and this, at the time of planning, is an unknown factor.

(c) The pressing is an entirely seasonal activity which is carried out over a limited period lasting from six to eight weeks. It is not known

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at the time of estimating the labour requirements for this process, over what period the crop will be delivered. A considerable quantity of grapes may be delivered during one week, whilst in another the quantity received may be much less: nevertheless, sufficient labour must be provided to cope with any reasonable maximum delivery on any one day. It is true that deliveries can to some extent be regulated, but the function of this service to the members of the K.W.V. is a prime objective and, although it may be possible to even out exceptional delivery peaks by regulating supplies, the labour force available for pressing must be such that it can handle with dispatch any reasonable maximum quantity as received and so ensure smooth and satisfactory processing of all deliveries.

(d) As far as possible casual labour is engaged as required to meet seasonal demands and in this way the minimum labour force required is employed. This, however, is subject to labour being available from day to day and therefore it is normally necessary to engage such casual labour for the entire pressing season. In so far as supervisory labour is concerned, provision for this is made in the permanent establishment.

Standards for the manufacturing or processing operations could however, and have been, fixed on the basis of maximum capacity.

/These

These standards for the purpose of daily productivity control because of the many factors mentioned above only serve as a rough guide. They do, however, serve as a basis for the determination of the maximum personnel which will at all times be required and any staff in excess thereof may be regarded as surplus. This, together with the personal interest taken by the depot manager, should serve as the main essence of control of the labour force. Annually, prior to the commencement of the pressing season, the depot manager in collaboration with the production department can, by taking into consideration the expected volume of deliveries, approximately determine the required labour force. For the purposes of standard costs, however, it is doubtful whether the labour standards for the processing activities can be set sufficiently accurately to serve as a truly tight cost efficiency and control measure, but they can be set accurately enough to serve as a valuable guide in connection with the over-all control of labour costs.

(2) Distilling of spirit and brandy

Normally, once the distillation process is commenced, it continues until all distilling wine has been distilled into the final product. Thereafter, the labour specially employed for this purpose is, in order to reduce the over-all manufacturing costs, allocated to other work, e.g. maintenance.

/In principle

In principle the undermentioned factors inherently form part of the process:

(a) In the distillation process the total gross volume of material decreases. Therefore where storage capacity is limited, quick distillation is desirable in order to make storage space available for peak deliveries during the season. The greater the storage capacity provided by the organisation, the quicker the farmer can deliver. This means that there is less need for storage capacity on the farm and in this way a service is rendered to the farmer.

(b) There would appear to be some relation between the quality of the product and the size of the distillation still as, naturally, a large still can handle a much larger volume than a small one. This greater capacity may be in excess of the actual requirements and would result in shorter distillation periods with a corresponding decrease in the labour normally required for this process.

(c) Provision for permanent staff is necessary for this operation because certain qualities, coupled with experience, are required of the personnel employed on the work.

Standards for labour can, however, be determined as the output of the stills is known. These standards can be used:-

(a) whilst the process is active in order to measure the productivity and control short time / slackness

slackness but when the processing stops, unless use can be made of the labour elsewhere, all labour will appear as unproductive.

(b) to establish the normal staff complement required when the stills are in full production so as to ensure that at such times the labour time is in close relation to the actual output. Staff complements established on this basis should be the maximum employed at any one time of the year, but cost control standards should be fixed on the over-all basis, i.e. on the staff complement established, because it may not be possible and economical to use the labour elsewhere. Debit variances which are unavoidable would appear.

The practice of employing idle labour for building maintenance, etc., is sound in principle, but unnecessary maintenance should not be undertaken solely to utilise the services of such staff, because in such cases no true reduction in cost is achieved and costly maintenance material, which would not otherwise have been used, is expended.

The standards for cost control purposes were therefore based on the assumption that the labour charge is a fixed amount and not a variable in proportion to output.

(3) Copperage

Labour standards for the tightening of hoops were determined and a daily productivity calculated.

/The productivity

The productivity of this section varies between 40% and 55%. The average is approximately 45%. The calculation of standard costs based on properly determined labour standards was, therefore possible.

In the assembly of casks the main proportion of the work (80%) is let to contract at a fixed rate per cask. The balance of the casks is assembled by labour, especially engaged for this purpose and such staff are paid at a fixed rate per cask.

The repair of casks is also carried out by specially engaged labour who are paid a pre-determined wage rate per cask.

In both the above instances a standard could, therefore, be determined and could be used for the establishment of a standard cost.

(4) Good wine

(a) Handling and blending

This includes the receiving, blending and dispatching of good wine. As regards "receiving", when determining standards for labour in direct proportion to output, the following difficulties arise:

(i) The main function of labour in this process is to operate the pumps which pump the wine from one tank to another and the adding to the wine of chemicals and other materials. This is strictly

/ speaking

speaking, merely an indirect function, and cannot therefore be classified as direct labour.

(ii) In contrast to the pressing and distillation processes, the volume of good wine does not fluctuate materially from year to year, and in addition, the volume to be received from day to day from the farmers can be pre-planned and the duration of the period of receipts of wine regulated as required. This predetermination of the load on the cellar, facilitates, to a large extent, the standardisation of activities and the labour force required.

(iii) Once the minimum amount of labour is determined, fluctuations in volume will make little difference to the complement. This was proved by the fact that, whilst in one particular year an increase in input of 33% was experienced, the labour force remained constant.

These points establish that the labour in the department is largely fixed in nature and should be controlled accordingly. A minimum amount of labour is required to operate the pumps and below that, irrespective of volume within limits, no economy can be effected. Here again, the determination of standards is necessary in order to ensure that the minimum amount of labour is required over-all.

With regard to blending, the total labour cost in this section is also mainly of a fixed nature, and any reasonable change in the volume handled will have very little or no effect

'. /on the

on the labour force required.

In so far as manipulation is concerned, the wine is received from the blending department and is then manipulated and pumped to the stabilization plant. Thereafter, it is returned to the blending department ready for despatch.

The labour cost is largely fixed in nature and reasonable fluctuations in the manipulation programme will have little, if any, effect on the labour complement.

The labour cost in the maturation stores is included in the handling and blending of the wine and is also of a fixed nature.

(b) Stabilisation

Since it is essential that the available capacity should always be utilised in order to protect the insulation of the tanks they are always kept full, with the result, that the section always operates at full capacity, although, of course, it may not necessarily be at all times used productively. In view of this, all labour in this section can be regarded as a fixed cost.

(c) Dispatch

Standards were determined and fixed for the filling and loading of casks which are shown in standard minutes as follows:

/Table no 29

Table No 29:

Standard times for filling
and loading.

Type of Cask	Loading	Filling
40 gallon (w/cask)	4 s.m.	17 s.m.
65 gallon (h/head)	5 s.m.	24 s.m.
100 gallon (punch)	7 s.m	30 s.m.

(Taken from K.W.V. records.)

Team sizes were also determined for varying conditions. From the above table it will be seen that the labour is in proportion to the actual volume handled. Fluctuations in the volume to be handled, however, are coped with as follows:

Where an abnormal increase of volume is experienced, additional labour is obtained from sections situated in close proximity, which means that virtually no extra labour cost is incurred. Where the volume drops below that normally handled, the surplus labour is, as far as possible, disposed of by utilising it in other departments.

This procedure contributes to the over-all effectiveness of the organisation provided that, should the labour disposed of be ineffectively used elsewhere, the charge in respect thereof is debited to the original section concerned.

/The labour

The labour cost, therefore, tends to be a variable in proportion to volume handled, and could be controlled as such.

(5) Spirit

The principles of the utilisation of labour in this particular category are closely related to those of the utilisation of labour under good wine. The labour cost can largely be accepted as fixed and any variation within reason will not result in any material difference in the labour cost.

(6) Bottling

In this section, mainly wine and brandy are bottled. Standard times for the bottling process can be determined, but problems relating to the fixing of such standards are as follows:

(a) Variations in the nature and extent of orders which have to be carried out according to the client's requirements. This is entirely different from a fresh milk bottling process, and eliminates to a large extent the bottling for stock.

(b) Whilst in stock, bottled wine might mature further thus altering the quality and for this reason manufacturing for stock is not desirable.

(c) Uneven distribution of orders throughout the year, especially rush orders. Some rush orders however, may be placed on the bottling section earlier, thus allowing more manufacturing time and the synchronisation of sales of bottled stocks with the bottling thereof.

/The standards

The standards in this section were set by taking into consideration: speed of the bottling lines, differences in packing, size and type of bottle.

As a result of these factors, standards will throw up variances which may really be coupled with the natural operations of the section, and which are therefore unavoidable. After a period, however continuous productivity calculations will enable a correcting factor to be provided for.

The standards are as follows:

Table No 30
Standard times for bottling

Product	Bottles per hour	s.m. per bottle
(i) <u>Wine</u>		
Table wine	810	.104
Sweet wine	2,100	.0408
(ii) <u>Brandy</u>		
Quarts and round pints	1,410	.063
5 ozz	1,560	.057
Flat nips and pints	1,920	.045

(Taken from KWV records)

Note: Fixed for various bottles, cases, wrapping labels, etc. from 14 to 27 men per line.

/Conclusion

(7) Conclusion

The determination of standard times will largely contribute to the attainment of an over-all maximum complement and serve as a basis for the control of such expenditure. These expenses could, because of the nature of the activities, be considered as fixed. Also the calculation of the productivity in some of the activities and the control thereof becomes possible.

c. Documentation and allocation procedures

The procedures developed in regard to the booking of time, wages payroll and allocation of wages to ensure the best possible results with a minimum of clerical staff are set out hereunder:

(1) Booking of time

For wage allocation purposes, a weekly time sheet reflecting, in respect of each workman, the everyday activities and the time spent thereon is compiled by the foreman in charge. These time sheets are forwarded to the costing department for allocation purposes.

An example of this document is as follows:

/ Diagram

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Table No. 31.
Weekly time sheet.

No.	Wage R/H
Name	P/W
Section	Alloc
W/E	

DAY	Description of work	O/ time	Hrs.	Alloca- tion
W				
T				
F				
M				
T				
Total:				
			Hrs	£. s. d.

Provision is made on the weekly time sheet for the employee's number, wage per hour or per week, name, section in which employed, the allocation number assigned to the work on which normally engaged, the week ending, description of the work on which actually employed, the hours spent thereon and the appropriate allocation number. The above information is inserted by the foreman in charge and summarised weekly per allocation head.

(2) Wages payroll method and allocation of wages:

Two methods are employed:

Wages for the Paarl depot are mechanised on a system of punch cards.

A manual Kalamazoo system is in operation at the other depots.

Before discussing the actual payroll methods it may be mentioned that a clock card system is used throughout for the recording of times and this forms the basis of the wage computation.

(a) Paarl depot

The payroll method is briefly as follows:

(i) The clock cards are forwarded to the Paarl depot office.

(ii) Clock cards are sorted manually into two separate groups, one for cards where the full normal hours have been worked and the other for those where absenteeism occurred or where overtime was worked. For cards where less than the normal time has been worked, the actual weekly wage is

/calculated

calculated and checked manually. The cards are then sent to the punch card room in one batch. Where overtime has been worked, the cards are also checked, adjusted manually and, thereafter, forwarded to the punch card department.

(iii) In the punch card room, cards are punched initially for all employees for a normal week and, provided every worker worked exactly the hours of a normal week, the payroll is obtained by a tabulation of these cards.

(iv) The first step in compiling the weekly payroll is to extract the cards for all employees who did not work the full normal week or who worked overtime. From the adjusted clock cards the cards are punched giving the actual wages. These will replace the normal wage card.

(v) Cards are punched separately for all overtime and merged with the wage pack.

(vi) Cards are punched for new employees and similarly merged.

(vii) Dismissals are withdrawn from the wage pack.

(viii) The payroll is then compiled from the wage pack (punched cards).

As a matter of interest, experience shows that it is seldom necessary to punch cards, other than the initial ones, for more than 20% of the labour force, and usually this percentage is much lower.

For wage allocation purposes a normal wage allocation is given to every employee. This is punched into the wage card after the payroll has been

/compiled

compiled and, by making a second tabulation of the same cards, the total payroll is automatically analysed according to the normal allocations. Subsequently, the time sheets are scrutinised and, where workmen were not utilised in the sections where they are normally employed, adjustments are made accordingly.

The introduction of a system of standard costing simplified the wages allocation procedures as previously an attempt had been made to allocate wages within a department (costing centre) direct to the relevant products, whereas under the system of standard costing a breakdown to departments (cost centres) is sufficient. Although the type of work carried out by an employee within a particular department may fluctuate continuously and in relation to the number of products within that department, the employees are relatively permanently utilised in the departments to which they were appointed. As they require few adjusting entries the wage allocation procedures outlined above were developed.

(b) Other depots

The weekly payroll was mechanised only at the Paarl depot. The delay involved in sending the cards to Paarl did not make this worthwhile and the smallness of the labour force did not warrant a separate punch card installation. At the other depots a manual copywrite system was introduced, the main feature of which is that the payroll, pay slip and the record for income tax purposes are

/compiled

compiled simultaneously, and potential clerical errors in transcribing information are therefore eliminated. A further speeding up and simplification of the clerical work in connection with the payroll procedures is contemplated by the combination of the present copywriter system with stencilling-equipment. The intention is that for every employee a stencil or plate providing for the following information is to be cut:

Reference number .
 Name
 Race.
 Wage rate .
 Details of normal payroll slip, i.e.
 Basic wage
 Cola
 Gross
 Deductions
 Nett.

Normal allocations

These plates form the basis for the compilation of the weekly payroll and other related documentation, and for this reason they have to be continually kept up to date. Plates in respect of dismissals have to be removed and those for new appointments, stencilled at the head office, placed in position. In one mechanical operation the information contained on the stencil is reproduced on the payslip, payroll and duplicated payroll for head office. Subsequently, the actual time

/worked

worked is entered from the clock cards and, for those employees who worked the normal week, the information as reproduced from the stencil is merely entered under the respective headings. As for the Paarl depot where the wages procedures are mechanised, calculations will only be necessary in respect of employees who worked short time or overtime.

In the discussion on wage allocations at the Paarl depot it was shown that the allocations were predetermined and a tabulation on this basis was a by-product of the payroll. The same procedure is applied at the other depots, the only difference being that the predetermined allocations are compiled manually. In both cases, adjustments necessary to arrive at the actual allocations are made subsequently.

d. Standard labour rates for allocations purposes

In order to facilitate wage allocation procedures and to reduce the clerical work to a minimum, standard labour rates are extensively applied with great success, without obscuring the accuracy of the cost data and cost results. The application of standard labour rates was, therefore, ipso facto an important consideration in this instance.

From the discussion on wage allocation procedures it is clear that the application of standard labour rates would be limited to the adjustment of predetermined to actual allocations and would considerably streamline the adjusting procedures.

/An

An analysis of the existing labour rates revealed that a total of 22 rates existed for coloureds and 32 for natives and, as was graphically shown in chapter VII/4 the majority of labourers fall within a few wage rates.

In order, therefore, to simplify the clerical procedures under the methods developed, two separate all-inclusive unit rates were adopted for cost allocation purposes, i.e. one for natives and one for coloureds. Over 50 various rates existed for Europeans and, for cost allocation purposes, this number was reduced to one all-inclusive unit rate.

The use of this large number of rates for the purposes of cost allocations involved clerical effort because a separate rate had to be calculated and applied for every individual. With the introduction of the all-inclusive rates referred to above, the labour costs for the various expense headings were determined by multiplying the total number of hours for each group by the appropriate rate, thus considerably reducing the number of calculations and clerical effort.

Any necessity for the extra effort required in order to apply each individual rate separately is doubtful for the following reasons:

(1) The information or basic data appearing on the time sheet may be suspect as it is difficult, in many instances, for the depot manager or foreman to be absolutely accurate when allocating the workman's time to the head of allocation concerned and,

/ if

if the accuracy of the basic data is suspect, it is doubtful whether the degree of accuracy achieved by using the individual rates is justified.

(2) Employees may be employed on maintenance or be available for use elsewhere and the work for which their services are used may be outside the scope of their normal activities. The value of allocating their full rates, bearing in mind that they are specialists and were taken on for a particular process or activity, to a job of an inferior nature is doubtful. The work carried out as an off-season activity could have been done with far cheaper labour, and therefore received an excessive debit, whereas the process or product on which the services of such employees are normally utilised received too low a debit since it is credited with this labour at full rates.

To overcome this problem, standard unit rates were reduced by 25% with the result that work performed in the off-season is charged out at a more realistic rate.

From the above it will be seen that the all-inclusive unit rates were introduced for the sole purpose of simplifying clerical procedures and not for the forming of a basis for the control of labour rates. The main reason for not using the standard labour rates as a means of control is that practically all the labour can be regarded as fixed as pointed out under 4 b above. A more effective over-all control could be obtained by the grading

/and evaluation

and evaluation of each individual or group of posts.

e. Conclusion

In developing the costing system for labour, particular care was taken to simplify the allocation and related clerical procedures. Furthermore the basic method of allocation which was in operation under the existing methods was changed from that of direct allocation to the product to allocation to cost centres. This not only contributed to the simplification of procedures, but made the cost allocation a practical proposition.

In the controlling of labour costs, standards were set in certain operations such as cooperage and dispatch and bottling, and the actual labour requirements were controlled in accordance therewith. Such labour, however, only forms a small portion of the entire labour costs and, as the greater portion of the labour costs could not be controlled in this way, over-all staff complements within sections were established and utilised for the control of labour in the departments concerned.

The methods developed were simple, and provided not only the basic information necessary for the calculation of unit costs as a basis for price fixation but also that required for the determination of departmental profitability.

/5. Overheads

5. Overheads.

a. Introduction

The cost accounting methods developed in respect of overheads are set out hereunder and are described under the headings of fixing overhead standards, overhead rates and examples of overhead.

b. Fixing overhead standards

A feature peculiar to the cost structure of the organisation is the predominant nature of fixed costs. Many of the activities are related to the handling and storing of large quantities of liquid stocks which require enormous handling and storage capacity. Items such as depreciation, insurances, rates and taxes and maintenance of buildings are therefore important. As was pointed out in chapter VII 5, approximately 85% of the total overhead is fixed. Another important consideration in the development of the current standard costing system is that, for many of the variable overheads such as electricity and water, true consumption figures are not available because of the absence of meters.

From a cost control point of view the emphasis is therefore more on over-all control per depot rather than on fixing standards per cost centre control, and for this reason overheads are only allocated direct if this can be done conveniently and accurately. For unit cost recalculation as a basis for price determination purposes however,

3

/standard

standard bases are established on which all overhead expenses are apportioned annually. This simplifies the allocation and overhead apportionment procedures in the cost department as all costs are accumulated under the respective expense headings but not necessarily apportioned direct to a cost centre.

c Overhead rates

(1) Introduction

To establish rates per cost centre for cost price calculation purposes it is essential to determine the level of activity on which such rates can be calculated. With the peculiar set-up in this instance the level of activity cannot always be predetermined because it depends largely on the size of the crop which, in actual fact fluctuates greatly from year to year.

The determination of the level of activity is however not the only problem. In many instances it is extremely difficult to express the actual activity in a common unit since there is no common yardstick by which to measure it.

The extent of the problems referred to above and the steps taken to overcome them are described under the heading of good wine, distillation and bottling department as these three examples will serve to illustrate the problems which are more or less common to all departments:

(2) Good wine

(a) Handling and blending

/A wide

A wide variety of activities is grouped together in this cost centre. Theoretically, it could be broken down into smaller cost centres but, because many of the activities are so closely related, the allocation of costs would be immensely complicated. For this reason one cost centre is preferred. The level of activity is dependent on two factors, purchases and sales, and the average thereof is accepted as the basis. An average between the actual quantities received and quantities made available for dispatch will, however, give an accurate result because, in the planning of the stock replenishment, provision is made for maturation and handling losses. Therefore, in establishing the level of activity, it is essential to reduce the quantities received by normal maturation and handling losses. The common unit in this instance presents no problem because the activity of the department can be determined by the volume of leaguers handled.

(b) Maturation

The measurement of the level of activity presents no problems as the total volume under maturation is a total and common yardstick. This common yardstick should however, be adjusted to allow for reasonable buffer stocks required for elbow space in the production programme of wine under maturation. It is, however, extremely difficult to determine the exact allowance to be made. Further, allowances should also be made for

/certain

certain types of wines because surplus stocks exist as a result of changes in consumption, and it is almost impossible under such circumstances to distinguish between buffer and surplus stocks.

If however, an accurate allowance could be determined for buffer stock levels, provision therefor in the maturation cost would have to be made as follows:

$$\begin{array}{rcl}
 \frac{\text{Actual Cost}}{\text{Maturation stocks}} & = & \text{Unit cost for maturation.} \\
 & & \text{Saleable maturation} \\
 \text{Unit cost for maturation} \times \frac{\text{stocks + buffer stocks}}{\text{Saleable maturation stocks}} & & \\
 & = & \text{Adjusted unit cost for maturation}
 \end{array}$$

In addition to increasing the unit cost for maturation as shown in the above formula, provision should be made for the cost of the maturation losses of buffer stocks.

The level of activity for maturation stocks is easily predetermined because the dispatch is related to sales budgeting, the receipts to the replenishment programme and stocks on hand and approximate maturation losses are known factors.

(c) Stabilisation

The stabilisation plant is concerned with exports to overseas countries and the total volume thereof is, therefore, the yardstick for the level of activity.

Because of the seasonal nature of the activities, the unit cost rate is based on the

/annual

annual over-all totals. In so doing, an average unit cost is achieved. The predetermination of the level of activity is facilitated by sales forecasting, and therefore presents no problem.

(d) Dispatch

The total volume of dispatch activities is taken as the common yardstick for the level of activity, and this presents no further problems. As with stabilisation, the predetermination of the level of activity is facilitated by sales forecasting.

(e) Conclusion

With regard to good wine there is no problem because a common yardstick is available throughout and the level of activity can be predetermined.

(3) Distillation

The uncertainty in regard to the size of the crop and the percentage thereof that will be received for distillation purposes makes the accurate predetermination of the level of activity extremely difficult and in order to arrive at a basis for overhead rates the average of the previous five years is used. The proof gallon serves as a common yardstick.

(4) Bottling department

No problem is experienced in predetermining the level of activity in this instance as it is facilitated by sales forecasting.

/ No

No common yardstick exists in this department because the nature of the products bottled is of such a wide variety. Therefore, in order to arrive at a common measure, standard times are determined separately for each operation and the output is expressed in terms of standard time produced. This is illustrated in the following example:

Table No.32:

Production expressed in units of time

Quantity (bottles)	Description	Standard time (mins.)		Actual time (mins)
		each	total	
1,000	Table wine	.104	104	
15,000	Brandy (5 ozs.)	.057	855	
50,000	Brandy (flat nips)	.045	2250	
Total production:			3209	3500

(Taken from K.W.V. records)

In the above example the total standard time produced is 3209 minutes which can be compared with the actual time, reduced to minutes, taken for the production of the above quantities. The level of activity in this particular instance would be the standard minutes divided by the actual minutes. In view of this it will be seen that the standard minute can be used as the common yardstick for bottling activities.

(5) Conclusion

In all the cases discussed a common yardstick for each department can be determined and in most instances a level of activity can be predetermined sufficiently accurately for costing purposes.

d. Examples of overhead

Overhead charges are applied only for unit cost calculations as a basis for price fixation purposes, as illustrated in the following examples:

(1) Rates and taxes, insurances and depreciation of buildings for Paarl depot:

Under assets accounts in the nominal ledger a separate account is maintained for buildings at the depot. In addition to this a building register is maintained in which a separate account for each building is kept showing the following details:

(a) Information of a financial nature

Original cost price

Annual depreciation

Book value

The actual amount shown for depreciation of buildings is the same as that used for costing purposes.

(b) Information required for costing purposes

The allocation of buildings to cost centres is straightforward since, in only a few exceptions is more than one cost centre housed in the same building. From the information
/contained

contained in the buildings register it is possible to compile a summary per cost centre giving the buildings applicable to the cost centre and the actual depreciation of individual buildings. As regards rates and taxes, every building is separately assessed and similarly for insurance, premiums are calculated separately for individual buildings and these are entered in separate columns on the list referred to. An example of the list compiled for good wine maturation is as follows:

Table No.33:

Summary per cost centre

Building	Depreciation	Rates and taxes	Insurance
No.	£	£	£
C.17	110	134	201
C.18	346	249	260
D.3	10	277	352

(Taken from K.W.V.records)

In the above example actual costs are allocated to cost centres. From a theoretical point of view this may be subject to criticism since theoretically, by mere chance a cost centre may be housed in a building or buildings with relatively high overhead costs. In this instance,

/ however

however, buildings are designed according to the requirements of particular cost centres and can be applied only to the cost centre for which they were designed. For example, a pressing cellar can be used only for pressing and a still-house only for distilling purposes. It should also be appreciated that whilst costs are allocated to each cost centre, one over-all unit cost rate is calculated for price determination purposes. In the example of good wine maturation quoted above, a standard unit rate is calculated for all good wine and no attempt is made to establish separate unit rates for each particular building.

(2) Electricity and water

As was pointed out detailed meter readings are not available, and therefore to overcome this difficulty standard rates of consumption were assessed in conjunction with the engineering department and used as the basis for apportionment purposes.

(3) Policy expenditure

Many of the items included under overhead expenditure can be classified as policy expenditure. For example as regards depreciation, excessive rates may be applied for financial purposes because of the policy of the board, and similarly for policy purposes the diminishing balance method may be used for the depreciation

of plant and machinery. Under a straight line method the assets could be depreciated at a more realistic rate based on the straight line applied to the current value.

As was pointed out in chapter VIII/5, the existing methods, i.e. diminishing balance method, is open to criticism, and the introduction of a straight line method based on the replacement value of the asset for financial purposes was strongly advocated. It is possible under the diminishing balance method based on purchase value, even if a conservative policy is followed, that insufficient provision may be made for the eventual replacement of the assets, particularly under the present economic conditions of ever-increasing costs.

e. Conclusion

The methods of cost accounting introduced for overheads overcome the major shortcomings in the existing methods in that the procedure of allocating such costs, as and when incurred, direct to the product has been replaced by a more realistic approach in respect of the apportionment of expenditure of this nature to cost centres. This enables the accumulation of basic data which is subsequently used for budgeting purposes.

6. Product unit cost.

a. Introduction

The methods developed for unit cost

/price

price calculations are described under the following headings:

Principle of cost allocations

Examples of cost calculations

b. Principle of cost allocations

In developing the methods for cost allocations, the question of making adequate provision for direct variable cost separately from fixed overheads or apportioned costs was not lost sight of. This is a most important factor, especially where products are to be sold on keen competitive markets.

All the information used in order to arrive at product unit costs is obtained from cost records which are completely integrated with the financial accounts. In this way the deficiencies in the existing methods were overcome.

c. Examples of cost calculations

Examples of the cost calculations in respect of good wine and bottling are as follows:

/ Table No.34:

Table No.34:

K.W.V.Standard cost sheet
(Good wine)

19 ____ Unit costs

Product item _____

Analysis: alcohol _____ P.S.bè _____ Pressing
strength....p

Matured _____ Years in small casks

_____ Years in tanks/butts

Cost price _____ Per leaguer @ 20^o

Over grades _____ Per overgrade

	Direct variable. Rand.Cents.	Total costs. Rand.Cents.
<u>Material costs</u>		
Wine _____ gallon @ _____ per leaguer		
Spirits _____ Pf.gln. @ _____ per pf.gln.		
<u>Maturation costs</u>		
In small casks @ _____ per leaguer p.a.		
In tanks/butts @ _____ per leaguer p.a.		
<u>Evaporation losses</u>		
In small casks @ 3% p.a. from _____		
In tanks/butts @ 1% p.a. from _____		
<u>Processing costs</u>		
Blending and handling		
Stabilisation		
<u>Interest</u> @ 4% p.a.		
<u>Manufacturing costs</u> plus interest (Prior to dispatch)		
<u>Dispatch</u> in casks		
<u>Total costs</u> per leaguer		
<u>Total costs</u> per gallon		

Compiled by.....
Checked by(Designed to meet
K.W.V. requirements)

Table No.35:

K.W.V.

Standard cost sheet
(Bottling)

_____19____

19__Unit costs

Product item_____

Pack _____

Cost price per pack_____Per bottle_____

	<u>Variable</u> <u>Rand.</u>	<u>Total</u> <u>Rand.</u>
<u>Material cost</u>		
_____Bottles code _____ @ _____per _____		
_____Pulpcovers code _____ @ _____per _____		
_____Corks code _____ @ _____per _____		
_____Capsules code _____ @ _____per _____		
_____Labels _____ @ _____per _____		
Case material _____		
<u>Processing costs</u>		
(1) Packing		
_____standard minutes @ _____variable _____total		
(2) Assembling of casks		
_____standard minutes @ _____variable _____total		
Subtotal packing costs: A		
<u>Rejects</u>		
_____ % Factory scrap on A.		
Total costs		

Compiled by
Checked by

(Designed to meet
K.W.V. requirements)

In the standard cost sheets for unit cost calculations provision is made for the material cost, processing cost, etc. and separate totals are shown for variable and fixed or apportioned costs.

d. Conclusion

The main achievement in this section was the introduction of unit costs obtained from cost records which were fully integrated with the financial accounts thus eliminating the inaccuracies found in the existing methods.

In addition to the above, the separation of variable from total costs produces information which is of value to the sales department in connection with price fixing.

7. Conclusion.

The whole method of cost accounting was designed and developed to overcome the deficiencies found in the existing methods.

The method of actual costing was completely replaced by a system of current standard costing. This not only simplified clerical procedures and reduced clerical effort, but also resulted in more reliable and comprehensive cost data being made available for use as a basis for price fixing as well as the control of expenditure.

The principle of carrying out the cost accounting within the financial accounts was replaced by a system of fully integrated financial

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and cost accounting. This resulted in the streamlining and simplification of clerical procedures and methods, and also made available information for the calculation of costs for the purposes of price fixation and the control of costs.

Chapter XI.Cost control .1. Introduction.

A system of budgetary control and standard costing was developed to assist management in the performance of their duties so that the affairs of the organisation could be conducted in the most economic way. To develop a system of budgetary control and standard costing, however, frequently called for complicated accounting calculations and procedures. Such systems will produce valuable data, but the problem frequently experienced is that such data is very involved. It was therefore essential to develop ways and means to present the information to the different levels of management in a simple but informative manner. For this reason the development of management control statements required careful consideration and a graphical presentation was in many instances desirable.

2. Budgeting.a. Introduction

Separate budgets were introduced for
/ revenue

revenue and capital income and expenditure and the level of activity and the methods developed are described under the headings of sales, purchases, processing costs, administrative income and expenditure, sales and distribution costs, sales and publicity expenditure, capital and level of activity.

b. Sales

(1) Export

The budgeting is carried out in volumes and values per country per product, and the following factors are taken into consideration for the establishment of the various budget centres:

(a) The export performances for the past three years are taken into consideration. For this purpose detailed statistics are maintained.

(b) The most important factors in regard to financial and political tendencies are:

(i) Taxes on spirits and wines which can probably be considered as the most important factor in markets such as the United Kingdom, Canada and others falling within trade associations within the European common market.

(ii) Import allocations granted by wine importers to the South African wine exporters and negotiated at government level.

(iii) The general economic and political conditions and trends.

(c) Local agents reports relative to conditions and other local factors. / (d)

(d) The possibility of finding outlets for certain types of wines, particularly light wines are governed largely by the actual output of competitive products. This factor may influence particularly the price of the wine which may preclude Southern Africa, especially on a competitive basis.

(e) Some of the factors mentioned above, e.g. taxes, might materially influence the choice of the consumer for a particular alcoholic beverage. The extent to which this can be established, would influence the target figure for a particular type of product.

(2) Local

As for budgeting for exportation, the local sales budget takes into consideration the past performance, the existing economic and local conditions and consumption patterns.

c. Purchases

As explained in chapter II/2 distilling wine is not purchased but is merely the surplus received at no price.

For distilling wine intended for the distillation of rebate brandy, however, a bonus is paid to the farmers, but as the volume of rebate brandy required for distillation is planned in advance the bonus can be budgeted for. The annual purchases of good wine can also be budgeted for.

/ d.

d. Processing costs

Processing costs for budgeting purposes are divided into material, labour and overhead:

(1) Material

(a) Processing

These materials are almost exclusively consumed in the following cost centres:

Blended brandy

Good wine - handling and blending

Liqueurs and vermouth

Perfume departments

The budgeting for direct manufacturing material used in the processing of blended brandy, liqueurs, vermouth and perfume is determined on the basis of the budgeted sales volume because it is in direct proportion thereto.

For good wine, however, there is a closer correlation between purchases and the consumption of material, and therefore here the budget is based on the volume of the purchases.

The budget for material is done per cost centre and the actual material costs are accumulated on the same basis and compared with the budgeted figures.

(b) Packing

A direct correlation exists between the packing material expense and the level of sales,

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and therefore the total packing material cost is budgeted for on the basis of the sales volume, and is carried out per cost centre concerned.

(c) Maintenance

Maintenance material is used for the repairs to and maintenance of buildings including electrical installations, machinery and fustage, and expenditure may be pre-planned, sporadic or regular.

The maintenance programme for buildings for the budget period can be compiled and agreed upon, and fairly accurate estimates can be computed. For regular maintenance, a fixed amount is allowed annually per depot and this amount is provided for in the budget. As a programme of this nature will automatically reduce any sporadic maintenance to an absolute minimum, it is desirable that the amount allowed should be spent in order to ensure that the buildings are kept in good order.

It can be seen from the above that estimates for the maintenance programme are in the first place provided for per building and, therefore, it is not necessary to allocate such costs to cost centres for budgeting purposes.

Although it is possible to pre-establish the necessity for a major overhaul of machinery, the pre-estimating of the material cost necessary

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to carry out such an overhaul is more difficult to estimate. It can, nevertheless, be assessed within reasonable limits and provision made in the budget accordingly. For regular maintenance the same procedure should be followed as for the buildings described above. It is important that the amount budgeted for regular maintenance should be frequently compared with the actual expenditure. Where the budgeted figure materially exceeds the actual expenditure the matter should be investigated to ascertain whether the regular maintenance is being properly carried out, as such maintenance, if conscientiously undertaken, will ensure that the machinery is maintained in good running order thus reducing the amount necessary for sporadic maintenance to a bare minimum. It is, however, not intended to budget for sporadic maintenance. This should rather show up as a variance which will indicate the thoroughness of the execution of the regular maintenance programme. Since the amount allowed for regular maintenance covers the depot over-all, the determination per cost centre is mainly an apportionment thereof. As regards costs for the major overhauls, these can be estimated per cost centre and, although actual costs will eventually be debited to the relevant cost centres concerned, the amounts allowed for price determination, in order to eliminate short term fluctuation, will

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be the average over a fairly lengthy period.

Therefore, since the allocation of the budgeted amount is not required for costing purposes and, in so far as budgetary control is concerned, the total amount per depot should give adequate control, it is not intended to spread the budget over the cost centre concerned. As regards fustage, the containers used for the maturation and manipulation of wine and spirits can be classified as vats and casks.

Basically the maintenance and repairs to casks form a relatively small amount of the actual investment therein. For example, the total amount spent during 1959 on vats and casks amounted only to approximately £4,000, and therefore the same principle as applied to the regular maintenance for both buildings and machinery can be adopted in this instance,

Here budgeting per cost centre becomes impossible because the casks and vats are spread throughout the depot and concern a large number of the cost centres. Therefore, any attempt to budget by cost centre would amount to the mere apportionment of the total budgeted amount and subsequent deviations therefrom would in any event have to be ascertained and explained for the over-all total.

(2) Labour

The budgeting for the labour is done

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for direct labour, indirect labour, maintenance and construction labour.

The treatment of the cost of packing labour is the same as for direct manufacturing labour, and is therefore not discussed under a separate heading.

The total labour complement can be subdivided into three headings. Firstly, those members of the staff who are employed regularly in a particular cost centre and who may be either permanent or seasonal employees. Secondly, those employed mainly for the manufacturing requirements of a particular cost centre, but who may be used temporarily as a result of the seasonal requirements in cost centres other than those for which they were primarily engaged. Thirdly, those taken on with the object of serving as a labour-pool or standby.

Because of the seasonal nature of the activities, sufficient staff has to be employed to cope with the seasonal production requirements, and more especially to process the delivered products as quickly as possible. This problem is overcome to a certain extent by the taking on of temporary employees, but with the difficulty of acquiring skilled or sufficiently trained labour the production requirements cannot be entirely met by the utilisation of temporary seasonal staff.

/ It

It is therefore necessary to maintain the permanent staff complement comprised of specialised and trained staff, even although they may only be fully occupied during a certain period of the year, that is, when seasonal activities are in full force. During the off-season when these employees are not occupied on their normal duties, it is advisable to find other channels for the utilization of their available time. The most important outlet for such available time is the maintenance of buildings, plant, etc. and the construction of new assets.

The classification, therefore, of labour into direct, indirect, maintenance and construction labour becomes to a great extent merely one of purpose and degree, and not one of fact for budgeting control purposes. Therefore budgeting per cost centre becomes impossible.

The labour budgeting for production introduced was as follows:

(a) Master plan

A master labour budget per depot was drawn up showing month by month the total staff complement required and the cost thereof. This plan took into consideration the expected monthly fluctuation of labour required because of the seasonal activities and also the labour required for capital programmes.

/ (b)

(b) Monthly budget

From the master labour plan a monthly over-all budget per depot was compiled which, for profit and loss budgeting purposes, was broken down to separate labour costs in respect of revenue and capital.

(3) Overhead(a) Introduction

The main items of overhead and the appropriate annual amounts are as follows:

Table No.36:

Overhead	
Item	%
Insurances	7%
Rates and taxes	10%
Electricity	2%
Coal	15%
Depreciation (machinery, buildings, motor vehicles, fustage)	57%
Water	2%
Railage	7%
Total	100%

(Taken from K.W.V. records)

(b) Insurance

Insurances are paid for the insurance of fixed assets, liquid and other stocks, and show little variance from year to year.

/ For

For example: 1958/1959. 100%.

Therefore, for budgeting purposes the previous year's figure should form a sound basis and, although it is possible to budget per cost centre, for budgeting control purposes the over-all total per depot is sufficient, especially as the year to year variation is negligible.

(c) Rates and taxes

Variations in the total amount for rates and taxes can only arise where a change in the valuation of the property takes place, or when the rates are changed. Such changes should be allowed for in the budgeted amount. Although the budget can be broken down to each individual cost centre, the over-all total per depot is sufficient for budgeting control purposes because any fluctuation that may come about, although applicable only to any one cost centre, will affect all the cost centres in equal proportion.

(d) Electricity

A separate electric meter is not installed for each cost centre and, as meter readings which include the electricity account per depot are of no significance for budgeting purposes, the only procedure that can be followed is to budget for the over-all total per depot.

The budget is compiled on the basis of the figures for the previous year adjusted in

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the light of expected level of activity.

(e) Coal

Coal is used to develop steam in the various boiler houses for the distillation of distilling wine into spirit and brandy, the bottling process and steaming of casks. Because close correlation exists between the consumption of coal on the one hand, and the level of activity on the other, the budgeting method introduced for this cost item was based on the principles of flexible budgeting and the actual rate of output will subsequently determine the level at which the budgeted cost is to be taken.

From the above it will be seen that this cost item can be budgeted for and subsequently controlled on a cost centre basis.

(f) Depreciation

For budgeting and financial control purposes the rates of depreciation are the same.

The rate of depreciating of buildings is on a straight line basis determined by the original cost of the buildings.

With regard to machinery, motor vehicles and fustage, the depreciation is written off on the basis of the diminishing balance method and the value used for this calculation is the original cost.

/Depreciation

Depreciation is calculated in the first instance in total per depot and any apportionment thereof will not contribute much to the effectiveness of budgeting control. The budget, therefore, should be done over-all per depot.

(g) Water

Water is used mostly for steam production for the distillation of spirit and brandy, the bottling process and for the steaming of casks, The cost of water follows the same pattern as the cost of electricity and the budgeting procedures should be fixed along the same lines.

(h) Railage

To this cost item is debited all railage paid for inter-depot stock transfers and it can be classified as regular and sporadic:

(i) Regular

This is represented largely by the transfer of stocks from the outside maturation depots to the central blending depots. The cost of such transfers is in close correlation with the blending programme, but this programme is frequently upset as the capacity for maturation purposes is limited. This sometimes necessitates the storage of matured stocks at the blending department. The amount to be budgeted for in respect of the regular inter-depot transfers should be based on the past year's figures, at the same time taking into consideration the coming year's level of activity and blending

/programmes.

programmes.

This item of expense can be budgeted for per cost centre.

(ii) Sporadic

The availability of supplies and/or abnormally heavy deliveries in relation to the capacity of the plant at a particular depot give rise to the sporadic transfer of unprocessed stocks from one depot to another. This factor makes it virtually impossible to budget accurately but it is most important that expenses in this connection should be strictly controlled since an expense of this nature is virtually a loss. It is desirable therefore, that no provision for this item be made in the budget so that any actual expense incurred in this direction will be shown up as a variance which has to be explained.

(i) Sundries

A few minor sundry items appear on the annual budgets, e.g. over-alls, small tools, cleaning material, etc. These, however, form only a small portion of the entire expense budget and, being relatively unimportant, they are not discussed in detail.

(4) Conclusion

The following summary reflects the conclusion under each of the cost items discussed above:

/ Table No.37:

Table No.37:Summary of conclusions

Cost item	Detail of subsection	Detail of budget
<u>Material</u>	Processing	Annually per cost centre
	Packing	Annually per cost centre
	Maintenance	Annually per depot
<u>Labour</u>	Labour	Monthly per depot
<u>Overhead</u>	Insurance	Annually per depot
	Rates and taxes	Annually per depot
	Electricity	Annually per depot
	Coal	Annually per cost centre
	Depreciation	Annually per depot
	Water	Annually per depot
	Railage	Annually per cost centre

(Summarised from above discussion)

From the above summary it is obvious that:

(a) Labour is the only item that can be budgeted for on both an annual and monthly basis.

The budgeting procedure to be followed therefore, is the monthly budgeted figure compared with the monthly actual figure.

(b) The majority of items can be budgeted for per depot, and therefore the method introduced provided for the budgeting per depot or per cost centre as shown above but, in the

/compilation

compilation of the final budget, the figures are shown per depot only.

Since for all items, excepting labour, the budget can only be compiled on an annual basis, the monthly accumulative actual cost is shown against the annual budgeted figure. This serves as an indication of the level of cost against the annual total. A comparison of this nature is more valuable because a mental comparison can be made of the sets of figures more effectively than could be done with a calculated accounting figure endeavouring to provide for all the potential irregularities that might exist.

e. Administrative income and expenditure

(1) Expenditure

Salaries and wages represent approximately 60% of the total of the administrative budget.

The first step in the compilation of the budget for this item is to determine the monthly staff complement and subsequently to calculate the salary cost accordingly. The actual salary cost is thereafter compared month by month with the predetermined or budgeted cost and any variations are investigated.

The other items in the administrative expense budget form approximately 40% thereof, and it is not intended that they be budgeted for on a monthly basis. The budget is compiled

/ taking

taking into account the actual expenditure for previous years as well as expected factors which may influence the position for the coming year. Such factors are, for printing and stationery for example, major changes in the documentation used and office equipment and, for legal expenses, should an important court case be anticipated.

The accumulative actual monthly expenditure is reflected against the annual budgeted amount.

(2) Income

The main item on the administrative income budget is investments, which amount to approximately 90% of the total of the administrative income. In order to ascertain the income from investments, a cash budget is a prerequisite. The cash budget is however, complicated as the liquid position is largely influenced by the surplus declaration in January of every year and by the ultimate size of the crop and the bonus on distilling wine which largely depend on the extent of the previous year's profit. The cash budget is prepared towards the end of the year, and the profit position at that stage, apart from the previous year's budget adjusted in the light of the cumulative actual position is still unknown. A cash budget is advisable however, and will

/ materially

materially assist in the determination of a proper balance between short term investments on call and medium and long term investments. Another factor which materially influences the predetermination of income from investments is the possibility of a change in the ruling rate of interest.

An analysis of the income from investments for a number of years shows the following increasing tendency:

Table No.38:

Income from investments		
Year	Value	%
	£	
1954	163,900	100
1955	179,134	109
1956	193,870	118
1957	186,249	113
1958	218,429	133
1959	234,297	143

(Taken from K.W.V. records).

The budget of income from this particular source should therefore be based on past figures taking this tendency and other factors, e.g. rates of interest and expected profits, into consideration. The remaining portion of the income consists of only 10% of the total administrative income and should be budgeted for on the basis of expected results.

/ f.

f. Sales and distribution costs

The sales and distribution costs are normally directly proportionate to the volume of turnover, and the budget of these expenses is therefore compiled in terms of the expected turnover level.

g. Sales and publicity

The marketing and development costs include:

Publicity.

Market research.

Sales promotion.

These costs are fixed in advance according to the specific requirements and contract agreements.

h. Capital budgets

The budget for capital expenditure is divided into three main classifications:

(1) Head office and depot administration

The items under this heading include office equipment and furniture, and all that is required is an assessment by the departmental heads of their requirements for the budget period. The costs in respect thereof are supplied by the buying department and the budget compiled.

(2) Production departments

The capital expense items under this heading can be classified as follows:

Firstly, major construction programmes

/ which

which will run into the following budget period constitute not only a matter of assessing the total expenditure on the project, but also an estimate of the expected actual expenditure for the current budget period and the expected amount to be transferred to the next budget period must be taken into consideration.

Secondly, the amounts budgeted for the second group include mainly plant and machinery, and such amounts will actually be spent well in the period for which they have been budgeted. Once the requirements are determined, it is merely a matter of arriving at a fairly accurate estimated cost for each individual item which is shown separately as such in the budget.

Expenditure is controlled by comparing the actual with the total amount budgeted for. With major construction programmes (normally carried out by employees of the organisation) the progress of semi-completed and completed construction work at the end of the budget period is not measured against the actual expenditure. The balance of the budgeted amount at the end of the budget period is arrived at merely by deducting the actual expense to date from the total budgeted amount. It is appreciated that by not measuring the progress against the actual expenditure item by item the same amount of control is not achieved, but the reasons for adopting this procedure are

/as

as follows:

(a) The construction programmes are carried out internally in order to keep off-season labourers occupied.

(b) Although technical staff to supervise the capital construction work is available, they are not qualified to undertake a proper assessment of the progress of the work.

j. Level of activity

The production function can be grouped into two main classifications:

- (1) Distilling wine and related products,
- and (2) Good wine and related products.

As regards distilling wine products, it is extremely difficult to budget for the level of activity because the organisation is compelled to take whatever is delivered by the producers and this depends largely on fluctuations in the size of the crop. The output figures of the annual crop as shown in chapter I/3 give an indication of the fluctuation from year to year. This fluctuation is further influenced by the year-to-year variation in the demand by the wholesalers for distilling wine.

It will therefore be appreciated that in the advance planning of the requirements of plant and machinery, provision has to be made for sufficient capacity to handle a more than average crop. In addition the volume of the size of the crop is affected to a great extent by climatic

/ conditions

conditions as late as January and February.

These factors therefore cause any budgeting of the level of activity for the distilling wine products to be nothing more than an intelligent guess as to what the expected crop will be and what amount thereof will be delivered for processing.

Under material costs (see chapter X/3) the problems relevant to the replenishment of the stocks of good wine are discussed in detail. Basically, this problem is the correlation of the year-to-year replenishment programme with the long-term sales levels but, even though a violent year-to-year fluctuation in level of salesvolume is experienced, the replenishment programme can still be controlled on a relatively even level. This is confirmed by the fact that average stocks kept are on the basis of approximately six years' sales.

From the above it will be seen that the budget for the level of intake of good wine is largely fixed, and therefore presents no material problem from an accounting point of view. In departments however, where the activities are largely related to the sales programme, the budgeting of the level of activity can be closely correlated to the sales programmes and budgets.

/ (k)

k. Conclusion

In the design and set-up of the budget due consideration was given to the following factors:

(1) The budget was drawn up in as simple a form as possible, making it easy to understand. Elaborateness was avoided in order to facilitate the conclusion to be drawn from the facts and figures contained therein.

(2) The design of the budget facilitated the subsequent incorporation of the figures without difficulty.

(3) The costing and financial accounts are closely integrated, and therefore the accounts and private ledger codes were so designed as to serve both. It was essential that the budget framework should follow the same pattern so that the information in the private ledger could also be used for comparative purposes in the budget department.

After final compilation, the master budget is formally approved by the managements and the board of directors. Because of the large variety of the activities of the board, a separate committee of directors has been constituted. In collaboration with the management it is their duty to examine the budget in detail, and to modify it if necessary, before its final presentation to the full board.

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It is essential that management should give proper attention every month to the presented budgets, as only in this way would it be possible to develop a sense of cost consciousness at executive level.

It is important that budgeted information should also flow to the lower levels of management so that their sense of cost consciousness may also be developed. With this end in mind the budgets were designed so as to relate individual responsibilities of the respective departmental heads to deviations of actual expenditure from the budgeted amounts.

3. Management controls

a. Introduction

The various levels of management were kept in mind in the development of management control statements. Commencing at the lower levels, detailed statements were supplied giving a breakdown of expenditure under expense headings in such a way that actual expenditure was related to budgets on predetermined targets, and the reasons for any variances could be established. At a higher level summarised statements giving total income and expenditure against budgets or predetermined targets were sufficient because the emphasis on control at this particular level

/ was

was more on over-all departmental performances as against predetermined standards.

Top level management for the organisation is centred in the board of directors and statements reflecting detailed individual departmental performances are unnecessary because the responsibility is more one of policy determination, and comprehensive statements giving the over-all picture of the organisation as a whole are more essential than individual performances within departments.

As it is the function of a board of directors to direct and control the over-all activities of the organisation, they should not be burdened with detail which may obscure their interpretation of the over-all position.

Under the scheme outlined, details were gradually eliminated, the emphasis being on the actual high-lighting of variations, thus reducing the burden on higher management in that, rather than drawing their attention to all the departments under their control, their attention is focused on departments where variations are brought to light and where action is required - management by exception.

In the discussion on the costing methods and budgetary control procedures introduced, reference was repeatedly made to the conditions peculiar to the organisation. For

/ example

example there are the seasonal nature of its activities, the difficulty in predetermining its level of activities and also that of the establishment of a yardstick against which to measure departmental performances.

These factors especially complicate cost control procedures, and in some instances make it extremely difficult. The limitations of cost control in this instance were appreciated, and therefore the primary object of any of the management control statements was to promote a feeling of cost consciousness. This was applicable in particular to statements to lower levels of management who initiate the incurring of expenditure.

To illustrate the particular methods developed and how they are applied some of the more important management controls are described briefly in this subsection.

b. Sales

To increase the efficiency of the sales department with particular reference to sales promotion and market research, detailed sales statistics are made available monthly to the sales department by the punch card section. For this reason additional management control statements regarding the performances of particular countries, products sold, etc. are not necessary for the departmental heads in the

/sales

sales department, and all that is required is a management statement to the board giving the over-all picture. Statistics for variances as indicated are available to help to determine the reasons for such variations.

In the discussion on the sales budget it was shown that a distinct difference was made between local and export sales. For export sales the annual budget is broken down into monthly budgets and the management control statement provides for the following:

- (1) Exports:
 - (a) Budgeted monthly turnover
 - (b) Actual monthly turnover
 - (c) Actual turnover corresponding month previous year
 - (d) Accumulative for budgeted monthly turnover
 - (e) Accumulative actual monthly turnover
 - (f) Accumulative actual turnover corresponding month previous year
- (2) Local: As the bulk of local sales concern the vintage pool account, the management control statements of local sales are clearly related to the pool account. The vintage pool account however, which is drawn up annually, does not fall within the scope of this thesis because it is not concerned with cost accounting. To

/appreciate

appreciate the management control statements for local sales, a detailed discussion on the pool account would have been necessary and the only reason why reference is made to it is to prevent any erroneous conclusion that no such statements were considered.

c. Processing costs - labour

A variety of management control statements are compiled monthly under the system of standard costing and budgeting control and a monthly trial balance is produced reflecting the gross wages paid per depot and the allocation per cost centre. These management control statements are prepared for the particular requirements at the various levels of management.

The system of standard costing developed makes it possible to prepare monthly statements per cost centre which show monthly accumulative actual wages against the standards, and these flow through the production and depot managers to the various foremen in charge.

Control of labour costs is supplemented by method studies which aim at the increasing of efficiency which might result in a reduction of staff complement per cost centre. The actual costs per cost centre are however a valuable guide to management and at the same time promote cost consciousness. It should be realised however, that labour costs are not the only ones which are allocated to cost centres as overhead

/ expenses

expenses are dealt with similarly and will be included in the cost statements which flow through the production manager down to the particular foreman in charge.

An example of the cost statement illustrating the details which flow down is as follows:

Table No.39:

Processing costs - management control statement

Depot: Paarl Cost centre: Good wine mixing and handling

Code 5/25

Code	Expense heading	Accumulative	Annual Budget
		Rand	Rand
38	Labour - production	Year to date	
47	Materials - production		
65	Railage		
	Grand total		

(Designed to meet K.W.V. requirements).

Under the system of budgetary control, a separate labour budget showing the total annual wages and the monthly breakdown is compiled and the management control statements provide for the following:

- (1) Monthly amount budgeted for
- (2) Actual monthly amount

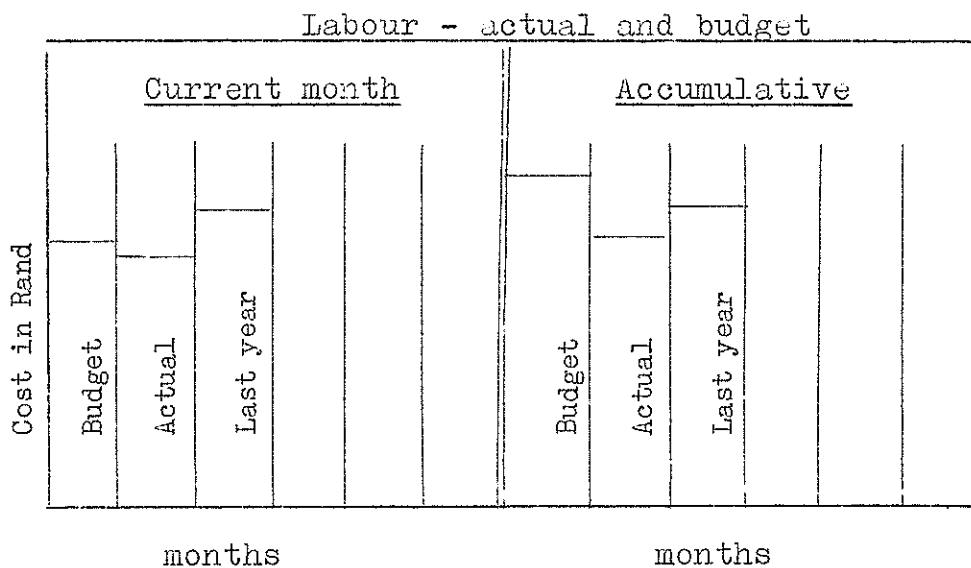
/ (3)

- (3) Actual amounts for corresponding month previous year
- (4) Accumulative for budgeted monthly amount
- (5) Accumulative actual monthly amount
- (6) Accumulative actual amount corresponding month previous year.

The monthly depot statement flows through the production manager to the depot managers, and comments on variations flow back from the depot managers through the production manager to the controller.

The over-all management control statement with comments on any variations flows up from the controller to top level management including the board of directors. This is presented graphically as follows:

Diagram No.20:



Here the block diagram for graphical presentation is preferred because with the /relatively

relatively fixed labour force the three sets of figures may coincide to such an extent that, if a line diagram as was introduced for sales were used, it might be difficult to distinguish between different lines.

d. Processing costs - overhead

To illustrate how the system operates it is intended to discuss only one item, namely, material used for the maintenance of machinery.

Management control statements identical to those discussed under labour are produced monthly.

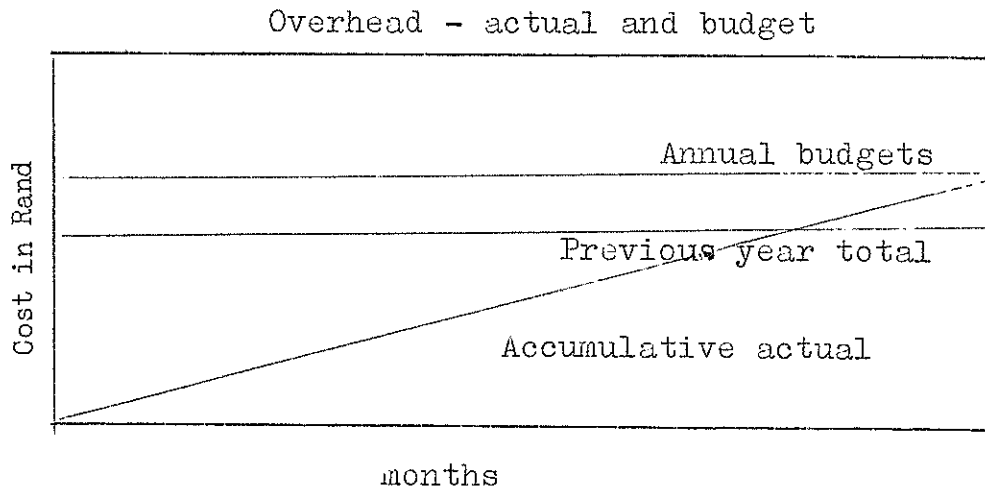
For the statements which flow down to the foremen in charge of cost centres far more detail is required for efficient cost control and for the promotion of cost consciousness. Therefore, as with labour, the actual expenditure is shown, but this is supplemented by a statement giving full details.

A nominal account is kept per cost centre for maintenance materials used at every depot and in these accounts, produced at head office by the punch card section, items are posted in detail giving an alpha description and monetary value. The duplicate of the nominal ledger statement serves as the supplementary required for the breakdown of the maintenance material and is attached to the management control statement.

The graphical presentation of overhead
/ expenses

expenses to top level management will show only the monthly accumulative against the annual budgeted total because, as was pointed out in the discussion on budgets, it is not possible to arrive at a monthly breakdown. The pictorial presentation of this is as follows:-

Diagram No.21:



Overhead expenses include several expense headings, and therefore, in the management control statement which flows down to the foreman, every expense heading is listed separately, whereas in the statement for top level management these are grouped together.

e. Material

In order to ensure that the policy as laid down by the management regarding the stores is properly carried out, a monthly return is compiled and rendered to the management. The form used for this purpose is as follows:-

/ Table No.40:

Table No.40:

Stores - Management control statement

Month				
Description	This month actual Rand	Cumulative months		
		Actual Rand	Budget Rand	Variation Rand
<u>Expenditure:</u>				
European salaries				
Native wages				
Other				
Total A				
% of turnover	%	%	%	%
<u>Stock turnover</u>				
Packing material				
Maintenance material, etc.				
Total stock turnover B				
<u>Stock balances</u>				
Receipts at standard				
Variation actual from standard				
Receipts at actual C				
+Commencing stocks D				
-Stock turnover E				
Closing stock F				
Stock turn				
$\frac{E \times 12}{(D \div F) \frac{1}{2}}$				

(Designed to meet K.W.V.requirements)
(Personal observation)

In the above form provision is made for the current month actual, the accumulative actual, the budgeted amounts and the variation between the latter two amounts. Also reflected on this form is the expenditure, stock, turnover and balances.

f. Conclusion

From the discussion on management control it is clear that with statements intended for the lowest levels of management emphasis is on details. This is in direct contrast to the statements for top level management which are designed so as to give an over-all picture of the current activities of the organisation, thus enabling the necessary steps to be taken at the right time.

4. Conclusion.

The cost accounting system introduced was designed to overcome the major shortcomings which were revealed in the investigations carried out in connection with the existing methods.

In the new methods the data required in connection with cost control is produced much earlier and more frequently than in the existing methods. This not only facilitates the compilation of up-to-date management control statements, but also makes possible the early comparison of actual expenditure with budgeted

/ amounts

amounts, thus enabling immediate remedial action to be taken.

The introduction of budgetary control develops a spirit of cost consciousness which obviously tends to reduce expenditure and contributes to the over-all efficiency of the organisation.

Chapter XII.Summary of results.1. Introduction.

The results achieved by the introduction of the recommended cost accounting methods and procedures are summarised in this chapter.

2. Summary of results.

a. The allocation of charges as far as possible directly to cost centres and the subsequent apportionment thereto of indirect expenses obviated the direct allocation and immediate apportionment of all expenditure to the products, thus eliminating the complexity of the old system.

The introduction of cost centres and the improved method of allocation and apportionment of charges made possible the attaining of more realistic costs and resulted in greater accuracy. Under the old methods an attempt was made to arrive at a profit per product through the financial accounting system. This resulted in an endless number

/ of

of allocations and apportionments and obscured the vital financial information. Under the new methods the cost and financial accounting systems are fully integrated, but the product profitability is determined on product cost sheets which do not form part of the financial accounting system. This not only resulted in greater accuracy but also considerably simplified the financial accounting procedures.

b. The installation of a system of mechanical accounting made it possible to produce valuable data and statistics which, under the existing methods, could only have been made available at very great expense. The availability of such information was vitally important for control purposes and also made possible the development of a complete system of integrated financial and cost accounts and budgetary control. The required statistics are obtained in a minimum number of operations because for financial, cost and budgetary control purposes the information required is achieved by the mere tabulation of existing punched cards.

c. Under the old methods an attempt was made to develop a system of actual cost accounting but, in order to apply a complete system of this nature, an endless number of detailed allocations would have been necessary.

/ The

The allocations provided were however not sufficient to achieve this, and therefore the system did not develop to a stage where the actual cost information was of much value.

Under the recommended methods a system of current standard costing was introduced and thus the complexity of the method of actual costing was replaced by the simplicity of the new procedures. This made possible the calculation of product unit costs and profitability, something which could not previously be determined.

This achievement is of vital importance since, as has been pointed out a number of times in this thesis, the marketing of good wine and other products takes place on world markets where keen competition from well-established wine producing countries is experienced. The need for accurate determination of product costs cannot therefore be overemphasised.

d. Under material costs, suggestions were made as to how improved replenishment could be carried out. A proper programme of replenishment will ensure that stock levels are kept at a minimum, with resultant savings in investment.

Under the recommended methods simplification of documentation and clerical procedures for material receiving, handling and
/ payment

payment was achieved. In addition, other advantages were gained, as will be seen from the comparison which is given hereunder of the old with the new methods, in respect of the receiving of distilling wine and grapes.

Table No.41:

Comparison of old and new systems.

Old system	New system
(1) Only one payment was made to each farmer for the total deliveries of the season.	(1) Farmers are paid each month for deliveries made.
(2) Scale tickets, as well as the labels fixed to the bottles containing the wine samples drawn from each load, were fully handwritten in the scale house.	(2) Scale tickets, tables and name and address cards issued to the farmers for presentation when delivering wine, are previously addressed by an addressograph machine in the head office. The tickets and labels are kept in numbered racks in the scale house and can easily be located by referring to the corresponding number on the name and address cards presented by the farmer. (a) This saves time in the scale house. (b) Eliminates mistakes.

Table No.41 (contd.):

<u>Old system</u>	<u>New system</u>
(3) Delivery receipts were hand-written daily from the scale tickets.	(3) Not needed.
(4) Copies of delivery receipts were mailed daily to farmers to notify them of the alcoholic strength of the day's delivery.	(4) The books in which the strengths, as determined in the laboratory, are recorded, have been re-drafted so that a tear-off slip is available for each entry. This is mailed to the farmer daily.
(5) Hand-written summaries (trust receipts) were made of each farmer's deliveries for the season.	(5) Not needed.
(6) Pricing and calculation of amounts on accounts sales were done manually.	(6) Cards are punched from scale tickets. The punch card machines calculate amounts and prepare accounts sales.
(7) Statements of accounts were prepared on keyboard accounting machines when deliveries for the season were complete.	(7) Prepared monthly on the punch card machines.

(Personal observation).

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From the above analysis it is quite obvious that a number of procedures have fallen away and, as payments are made monthly, the accounts can be organised for a more regular flow of work. The farmer also gains in the sense that he now receives current payment for monthly deliveries. Under the recommended methods the importance of material control was recognised by the making available of information which could be used for effective control of material costs.

e. The revised methods cover mainly the following aspects:

(1) Although considerable difficulty was experienced in establishing standard times for individual operations, the determination of over-all staff complements was, in many instances, possible and resulted in material savings in manufacturing personnel.

(2) Because the labour force of the organisation is to a great extent stable and the total monthly or weekly income of each individual varies little from month to month, the method of punched cards employed for the wages procedures at Paarl, and that of using the stencil equipment for the payroll at the smaller depots, materially simplified the payroll computation. Furthermore, as all static
/ information

information is now mechanised, the re-writing of repetitive information is eliminated. This not only resulted in simplification, but also in accuracy. Furthermore, the payroll work is now completed in a much shorter time, which is a factor of great importance, especially during peak periods.

(3) The method of using one labour rate for cost allocation purposes for each of the groups - europeans, coloureds and natives - resulted in a material simplification of the clerical effort. It also made it possible to mechanise the wages allocation work which was previously done manually. The introduction of a standard rate less 25% for the allocation of time spent by employees on work outside the field of their normal activities largely eliminated the debiting of work of an inferior nature with too high a charge.

(4) The wages allocation procedure was considerably simplified because for no less than 80 percent of the staff this was obtained by a second tabulation of the cards punched for payroll purposes.

f. The methods recommended for the treatment of overhead costs resulted in the establishment of overhead rates which can be used for purposes of cost price calculations. Because these rates are based on cost information which is integrated with the financial figures, true

/ rates

rates are established which should result in accurate cost prices.

g. The introduction and development of the proposed costing system made it possible to calculate an accurate product unit cost for all items manufactured and, since the figures established are integrated, the danger of providing for expenses inaccurately is largely eliminated.

h. The introduction of budgetary control resulted in:

(1) A tool being placed in the hands of top level management for use in connection with the exercising of control and reduction of costs. Its main objective is to assist management in the organisation and conducting of the affairs of the company in the most economical way.

(2) Pre-estimating of sales and sales expenditure, thus enabling the necessary steps to be taken in order to rectify as far as possible any deviations from the pre-established goal.

(3) The co-ordination of sales, purchasing and maturation programmes.

(4) The development of cost consciousness, especially in so far as the lower levels of management are concerned.

(5) Facilitating control of costs since all costs are pre-determined.

/ (6)

(6) Pre-established maintenance material figures being compared with the actual costs and for any variations being explained.

(7) Monthly budgeting for labour per depot in consultation with depot managers. This improved co-operation and provided the incentive to keep within the budgeted figures.

j. The main achievement of the management controls was the revealing of the actual position in relation to the pre-determined target, thus enabling management to take, where required, the necessary remedial action.

k. A functional subdivision of the accounts departments resulted in the activities thereof being grouped in the relevant section. This facilitated the delegation of responsibility and created a greater depth in the organisation.

3. Conclusion.

The installation of the standard costing system made it possible:

- a. To establish unit cost figures which form a sound basis for price fixation.
- b. To provide data on which cost control could be more effectively exercised.
- c. The two purposes quoted above can be considered as the two most important for the introduction and development of a system of

/ cost

cost accounting and budgetary control in the K.W.V. but, naturally, in the process of developing the system, attention had of necessity to be given to clerical procedures and methods, documentation and the organisational set-up.

The streamlining of the procedures and related documentation was partially attained by the introduction of mechanisation and, whilst considerable simplification of methods and procedures was achieved, it was realised that there was considerable scope for further simplification in this field. With this end in view a separate department which could concentrate on organisation and methods study was initiated so that this type of work would not cease and that future problems could be investigated and satisfactorily solved. An example of this is the systems, procedures and returns which relate to the excise department and which it is considered could be further simplified by closer co-ordination between the K.W.V. and the excise department.

SECTION E.

CONCLUSION.

Chapter XIII.

Conclusion.

The improved methods and procedures adopted for the K.W.V. can be considered as being suitable for the manufacturing process of wine and spirits in general because the problems experienced in the investigations and subsequently overcome in the new methods were not only of a nature peculiar to wine and spirits manufacturing in general, but were made more difficult by the K.W.V. organisation being subject to certain regulations which do not apply elsewhere.

Experience gained in the investigations established the following:

1. The reorganisation is a lengthy process and can only be satisfactorily achieved by an extensive development programme spread over a long period. The initial introduction of new methods is only the first step towards the ultimate goal.

2. In order that the new methods may succeed it is necessary that they have the full support and confidence of the management.

3. Full co-operation and proper training of the staff who will be concerned with the operation of the new methods is absolutely essential.

4. The installation of new methods is

/ not

not merely a matter of wrapping up the old systems and unwrapping the new, but it is one that demands a great deal of thought and study so that it may be carried out as systematically and effectively as possible in order to achieve the maximum benefit.

The new methods must of necessity be installed in stages, taking into consideration the inflow of documentation and sections in which functions are directly interrelated. In some instances functions in various sections may to some extent be connected but others may be quite independent. In such instances, whilst it might be necessary to instal some of them simultaneously, those which are of an independent nature might be deferred until later. Elsewhere new allocation heads may be introduced, but it might also be necessary to retain certain of the old ones until such time as all charges relating to the latter have been brought to account and they can be finalised.

A further reason for stage-by-stage installation is that, wherever possible, it is desirable that the new methods and procedures installed in one section be given time to settle down and be properly bedded in before commencing installation in another section.

Another feature to be borne in mind is that often the installation of new methods

/ involves

involves information flowing in from outside staff, and it is therefore essential that the staff concerned be properly instructed so that they will be fully conversant with what is required of them. Thus queries, when the information furnished becomes available for processing in the office, should be reduced to a minimum. Installation is therefore a lengthy process and, in some instances, may take months or even years to complete. Despite this, sight should not be lost of the fact that the advantages to be derived from the new methods will likewise accrue as installation takes place. Also where staff economies are effected, the staff released from one section becomes available to assist with the installation in other sections until complete installation has been achieved when their services may be disposed of to best advantage.

As previously mentioned, one of the main reasons for the installation of a system of cost accounting was to furnish information for cost control purposes. The importance of this function cannot be over-emphasised, especially because of the heavy annual expenditure and the tremendous quantity of liquid processed through the cellars. In order that this may be effectively controlled and the information produced may be used to the greatest advantage, it is desirable that consideration be given to the appointment of a "Controller" who would be directly respon-

/ -sible

-sible to, and form part of, the management executives. The prime functions of this post would be the compilation (in collaboration with departmental heads) of budgets, the receiving of cost and budget control statements, the study and investigation of variances from pre-determined standards with a view to the elimination thereof, and the reporting thereon to management. Other important duties to be attached to this post would be the economic functioning of the administrative, technical and other departments of the organisation.

The methods recommended and in operation at the present time may, due mainly to the continuous development of new systems, alter quite considerably with the passage of time and therefore they may not as yet be regarded as final. It is, however, possible at this stage to indicate the main contributions which this thesis makes to the subject of cost accounting and these are summarised hereunder.

(1) It contains a critical analysis of many of the existing theories in regard to cost accounting from which conclusions are drawn and then tested in actual practice to prove their validity. In this way an attempt has been made to bring together the theoretical and practical view points.

(2) In this thesis is clearly illustrated the important relationship which exists between

/ cost

cost accounting and organisation and methods. This is a feature of special importance because in South Africa proper systems of both standard cost accounting and streamlined clerical procedures are often found to be lacking in otherwise well organised establishments.

(3) A major contribution of this work to the field of cost accounting is the extent to which such methods can be applied to the manufacturing processes of wine and spirit and also the definite limitations which the difficult conditions of seasonal production and maturation processes impose on any system of standard and/or actual costing.

(4) Section D., i.e. the recommended methods provides a blue print of the methods and procedures to be followed by the K.W.V. The importance of this cannot be overlooked since the K.W.V. is not only the key organisation between the producers on the one hand and the merchants on the other but it is also one of the big wine and spirit producers in this country and, therefore, any achievement in the simplification of methods and procedures developed to meet their requirements can be used to advantage by other similar organisations.

(5) Attention is drawn in this thesis to the difficulties experienced in the reorganisation of the methods and procedures and this may prove a useful guide to the student who, in the future, may wish to undertake a similar

/ investigation

investigation.

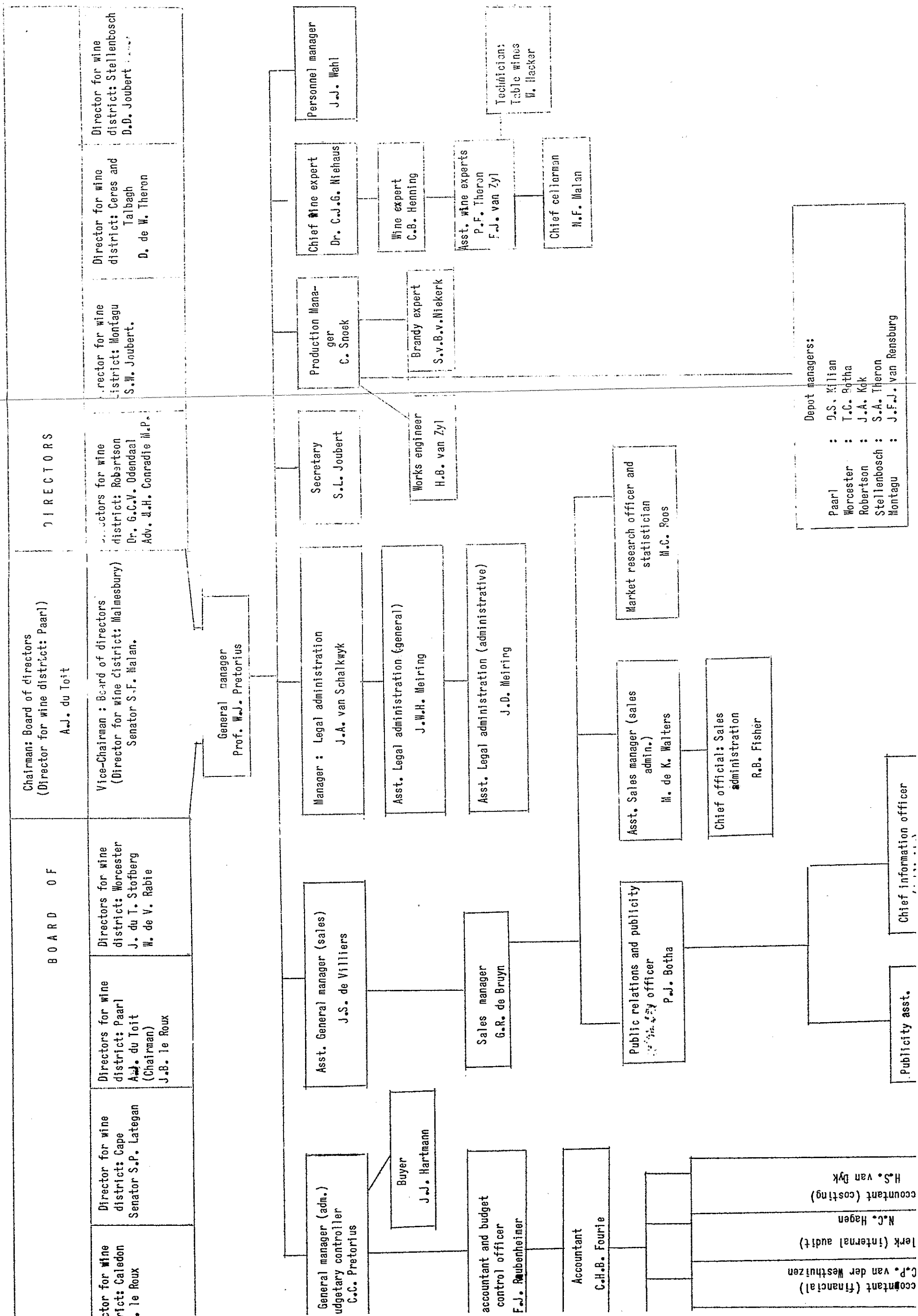
(6) A most important factor which is not always fully appreciated is the close relationship which exists between organisation and methods. In this thesis it is pointed out that the original system of accounts was, because of the change in methods, completely altered and this resulted in greater depth in the organisation by presenting more opportunities for the proper delegation of duties and responsibilities.

(7) In the developing of the new methods it became quite clear that the calculation of unit manufacturing costs of wine is not only possible but that the figures obtained can also serve as a useful guide to management in connection with the fixing of prices.

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APPENDICES.

Appendix I.
K.W.V. Line organisation.



Appendix No.2.Export countries.

Aden	Norway
Austria	Persian Gulf
Belgium	Seychelles
British East Africa	Siam
British Somaliland	Sierra Leone
British West India	Sudan
Canada	Sweden
Czechoslovakia	Switzerland
Denmark	Tristan da Cunha
Falkland Islands	United Kingdom
Fiji	
Finland	
French Cameroons	
Gambia	
Germany	
Ghana	
Hongkong	
Indonesia	
Liberia	
Luxemburg	
Malaya	
Mauritius	
Netherlands	
New Guinea	
New Zealand	
Nigeria	

Appendix No.3.

Products and containers.

1. Products.

a. Table wines

Riesling

Burgundy

Claret

Dry red (B.X.C. I) - 12%

1956 dry red

Dry white (V.D.W.)

Dry white (V.D.W.H.)

V.D.W. - Fortified

(B.X.C. II) - 13%

(B.X.C.III) - 13.5%

Rose Wine

b. Sherries

Type 4 - K.S.T.D.

Type 45

Type 5 - K.S.T.

Glenloth

1'Innovation

Good Hope

Southern Cross

Amontillado

Canada medium

Sheral

K.P.M.

Old brown Batavia

Special sherry A.

/ Special

Products (Contd.):

Special sherry B
 Special sherry C
 Special sherry E
 Special sherry F
 Special sherry AE
 Special sherry F.E
 Special sherry FSE
 Super sherry KA
 Super sherry KB
 Super sherry KC
 Super sherry XE
 Super sherry XF
 Super sherry 100
 SYE/B - a la Niehaus
 SYE/B - a la Bosman
 Type 5 B - K.S.T.B.

c. Sweet wines

Type 1 - K.W.S
 Type 2 - K.W.S./H.S
 Type 3 - K.W.S./2
 Type 6 - K.M.W
 Type 6A - K.M.W./H.S
 Type 7 - K.J.W./H.S
 Type 11 (a) - K.G.M./H.S
 Type 21 - K.P.T
 Type 22 - K.P.T/H.S
 Type 30 - K.H.B.
 Type 31 - K.H.B./H.S

/ Type 33

Products (Contd.):

Type 33 - K.R.S
 Type 33 B
 K.J.W./H.S. Seychelles
 Coronation wine
 Cape mistella No.1
 Cape mistella No.2
 L.S.B.
 L.S.G.
 L.S.W.
 Mass wine - Canada mass
 Paarl rich muscatel
 Brandy wine W.A
 Ruby red port (T)
 C.A.W
 Liqueur wine
 Cap constantia (S)
 Cap constantia (F)
 Brown malaga
 White muscatel jeripigo
 Red muscatel jeripigo
 Invalid tawny
 White muscatel jeripigo (L.S.) MLB
 Canada K.M.W
 Canada K.T.Y
 Local hermitage
 Tawny hermitage (Sawfa) H.R.M
 S.R.B
 Special communion wine

/ Super

Products (Contd.):

Super vintage character (X.V.C.)

Special vintage port

Super medium tawny (X.M.T.)

Super Canada ruby X.O.R

Special red port X.F.T

Special ruby port X.F.T

Special ruby port A.

Special white port

Super light tawny (X.L.T.)

Paarl vintage tawny (X.M.T.H.)

Paarl amber (G)

Red muscatel jeripigo L.S

White medium sweet wine L.W.P

Goudini golden muscatel

Paarl amber L.S

Invalid wine (L.S.B.)

Paarl mass wine

Paxerrete

Paarl rich muscatel - L.S

White port - type A

White port - type B

L.S.W./HS

L.R.P

Cape ruby red (G)

Muscatel

d. Sparkling wines

Sparkling Franschhoek

Sparkling Roodeberg

/ e.

Products (Contd.):e. Brandies

L.B. blending brandy (L.B. blending)
 3-year standard blend (M.B. blending)
 5-year standard blend
 10-year brandy
 Canada blend (F.B. blending)
 Malaya blend
 Exshaw blend
 Norway B.2 blend (H.B. blending)
 Blending brandy
 Dry gin
 Cologne 24
 Belgian blend
 Unmatured brandy
 Grape spirit
 Special brandy
 A.O. 30 (30% blend)
 Gold label liqueur brandy

f. Vermouth

Sweet - 40°
 Dry - 40°
 Sweet - 32°
 Dry - 32°

g. Mengeldrankh. Liqueurs

Van der hum
 Sundry liqueurs

i. Moskonfyt

/ Containers

2. Containers.

Cases

Bottles

Half-bottles - round

Half-bottles - flat

Quart-bottles - 6 oz.

Quart bottles - 5 oz.

1 Gallon jars

Casks

K.W.V. casks

S.A.W.F.A. casks

Other (clients' casks)

Moskonfyt drums

Tanks

15 gallon casks

Spirit drums

/ Appendix No.4:

Appendix No.4.

a. Code of accounts - existing methods.

(Translated from Afrikaans)

Debit side of accounts

1. Share capital accounts

Forfeited

Members'

2. Sundry shareholders account

Forfeited

Members'

Sundries

Paarl

Malmesbury

Worcester

Caledon

Montagu

Robertson

Stellenbosch

Ceres and Tulbagh

Cape

3. Railage accounts

Paarl

Worcester

Robertson

Montagu

Stellenbosch

4. Reserve accounts

Wine pool protection

Vintage protection

/ Dividend

Debit side of accounts (Contd.):

Dividend

Dividend protection

Buildings

Machinery and Equipment .

Fustage

Maturation of brandy and spirits

Maturation of wine for export

Investments

Contingencies

Unearned profits on sales to filial company

4 (a) Reserve accounts

Special protection against fire

Promotion of the export trade

Fire insurance fund

Wine not used for distribution

purposes: Contingencies

Protection of administration

Doubtful debts

5. Administrative summary accounts

Expenses in connection with meetings

Remuneration of alternate directors of Sawfa

Sundries

"Die Wynboer"

Directors' fees

6. Property and buildings account: distilleries

Paarl: Kohler street

Fraser street

/ Stellenbosch

Debit side of accounts (Contd.):

Stellenbosch distillery

Stellenbosch property

Worcester distillery

Robertson distillery

Robertson Hammond property

Montagu distillery

6 (a). Property and buildings account - wine cellars

Paarl

Robertson

Montagu

6 (b). Property and buildings account - moskonfyf factories, etc.

Moskonfyf factories: Worcester

Robertson

Stellenbosch

Paarl bottling

Head office - Paarl

Export department and rest rooms - Paarl

Dwelling houses - Worcester

Dwelling plots - Worcester

Dwelling houses - Stellenbosch

Railway sidelines

Dwelling house - Paarl: 28 Main Street

7. Buildings in process of construction account:
Paarl

Sherry stores G.5

Sherry stores G.6

/Distilhouse

Debit side of accounts (Contd.):

Distilhouse H.3

Boiler H.5

Maintenance workshop D.9

etc., etc., When construction of a new building is commenced, the additional head of allocation is added.

7 (a) Buildings in process of construction account
Paarl

Extension of sideline 806

Scale house H.6

Clock-room H.7

Winetank

New head office

Engineers' workshop D.10

etc., etc. When construction of a new building is commenced, the additional head of allocation is added.

7 (b) Buildings in process of construction account:
Worcester

Store H.5

Store G.1

General

etc., etc. When construction of a new building is commenced, the additional head of allocation is added.

7 (c) Buildings in process of construction account:
Robertson

Coal storage

Tanks in store B.7

/ Residential

Debit side of accounts (Contd.):

Residential house - J.A.Kok

Installations in store - A.9

Tankstore B.8

General

etc., etc. When construction of a new building is commenced, the additional head of allocation is added.

7 (d) Buildings in process of construction account:

Stellenbosch and Montagu

Stellenbosch: Cooling tower
 Roof - 3 flats
 Coal storage
 Cement
 Wine pipe
 General

etc., etc. When construction of a new building is commenced, the additional head of allocation is added.

8. Machinery and equipment

Paarl: Kohler street

New distillery

Fraser street

Electrical transformers and cables

Stellenbosch: Distillery

Pipe line for wine overflow

Electric transformers and cables

Worcester: Distillery

Robertson: Distillery

/ Montagu

Debit side of accounts (Contd.):

Montagu: Distillery

Pipe line for wine overflow

8 (a). Machinery and equipment

Moskonfyf factories: Worcester

Robertson

Stellenbosch

Paarl winecellars: Maturation of wine

Stabilization

Bottling

Paarl: Perfume

Vermouth

Motor repairs

Carpenter's shop

9. Sundry assets

Motors

Lorries

Paarl: Head office

Wine cellars and distillery

Laboratory

Stellenbosch distillery

Worcester distillery and moskonfyf factory

Montagu distillery

Robertson distillery and moskonfyf factory

Stellenbosch research room

Paarl laundry

Sundries

Debit side of accounts (Contd.):10. Furniture and equipment

Paarl: Winecellars and distillery

Laboratory

Head office

Perfume department

Vermouth

Worcester distillery and moskonfyt factory

Robertson distillery and moskonfyt factory

Montagu distillery

Stellenbosch distillery

11. Fustage

Pipes

Puncheons

Butts

Winecasks

Vats

Blending casks

Ankers

Small casks

Vermouth casks

Spirit and brandy casks

Limosin casks

12. Fustage

Quart leaguer casks

Distilling wine casks

Lorry tanks

Moskonfyt drums

Spirit drums

/ Demijohn

Debit side of accounts (Contd.):

Demijohn

Perfums demijohns

Gas cylinders

Spirit storage casks

Steel drums

Ten and twenty gallon casks

Installations work

13. Cask hire

Hogsheads: Distilling wine

Good wine

Spirit and brandy

Whisky casks

Spirit drums

Tanks

Puncheons

Ankers

Moskonfyt drums

14. Casks in transit

Local: Merchants

Farmers

Export

15. Stocks on hand account

Special stock reserve

Goods in transit

Sundry material

Liquid stocks

Debit side of accounts (Contd.):16. Investment control

Various journals from which entries are posted

17. Bills receivable

Perfume

Ordinary

18. Distillery cash accounts

Paarl

Worcester

Robertson

Stellenbosch

Montagu

18 (a). Wages suspense account

Paarl

Worcester

Robertson

Stellenbosch

Montagu

Head office

Salaries suspense

Coloured personnel pensions and pension fund

19. Petty cash20. Bank accounts

Salaries

Standard Bank, Paarl

Standard Bank, Cape Town

Standard Bank, London

Volkskas, Paarl

Volkskas, Cape Town

/Sainsbury

Debit side of accounts (Contd.):

Sainsbury trust - Dominion Bank, Canada

G. Bosman trust - Nederlands Bank

21. Vintage pool account

Gallons @ 20⁰

Proof gallons

Leaguers @ 20⁰

Value 1956

22. Surplus stock account

Good wine distilled: Debit. gallons @ 20⁰

Distilling wine in

exchange: Debit. gallons @ 20⁰

Good wine distilled. Debit. value

Distilling wine in

exchange: Debit. value

Spirit from previous output replacement

Rebate brandy price adjustment

Fusel oil

Credit. Proof gallons

Gallons @ 20⁰

Must or grapes for:

Wine for maturation;

Moskonfyt

Spirit for fortifications

Vinegar and boys' wine

Fusel oil

22 (a). Surplus stock account

Debit. Current account

Potstil bonus: @ £1.3.6.

@ 10/-d.

/Proof

Debit side of accounts (Contd.):

Debit: Proof gallons
Commencing stocks

Credit. Current account
Potstil bonus: @ 6d.
@ 1/3d.

Proof gallons

Stocks at end

23. Promotion of the wine industry

General advertisement

Wine show

Publicity department

Brandy tests

Entertainment

Goods given away

G. Bosman, Netherlands

Stellenbosch research room

Study busaries

Goodwood Show

Film account

Perfume policy advertising

23 (a). Promotion of wine industry

Sundries

24. Wine and maturation account

Grapes: tons @ 20^o

Spirits: bulk gallons

proof gallons

Commencing stocks

Moskonfyt bulk gallons

/ Own

Debit side of accounts (Contd.):

Own must used - bulk gallons

Bonus on grapes

Spirits

Commencing stocks and wine ex farmers

Moskonfyt

Own must used

Sundries

Credit side: Bulk gallons: Good wine distilled

End stocks

Used for other purposes

Spirits: Bulk gallons

Proof gallons

Good wine distilled

Final stocks

Used for other purposes

Spirits

Sundries

25. Appropriation account

Distilling wine bonus

1956 administration

Wine under maturation

Surplus stocks

Amounts accumulated

Previous crops

Sundries

Price difference in re-distillation

Debit side of accounts (Contd.):

25 (a). Appropriation account - Act No.23 of 1940

Good wine bonus

Administration

Sundries

26. Farmers ledger control account

Paarl

Malmesbury

Worcester

Caledon

Montagu

Robertson

Stellenbosch

Ceres and Tulbagh

Cape

27. Merchants' ledger control account

Various journals from which entries are made

27 (a) Merchants' good wine control account

Various journals from which entries are made

28. Creditors' control account

Various journals from which entries are made

29. Perfume control account

Various journals from which entries are made

30. Sundry debtors' ledger control account

Various journals from which entries are made

31. Ledger suspense account

Farmers

Merchants: Ledger

Merchants: Good wine

/Creditors

Debit side of accounts (Contd.):

Creditors

Debtors: Ledger

Perfume: Control

31 (a). Farmers' liquor control account

Paarl

Malmesbury

Worcester

Caledon

Montagu

Robertson

Stellenbosch

Ceres and Tulbagh

Cape

32. Moskonfyt accountGallons @ 20⁰: Commencing stock

Must

Depot administration expenses

General expenses

Depreciation

Surplus and sundry expenses

Must value

Commencing stocks

Export stocks

Credit side: Gallons @ 20⁰: For other purposes

Local sales

Final stocks

Export sales - lbs. @ 33⁰ Be.

/ Husks

Debit side of accounts (Contd.):

Husks and wine stone - lbs.

Commencing stocks

Export costs

Pressing and boiling costs on local
sales

33. Good wine sales account

Bulk gallons: Local sales

Export sales

For other purposes

Sales in exchange to members

Argol - lbs.

Local sales

Export sales

For other purposes

Sales in exchange to members

Argol

Taxes

34. Distilling wine sales account

Gallons @ 20⁰: Vinegar merchants

Vinegar

Re-distillation per merchants

Argol - lbs.

Boys' wine sold to staff and directors -

gallons @ 20⁰

Vinegar merchants

Vinegar

Re-distillation by merchants

/ Argol

Debit side of accounts (Contd.):

Argol

Boys' wine sold to staff and directors

35. Liquor in exchange to members

Good wine: Bulk gallons

Proof gallons

Brandy - proof gallons

Boys' wine - gallons @ 20⁰

Vermouth: Bulk gallons

Proof Gallons

Gin: Bulk gallons

Proof gallons

Liqueurs: Bulk gallons

Proof gallons

Good wine

Brandy

Boys' wine

Vermouth

Gin

Liqueurs

36. Spirits sales account supplied to merchants
by K.W.V.

Proof gallons @ 125.1d.

Spirits in moskonfyt - proof gallons

Suspense - proof gallons

Sales - @ 125.1d.

Spirits in moskonfyt

Suspense

Debit side of accounts (Contd.):

36 (a). Spirit sales account supplied to
merchants by D.F.B.

Sales - proof gallons @

Value @

36 (b). Spirit sales account supplied to
farmers

Sales - proof gallons @

Value @

36 (c). Spirits sales account

Distilling wine: Delivered by farmers to merchants
Delivered from merchants' own
stocks

Good wine: Delivered for the merchants

Ex farmers: Own stocks

Merchants

36 (d). Summary of spirits sales

Proof gallons: Spirits delivered against the
1955 pool account
Supplied or held back in exchange
for rebate brandy
Spirits delivered against the 1954
pool account
Spirits supplied against surplus
stocks
Spirits supplied against the 1956
pool account

Value: Spirits delivered against the 1955 pool
account

/ Supplied

Debit side of accounts (Contd.):

Supplied or held back in exchange for
rebate brandy

Spirits delivered against the 1954 pool
account

Spirits supplied against surplus stocks

Spirits supplied against the 1956 pool
account

37. Industrial spirits account

Surplus

Commission

Credit side: Proof gallons

Sales

38. Spirits for fortification and for sundry
purposes

Proof gallons: Vinegar

Perfume

Spirit for rinsing purposes: Perfume

Others

Vinegar

Perfume

Spirit for rinsing purposes: Perfume

Other

39. Spirits for fortification of liqueurs, etc.

Proof gallons: Mixed drink

Vermouth

Gin

Liqueurs

Mengeldrank

/ Vermouth

Debit side of accounts (Contd.):

Vermouth

Gin

Liqueurs

40. Spirits for fortification of good wine

Proof gallons: Farms

Paarl

Worcester

Stellenbosch

Robertson

Montagu

Value: Farms

Paarl

Worcester

Stellenbosch

Robertson

Montagu

41. Rebate brandy account

Sales: @ 14/11

@ 15/8

@ 18/6

Value: @ 14/11

@ 15/8

@ 18/6

42. Blended brandy account

Commencing stocks: Proof gallons

Value

Sundry material

/ Bottles

Debit side of accounts (Contd.):

Bottles, labels and packing

Export commission

Local commission

Export advertising

Export costs

Taxes

Sundries

Surplus

Credit side: Proof gallons: Local sales
 Export sales
 Other purposes and
 final stocks

Local sales

Export sales

Other purposes and final stocks

Export commission

Export advertising

Export costs

Sundry material

Bottles, labels and packing

43. Vinegar wine account

Worcester: Spirits - Bulk gallons

Proof gallons

Distilling wine - Bulk gallons

Gallons @ 20^o

Stellenbosch: Spirits - Bulk gallons

Proof gallons

/ Distilling

Debit side of accounts (Contd.):

Stellenbosch: Distilling wine - Bulk gallons
Gallons @ 20⁰

Credit side

Worcester: Bulk gallons
Gallons @ 20⁰

Stellenbosch: Bulk gallons
Gallons @ 20⁰

Worcester

Stellenbosch

44. Perfume account

Liquid stocks

Sundry material

Spt. @ 3/- and spt. for rinsing purposes

Surplus

Excise taxes on spirits

Salaries and wages

Bottles, labels and packing

Light and power

Local advertising

Export advertising

Postage, telephones and telegrams

Printing, stationery and sundries

Credit side: Liquid stocks

Sundry materials

Local sales

Export sales

Excise taxes on spirits

/ Wages

Debit side of accounts (Contd.):

Credit side: Wages and salaries
Bottles, labels and packing
Light and Power
Local advertising
Export advertising
Postage, telephones and telegrams
Printing and stationery

No.45. Perfume-on-cost account

H.J. Niehaus commission
Other commission
Export costs
Export commission
Transport and storage
Sundry expenses
Insurances
Taxes
Maintenance of buildings
Maintenance of machinery and equipment
Depreciation
Legal costs and bond

No. 46. Vermouth account

Materials: Bulk gallons - Commencing stocks
wine
Grape juice and
moskonfytt used
Proof gallons - spirits used
Value of commencing stocks. Wine,
grape juice and moskonfytt used
/ Spirits

Debit side of account (Contd.):

Spirits - value and excise taxes

Sundries

Salaries and wages

Bottles, labels and packing

Export costs and transport

Local and export commission

Export advertising

Surplus and sundry costs

Insurance, depreciation and maintenance p. and m.

Credit side: Bulk gallons: Local sales

Export sales

Final stocks and sundry
purposes

Local sales

Export sales

Sundry materials

Bottles, labels and packing

Export costs

Local and export commission

Sundry expenses

Liquid stocks

Sundry purposes

No.47. Mengeldränk account

Bulk gallons: wine and commencing stocks

Proof gallons: spirits, gin, etc.

Commencing stocks

Wine - value

Value of spirits, etc.

/ Sundry

Debit side of account (Contd.):

Sundry material

Insurance and excise taxes

Salaries and wages

Bottles, labels and packing

Export costs

Local and export commission and advertising

Sundry costs and surplus

Credit side: Bulk gallons: Final stocks

Sundry purposes

Local sales

Proof gallons: Export sales

Liquid stocks

Sundry purposes

Local sales

Export sales

Bottles, labels and packing

Export costs

Shortage

Sundry expenses

No. 48. Gin account

Materials: Proof gallons - spirit used and
commencing stocks

Spirit - value

Sundries

Commencing stocks

Salaries and wages

Surplus and sundry expenses

/ Local

Debit side of account (Contd.):

Local and export commission

Insurance, depreciation and maintenance of p. and m.

Excise taxes

Transport and export costs

Export advertising

Credit side. Proof gallons: Local sales

Export sales

Sundry purposes

Final stocks

Local sales

Export sales

Sundry purposes

Liquid stocks

Export costs

Shortage

No. 49. Liqueur account

Commencing stocks: Bulk gallons

Proof gallons

Value

Sundry material

Salaries, wages and surplus

Export expenses and transport

Commission

Advertising

Excise taxes

Sundry expenses

Spirit and gin used

/ Credit

Debit side of account (Contd.):

Gin: Proof gallons - local
export

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Value - local
      export
```

No.52. Donations on cost account

Brandy

Good wine

Liqueurs

Vermouth

Gin

No.53. Sample account

Same as donations (50)

No:54. Sample account

Same as donations (51)

No.55. Surplus contribution account

Sales: Grapes - tons @ 20⁰

Distilling wine - gallons @ 20°
Proof gallons

Trust: Grapes - tons @ 20⁰

Distilling wine - gallons @ 20°
Proof gallons

Value: Sales

Trust

No.56. Surplus distribution trust account

Grapes - tons @ 20⁰

Distilling wine - gallons @ 20°

Brandy - proof gallons

Distilling wine delivered to K.W.V. for account
of merchants - proof gallons

/ Good

Debit side of account (Contd.):

Good wine delivered for distillation - proof
gallons

Value

No.57. Allowance for volatile acid and wine
destroyed

Allowance for volatile acid - gallons @ 20⁰

Wine, etc. destroyed - gallons @ 20⁰

No.58. Surplus contribution on spirits, brandy, etc.

Distilled by farmers and sold privately: Grapes -

tons @ 20⁰

Distilling wine -

gallons @ 20⁰

Proof gallons

Distilled by merchants of good wine:

Grapes - tons @ 20⁰

Distilling wine -

gallons @ 20⁰

Proof gallons

Value: Distilled by farmers and sold privately

Distilled by merchants of good wine

No.59. Sundry and suspense account

Sundries

Deposit account

Amounts paid in advance

Goods lent out

Personnel provision fund

W.C.A. commissioner

Canada advertising reserve

West India advertising reserve: No.1

No.2

/Holiday

Debit side of account (Contd.):

Holiday stamps
Pension fund premiums paid in advance
Pension stamp fund
59 (a). Sundry and suspense account
Non-european provision fund
Holiday fund advances
Sundry collection
Insurance collection
Apportionment collection
Rent collection
Salaries and wages collection
Freight
Sick fund
Railage collection
60. Administration expense account
Salaries and wages
Donations and subscriptions
Directors' committee fees
Postage, telephones and telegrams
Advertisements, printing and stationery
Sundry expenses
Legal expenses
Staff travelling expenses
Directors' travelling expenses
Taxes, investments and maintenance of buildings
Bank charges and commission
Light and power.

Debit side of account (Contd.):

61. Paarl depot administration account

Salaries and wages

Taxes.

Insurance

Postage, telephones and telegrams

Advertisements, printing and stationery

Sundry expenses

Maintenance of buildings

Staff travelling expenses

Depreciation

Stocks, store and off sales

Tearoom and messengers

Light and power

62. Worcester depot administration account

Salaries and wages

Taxes

Insurance

Postage, telephones and telegrams

Advertisements, printing and stationery

Sundry expenses

Maintenance of buildings

Staff travelling expenses

Depreciation

Stock store

Messengers

Light and power

Debit side of account (Contd.):

63. Stellenbosch depot administration account

Salaries and wages

Taxes

Insurance

Postage, telephones and telegrams

Advertisements, printing and stationery

Sundry expenses

Maintenance of buildings

Staff travelling expenses

Depreciation

Stock store

Messengers

Light and power

64. Robertson depot administration account

Salaries and wages

Taxes

Insurance

Postage, telephones and telegrams

Advertising, printing and stationery

Sundry expenses

Maintenance of buildings

Staff travelling expenses

Depreciation

Stock store

Messengers

Light and power

/Montagu

Debit side of account (Contd.):

65. Montagu depot administration account

Salaries and wages

Taxes

Insurance

Postage, telephones and telegrams

Advertising, printing and stationery

Sundry expenses

Maintenance of buildings

Staff travelling expenses

Depreciation

Stock store

Messengers

Light and power

66. Bottling section account

Salaries and wages

Maintenance of p. and m.

Sundry material

Taxes and insurance

Advertising, printing and stationery

Sundry expenses

Maintenance of buildings

Bottles

Cases

Capsules

Pulp covers

Light and power

Debit side of account (Contd.):

67. Rent receivable account

Paarl: La Concordia - Main Street

Cecelia Street

Residential houses - 28, Main Street

D. S. Kilian

Paarl boys' houses - pressing cellars and King's
farm

Stellenbosch: Libertas

Parva

Three Flats

Residential houses: Pappegaai Street

Weidenhof Street

M.M. Basson

Sundries

67 (a). Rent receivable account

Worcester: Residential houses - A.W. Newman

T.C. Botha

S. van Niekerk

S.C. de Villiers

Six houses

Houses (old offices)

Room for visiting personnel

Robertson: La Bon Vigne

Houses: G.H. Bruwer

C.B. Uys

J.A. Kok

/ 67 (b).

Debit side of account (Contd.):

67 (b). Rent receivable account

Montagu: Residential houses - J. van Rensburg
M.H. Cronje
S. Poggenpoel

67 (c). Rent payable account

68. Bungshop account

Salaries and wages

General expenses

Maintenance of p. and n.

Light and power

Surplus

Transfer of general stock

Bungs sold

69. Interest, commission, dividends, etc.

Interest - received

paid

Commissions - insurance

normal

dried fruit

Discount

Dividends

70. Wine and brandy experts expenses

Brandy experts

Wine experts

Laboratory: Salaries and wages

Analysis and laboratory fees

Wine experts fees

General expenses

/Printing

Debit side of account (Contd.).

Laboratory: Printing and stationery
 Taxes
 Maintenance of buildings
 Light and power
 Insurance and depreciation

71. Distillation processing cost accounts

Depreciation
 Insurance
 Sundry and general expenses
 Transport
 Handling, distilling and maturation costs
 Excise
 Trust fees
 Excise taxes on spirit shortages
 Processing costs
 Railage on distilling wine in exchange for own
 use
 Inter-depot travelling costs
 Engineers and electricians expenses

71 (a). Distillation processing cost accounts

Maintenance of lorry tanks
 Maintenance of railway tanks

72. Wine for maturation expenses account

Transport
 Export advertising
 Depreciation
 Export costs
 Export commission
 Local commission

/ General

Debit side of accounts (Contd.):

General advertising

Insurance

Salaries and wages

Sundry material

General expenses

Maintenance of p. and m. and buildings

73. Motor vehicle expense account

Chevrolet CJ.126

Ford CJ.180

Willys CJ.291

Chevrolet CJ.666

Pontiac CJ.713

Ford CJ.770

Chevrolet CJ.776

Chevrolet CJ.1556

Mercury CJ.2258

Ford CJ.3073

Zephyr CJ.3127

73 (a). Motor vehicle expense account

Zephyr CJ.3172

Chevrolet CJ.4948

74. Lorry expense account

Chevrolet CCD.234

Chevrolet CL.301

Studebaker CJ.406

Studebaker CBR.856

Thornycroft CJ.1130

Ford CJ.1166

/Studebaker

Debit side of account (Contd.):

Studebaker CCD.1423

Büssing CJ.1524

Büssing CJ.1682

Chevrolet CJ.1774

G.M.C. CJ.3219

Bedford CJ.3816

74(a) Lorry expense account

Büssing CJ.4260

Chevrolet CJ.4921

Chevrolet CJ.5665

Chevrolet CJ.5841

Chevrolet CJ.5842

Chevrolet CJ.4632

Mercedes benz CJ.7148

Trailer CJ.8620

S.W.M. fire brigade

Paarl fire brigade

Diesel fuel

General vehicles

75. Sundry account

Pension fund and coloured fund expenses

Pension fund premiums

Workshops: Paarl engineering

Stellenbosch engineering

Worcester engineering

Robertson engineering

Paarl carpentry

Insurance: Other

Debit side of account (Contd.):

1957 calendar

Industrial council for the building industry

Wine pipes

75 (a). Sundry account

Fire combatting accounts: Paarl

Stellenbosch

Worcester

Robertson

Montagu

76. General stock accounts

Paarl

Stellenbosch

Worcester

Robertson

Montagu

Paarl workshop stocks

Paarl bottle stocks

Stationery No.1

Stationery No.2

Hogsheads

Vats

Hoops

76 (a). General stock account

Sundry income: Paarl

Stellenbosch

Worcester

Robertson

Montagu

/Paarl

Debit side of account (Contd.):

Paarl petrol: Gallons

Value

Stellenbosch petrol: Gallons

Value

77. Act 23 of 1940 - administration summary account

Laboratory expenses

Surplus

Directors' fees

Sundries

78. Act 23 of 1940 - administration expenses account

Salaries and wages

Advertising, printing and stationery

Postage, telephones and telegrams

General expenses

Light and power

Staff travelling

Legal expenses

79. Levy account

Bulk gallons: Wine sold by farmers to: Consumers

Retailers

Merchants

Wine sold by K.W.V. to merchants

Moskonfyt sales by farmers to
merchantsGallons @ 20⁰: Local moskonfyt sales by K.W.V.

Wine sold by farmers to: Consumers

Retailers

Merchants

/ Wine

Debit side of account (Contd.):

Wine sold by K.W.V. to merchants

Moskonfytt sales by farmers to merchants

Local sales by K.W.V.

80. Grapes bought by merchants according to
subsection 5 of paragraph 5 of Act 23 of 1940

81. Sundry amounts accumulated

82. Commissioner of excise

Good wine levy account

83. Paarl wine cellars

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes and insurance

General expenses

Sundry material

Depreciation

B.E.V.

84. Paarl distillery

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

/Maintenance

Debit side of account (Contd.):

Maintenance of buildings

Taxes

General expenses

Sundry material

Depreciation

Insurance

85. Paarl pressing cellars

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

Sundry material

Depreciation

Insurance

86. Worcester distillery

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

/ General

Debit side of account (Contd.):

General expenses

Sundry material

Depreciation

Insurance

87. Worcester moskonfyt factory

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

Sundry material

Depreciation

Insurance

88. Stellenbosch distillery

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

/ Sundry

Debit side of account (Contd.):

Sundry material

Depreciation

Insurance

89. Stellenbosch blended brandy

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

Depreciation

Insurance

90. Stellenbosch moskonfyt factory

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

Sundry material

Depreciation

Insurance

Debit side of account (Contd.):

91. Robertson distillery

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

Sundry material

Depreciation

Insurance

92. Robertson moskonfyt factory

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

Sundry material

Depreciation

Insurance

Debit side of account (Contd.):

93. Montagu distillery

Transport

Salaries and wages

Fuel

Light and power

Maintenance of p. and m.

Cooperage and casks

Maintenance of buildings

Taxes

General expenses

Sundry material

Depreciation

Insurance

, Appendix No.4.

Appendix No.4.

b. Code of accounts - Recommended methods.

(Translated from Afrikaans)

Main classification - (Cost centres).

0XXXX - 9XXXX

- 0 Assets, liabilities, general administration,
receipts pool
- 1 Stocks
- 2 Budgets
- 3
- 4
- 5 Paarl
- 6 Worcester
- 7 Robertson
- 8 Stellenbosch
- 9 Montagu

X00XX - X99XX

- 00
- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08
- 09

/ Production

Main classification - (Cost centres) (Contd.):Production centres

- 10 Vinegar wine
- 11 Bottling
- 12
- 13
- 14
- 15
- 16 Blended brandy storage and producing
- 17
- 18
- 19
- 20
- 21
- 22 Good wine: Mixing and handling
- 23 Good wine: Maturation in small casks
- 24 Good wine: Stabilization
- 25 Good wine: Despatch
- 26 Good wine: Maturation - vats and tanks
- 27
- 28 Liqueur section
- 29
- 30 Moskonfyt: Sulphuring and handling
- 31 Moskonfyt: Boiling
- 32
- 33 Moskonfyt: Storage and despatch
- 34 Pressing
- 35
- 36 Rebate brandy: Handling and storage

Main classification - (Cost centres) (Contd.):

- 37 Rebate brandy: Maturation
- 38 Perfume section
- 39
- 40 Spirits: Handling and storage
- 41 Spirits: Maturation
- 42 Distilling wine: Receiving and storage
- 43
- 44 Distilling
- 45
- 46
- 47 Boys' wine
- 48
- 49

Servicing centres

- 50 Garage
- 51 Cooperage
- 52 Cooperage: Tightening of hoops
- 53
- 54
- 55
- 56 Boilers: Distilhouse
- 57 Boilers: Steaming casks
- 58 Boilers: Bottling
- 59
- 60 Steaming and rolling of casks
- 61 Rent of property
- 62 Transport: Lorries - good wine
- 63 Transport: Motors

Main classification - (Cost centres) (Contd.):

- 64 Transport: Lorries - general
- 65 Stock store
- 66 Lorry tanks
- 67 Workshop: Engineers
- 68 Workshop: Carpenters
- 69 Building section

Products (sales and sales expenses)

- 70 Vinegar wine
- 71 Sundries
- 72 Blended brandy (export)
- 73 Good wine
- 74 Gin
- 75 Liqueurs
- 76 Moskonfyt
- 77 Five-year rebate brandy (trade)
- 78 Perfume
- 79 Spirits
- 80 Distilling wine
- 81 Vermouth
- 82 Boys' wine
- 83 Vodka
- 84 Three-year rebate brandy A.1
- 85 Three-year rebate brandy A.2
- 86 A.O.27
- 87 A.O.30
- 88 A.O.75
- 89 A.O.95

/ General

Main classification - (Cost centres) (Contd.):General (administration) centres

- 90 Head office
- 91 Depot office
- 92
- 93
- 94
- 95
- 96
- 97
- 98 Tea room
- 99

XXX00 - XXX99Expenditure

- 00
- 01 Advertisement - local
- 02
- 03 Excise
- 04
- 05 General dept. administration expenses
- 17 B 06 Insurance - casks returned
- 17 B 07 Insurance - tanks and drums returned
- 08
- 09 Buildings demolished
- 10 General depot prod. expenses
- 11 Packing - bottles
- 12 Packing - etiquettes
- 13 Packing - capsules and stoppers
- 14 Packing - cases

Main classification - (Cost centres) (Contd.):

- 15 Packing - cartons
- 16 Packing - covers
- 17 A. 17 Insurance to port - export
- 18 Insurances and licences
- 19 Taxes
- 20 Fire prevention equipment
- 21 Fuel
- 22 Donations and samples - local
- 23 Donations and samples - export
- 24 Printing and stationery
- 17 A. 25 Port charges - export
- 26 Electricity
- 27 Rent paid
- 28 Loose tools
- 17 B. 29 Clearance - empty casks
- 17 B. 30 Clearance - tanks and drums
- 31 Commission - local
- 32
- 17 A. 33 Commission - shipping agents out
- 17 B. 34 Commission - shipping agents in - casks
- 17 B. 35 Commission - shipping agents in - tanks
and drums
- 36 Costs - port - cooperage
- 37 Wages - head office messengers
- 38 Wages and salaries
- 39 Wages and salaries - building maintenance
- 40 Wages and salaries - maintenance machinery
- 41 Wages and salaries - pool

Main classification - (Cost centres) (Contd.):

- 42 Wages and salaries - lighting
- 43 Wages and salaries - maintenance furniture
- 44
- 45
- 46 Wages and salaries - gate watchers
- 47 Material direct production
- 48 Material indirect production
- 49 Wages and salaries - bonus
- 50 Non-european registration
- 51 Maintenance - office machines
- 52 Overhauls - shoes
- 53 Travelling expenses
- 54 Postage, telephones and telegrams
- 55 Repair material - buildings
- 56 Repair material - machines and equipment
- 57 Repair material - lighting
- 58
- 59 Repair material - casks and containers
- 60 Repair materials - furniture
- 61 Repair material - moskonfyt drums
- 17 B 62 Freight - empty casks returned
- 17 B. 63 Freight - empty tanks and drums
returned
- 64 Cleaning material
- 65 Railage, etc.
- 66 Railage: Sales local
- 17 A 67 Railage: Sales export
- 17 B 68 Railage: Empty casks returned
- 17 B 69 Railage: Empty tanks and drums returned

Main classification - (Cost centres) (Contd.):

- 70 Packing material - sundries
- 71 Depreciation - buildings
- 72 Depreciation - machines and equipment
- 73 Depreciation - motors and lorries
- 74 Depreciation - casks and containers
- 75 Depreciation - furniture and equipment
- 76 Sundry building costs written off
- 21. 77 Profits of product assets sold
- 78 Water
- 79 Workmen's compensation insurance
- 80 Sundry income
- 81 Fusel oil
- 82 Rent receiving - property
- 21. 83 Rent receiving - tanks
- 21. 84 Rent receiving - casks local
- 21. 85 Rent receiving - casks export
- 18 86 Argol
- 87 Casks sold - local
- 88 Casks and drums sold - export
- 21. 89 Transport costs recovered

Sales

- 18. 90 Local - from saleable portion of crop
- 19. 91 Export
- 20. 92 Members in exchange
- 18. 93 Staff and directors
- 94 To trade in exchange for good wine
- 95
- 18. 96 Local from surplus: Perfume, ind. spt.

/ and

Main classification - (Cost centres) (Contd.):

and vinegar wine

97 Spirits to co-operatives

98

99

Impersonal codes.00001 - 00199Assets, liabilities and control accounts

00001	Share capital	
00002	Share capital - forfeited	
00003		
00004		
00005		
00006		
00007		
00008		
00009		
00010	Bank account:	Standard Bank, Cape Town
00011	" "	Standard Bank, London
00012	" "	Standard Bank, Paarl
00013		
00014	" "	Volkskas, Cape Town
00015	" "	Volkskas, salaries
00016	" "	Volkskas, bills a/c
00017		
00018	" "	Depots, Paarl
00019	" "	Depots, Worcester
00020	" "	Depots, Robertson
00021	" "	Depots, Stellenbosch
00022	" "	Depots, Montagu
00023		
00024	" "	G. Bosman Trust
00025	" "	Sainsbury Trust

/ 00026

Assets, liabilities and control accounts (Contd.):

00026	Bank account:	Overload
00027		
00028		
00029	Investment control accounts	
00030		
00031		
00032		
00033		
00034	Bus tickets - personnel	
00035		
00036		
00037		
00038	Control account import - general	
00039	"	"
00040	"	export
00041	"	farmers general K.W.V.
00042	"	farmers grapes D.F.B. and producers
00043	Control account	farmers liquor
00044	"	creditors
00045	"	sundry debtors
00046	"	merchants' good wine ex farmers
00047	"	farmers' good wine to merchants
00048	"	merchants export
00049	"	merchants
00050	Depositor account	

/00051

Assets, liabilities and control accounts (Contd.):

00051	Sundry shareholders
00052	Excise deposit account
00053	
00054	
00055	
00056	
00057	
00058	
00059	
00060	Motors, Paarl
00061	Motors, Worcester
00062	Motors, Robertson
00063	Motors, Stellenbosch
00064	Motors, Montagu
00065	Lorries and vehicles, Paarl
00066	" " " Worcester
00067	" " " Robertson
00068	" " " Stellenbosch
00069	" " " Montagu
00070	Property and buildings, Paarl
00071	" " " Worcester
00072	" " " Robertson
00073	" " " Stellenbosch
00074	" " " Montagu
00075	" " " new head office
00076	" " " branch offices
00077	Buildings demolished
00078	
00079	Claims

/ 00080

Assets, liabilities and control accounts (Contd.):

00080	Claims - contra account				
00081	Goods in transit				
00082					
00083					
00084					
00085					
00086					
00087					
00088					
00089	Petty cash				
00090	Purchases - collection account				
00091	Collection account - insurance				
00092	"	"	sundry		
00093	"	"	rents		
00094	"	"	salaries		
00095	"	"	freight		
00096	"	"	railage		
00097	"	"	1/4d. excise insurance		
00098	K.W.V. pension fund - Europeans				
00099	K.W.V. pension fund - Coloureds				
00100	Wages and salaries control account - Paarl				
00101	"	"	"	"	"
					Worcester
00102	"	"	"	"	" Robertson
00103	"	"	"	"	" Stellenbosch
00104	"	"	"	"	" Montagu
00105	"	"	"	"	" Head Office
00106	"	"	"	"	" Salaries

/ 00107

Assets, liabilities and control accounts (Contd.):

00107				
00108				
00109				
00110	Machinery and equipment -	Paarl		
00111	"	"	"	Worcester
00112	"	"	"	Robertson
00113	"	"	"	Stellenbosch
00114	"	"	"	Montagu
00115				
00116				
00117				
00118				
00119				
00120	Furniture and equipment:	Paarl		
00121	"	"	"	Worcester
00122	"	"	"	Robertson
00123	"	"	"	Stellenbosch
00124	"	"	"	Montagu
00125	"	"	"	Head office
00126				
00127				
00128				
00129	Non-european provident fund			
00130	Reserves: Wine pool			
00131	"	Viticulture		
00132	"	Dividends		
00133	"	Buildings		
00134	"	Machinery and equipment		

/ 00135

Assets, liabilities and control accounts (Contd.):

00135	Reserves:	Casks
00136	"	Maturation of brandy and spirits
00137	"	Maturation of wine for exportation
00138	"	Investments
00139	"	Contingencies
00140	"	Undeserved profits on sales to filial company
00141	"	Development of the export market
00142	"	Fire insurance
00143	"	Good wine contingencies and provision for administration
00144	"	Special reserve against fire
00145		
00146		
00147		
00148		
00149		
00150	Stamps:	Building trade: Pension fund
00151	"	" " Sick fund
00152	"	" " Holiday fund
00153	Building trade council K.W.V. and employees' contributions	
00154		
00155		
00156		
00157		
00158		

/ 00159

Assets, liabilities and control accounts (Contd.):

00159	Deposits on casks to buyers
00160	Casks and containers: Paarl
00161	" " " Worcester
00162	" " " Robertson
00163	" " " Stellenbosch
00164	" " " Montagu
00165	
00166	
00167	
00168	
00169	
00170	
00171	
00172	
00173	
00174	
00175	
00176	
00177	
00178	
00179	
00180	Appropriation account
00181	
00182	Liquid stock control
00183	
00184	
00185	Stock control (general stocks)
00186	Special reserve stock

/ 00187

Assets, liabilities and control accounts (Contd.):

00187			
00188			
00189			
00190	Provision account:		Income tax
00191	"	"	Savings tax
00192	"	"	Dividends
00193	"	"	Bonus stabilization fund
00194	"	"	Viticulture research institute
00195	"	"	Doubtful debts
00196			
00197	Bills receivable		
00198			
00199	Profit and loss account		

00200 - 00299

00200
00201
00202
00203
00204
00205
00206
00207
00208
00209
00210

/ 00211

Assets, liabilities and control accounts (Contd.):

00211
00212
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00214
00215
00216
00217
00218
00219
00220
00221
00222
00223
00224
00225
00226
00227 Old Mutual
00228 S.A.N.L.A.M.
00229 Southern Life
00230 African Homes Trust
00231 Incentive wages
00232 Coopers' savings account
00233 K.W.V. staff provision fund
00234 Unclaimed wages
00235 Unclaimed holiday fund
00236
00237 S.A.K.A.V.
00238
00239

/ 00240

Assets, liabilities and control accounts (Contd.):

00240

00241

00242

00243

00244

00245

00246

00247

00248

00249

00250 Suspense control account - 1 - Farmers

K.W.V. debtors

00251 " " " - 1 - Farmers

K.W.V. creditors

00252 " " " - 2 - Farmers

grapes D.F.B.

and producers

debtors

00253 " " " - 2 - " " creditors

00254 " " " - 3 - Farmers

liquor debtors

00255 " " " - 3 - " creditors

00256 " " " - 4 - Creditors.debtors

00257 " " " - 4 - " creditors

00258 " " " - 5 - Sundry

credits. debtors

00259 " " " - 5 - " creditors

/ 00260

Assets, liabilities and control accounts (Contd.):

00260	Suspense control account	- 6 -	Merchants'	
			good wine ex	
			farmers.	debtors
00261	"	"	"	- 6 - " " creditors
00262	"	"	"	- 7 - Farmers'
			good wine to	
			merchants	debtors
00263	"	"	"	- 7 - " " creditors
00264	"	"	"	- 8 - Export. debtors
00265	"	"	"	- 8 - " creditors
00266	"	"	"	- 9 - Merchants.
				debtors
00267	"	"	"	- 10 - " creditors
00268	Suspense sundry account			debtors
00269	"	"	"	creditors

Head office administration (income)

00270	Administration expenses recovered	S.a.w.f.a.
00271	Profit on administration assets sold	
00272		
00273	Dividends	
00274		
00275		
00276	Levy on good wine:	Consumers
00277	" " " "	Sales by farmers to
		retail trade

/00278

Head-office administration (income):

00278 Levy on good wine: Sales by farmers to
wholesale trade

00279 " " " " Sales by K.W.V. to
wholesale trade

00280 Levy on moskonfyt: Sales by farmers to
wholesale trade

00281 Levy on local moskonfyt sales

00282

00283

00284

00285 Commission received: Insurance

00286 " " Dried fruit

00287 " " Other

00288

00289 Profit on casks sold

00290 Discount received

00291 Discount for volatile acid

00292 K.W.V. recreation club

00293

00294

00295 Rents received

00296 Rents received - merchants, farmers

00297

00298

00299 Adjustment outstanding surplus contribution
in respect of 474

00300 - 00399

Head office (administration) expenditure

00300	Excise duty:	Contra
00301	Advertisements:	General
00302	Advertisements:	Legal
00303		
00304	Insurance	
00305	Bank charges	
00306		
00307		
00308		
00309		
00310	Directors' fees:	Alternative directors S.A.W.F.A.
00311	"	" Normal fees
00312	"	" Committee fees
00313	"	" Travelling costs
00314	"	" Elections
00315		
00316		
00317	Management consultants fees	
00318		
00319	Donations (monetary)	
00320	Income tax	
00321	Subscriptions and books purchased	
00322		
00323	Quota control - expenses	
00324	Membership fees	
00325		

Head office(administration) - expenditure (Contd.):

00326 Uncollected debts
 00327 Entertainment expenses
 00328
 00329 Audit fees
 00330
 00331 Pension and K.P.V.V. - fund expenses
 00332 Legal expenses - ordinary
 00333
 00334 Legal expenses - legal
 00335
 00336 Travelling expenses: Administration
 00337 " " Publicity
 00338 " " Brandy experts
 00339 " " Wine experts
 00340
 00341 " " Maintenance buildings
 00342 " " Maintenance furniture
 and equipment
 00343 " " Administrative Act 47
 00344
 00345
 00346
 00347
 00348 Rents paid
 00349
 00350
 00351
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/ 00353

Head office (administration) - expenditure (Contd.):

00353				
00354				
00355	Workmen's compensation			
00356	Bills of exchange differences			
00357				
00358				
00359				
00360	Salaries head office:	Accounting section		
00361	" " "	Secretarial section		
00362	" " "	Legal administration section		
00363	" " "	Sales and publicity section		
00364	" " "	Management section		
00365	" " "	Purchasing section		
00366	" " "	Laboratory expert section		
00367	" " "	Personnel section		
00368	" " "	Sundry section		
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/ 00378

Head office (administration) - expenditure (Contd.):

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00400 - 00499

Pool accounts and intake

00400 Non-drinkable spirits to K.W.V.
00401 Bonus paid on rebate wine A. 1

/ 00402



Pool accounts and intake (Contd.):

00402
00403
00404 Bonus paid on muscatel grapes
00405 Bonus paid on proof grapes
00406
00407 Bonus paid on rebate brandy A.1
00408
00409 Bonus/distilling costs on deliveries
of farmers to the trade
00410 Distilling costs on spirits taken
in by K.W.V.
00411 Distilling costs on rebate brandy taken
in by K.W.V.
00412
00413
00414
00415 Deduction takings in respect of exchange
transactions
00416 Distillation costs recovered: Wine
cleaning/good wine distilled for the trade
00417
00418 Grapes for good wine delivered to the
K.W.V.
00419 Grape transactions amongst farmers as well
as between farmers and the Deciduous Fruit
Board
00420 Grapes delivered to the K.W.V. (saleable
portion)

/ 00421

Pool accounts and intake (Contd.):

- 00421
- 00422 Sample grapes delivered by farmers to
S.E. Agricultural College
- 00423
- 00424 Grape deliveries to D.F.B. for account
of the K.W.V. (See 480)
- 00425
- 00426 Grapes for moskonfyt for local sales
and for K.W.V. wines
- 00427
- 00428 Intake member grapes and distilling wine
for liquor for own use, and boys' wine
in exchange
- 00429 Intake of grape and distilling wine in
exchange for spirit for fortification
- 00430 Distilling wine to K.W.V. - saleable
portion
- 00431 Rebate wine A.1 to K.W.V. - saleable
portion
- 00432
- 00433 Distilling wine theoretical deliveries
- 00434 Distilling wine theoretical deliveries -
(See 481)
- 00435 Distilling wine deliveries to the trade -
saleable portion
- 00436 Wines - more than shown on the returns -
distilled by wine buyers (DR) (CR)
- 00437 Re-distillations

Pool accounts and intake (Contd.):

00438

00439 Distilling wine bought by trade from
farmers and co-ops. Full price

00440 Drinkable spirit deliveries to K.W.V. -
saleable portion

00441 Rebate brandy A.l. deliveries to K.W.V. -
saleable portion

00442

00443 Spirit in wine by K.W.V. sold to the trade

00444 Spirit in moskonfyt by K.W.V. sold to the
trade

00445 Spirit deliveries to the trade - saleable
portion

00446 Rebate brandy deliveries to the trade -
saleable portion

00447 Spirit/brandy bought by the trade from
farmers - full price

00448 Spirit - re-distillation by merchants

00449 Spirit in wine/moskonfyt sold by farmers
to the trade

00450 Good wine purchases by K.W.V. - sweet wine

00451 " " " " " dry wine

00452 " " " " " sherry

00453 " " " " " ex merchants

00454 Good wine delivered to the K.W.V. for
distillation (proof gallons)

00455

00456

00457

Pool account and intake (Contd.)

- 00458 For hollerith purposes - Year end
tabulation of levy (volume)
- 00459 Good wine deliveries by farmers to the
trade
- 00460 Surplus contribution on trust grapes -
year end
- 00461 Surplus contribution on trust distilling
wine - year end
- 00462 Surplus contribution on trust brandy and
spirits - year end
- 00463
- 00464
- 00465 Spirit in good wine delivered by producers
to consumers
- 00466 Spirit in good wine delivered by producers
to merchants
- 00467 Spirit distilled by Drostdy Co-op.
- 00468
- 00469
- 00470 S/Contribution recovered: good wine
distilled
- 00471
- 00472 S/Contribution recovered in respect of
spirit in good wine - sales to consumers
- 00473 S/Contribution recovered on distillation
losses
- 00474 S/Contribution recovered in respect of
spirit in good wine - bought by merchants
from producers

Pool account and intake (Contd.)

- 00475 S/Contribution received in respect of
distillations by Drostdy Co-op.
- 00476
- 00477 S/Contribution paid back on spirit in
wine exported
- 00478 Spirit in wine exported
- 00479
- 00480 Theoretical sales from trust deliveries
(boys' wine ex D.F.B.)
- 00481 Theoretical sales from trust deliveries
moskoniyt ex Villiersdorp)
- 00482 Sundry surplus contribution items - not
for intake into pool
- 00483 Sales of theoretical deliveries - liquor
in exchange
- 00484
- 00485 Spirit by K.W.V. bought from trade - not
for pool
- 00486
- 00487
- 00488 Moskonfytt deliveries by farmers to K.W.V.
N/B Good wine purchases
- 00489 Grapejuice deliveries by farmers to the
trade
- 00490 Vintage pool account
- 00491
- 00492
- 00493

505.

Pool account and intake (Contd.)

00494
00495
00496
00497
00498
00499

Sales expenses00600 - 00799

00600	Canada:	Advertisement reserve account
00601	"	Advertisement allowance account
00602	"	Advertisement account
00603	"	Local advertisement material account
00604	British West Indian Islands:	Advertisement reserve account
00605	" " " "	Advertisement allowance account
00606	" " " "	Advertisement account
00607	" " " "	Local advertise- ment material account
00608	Norway:	Advertisement allowance account
00609	"	Advertisement account
00610	"	Advertisement contra account
00611	"	Local advertisement material account
00612	Sweden:	Advertisement allowance account
00613	"	Advertisement account
00614	"	Advertisement contra account
00615	"	Local advertisement material account
00616	"	Special advertisement account
00617	"	Advertisin_ against special advertising account

Sales expenses (Contd.):

00618	Sweden:	Special advertisement contra account
00619	Finland:	Special advertisement account
00620	"	Advertising against special advertising account
00621	"	Special advertisement contra account
00622	"	Local advertisement material account
00623	Netherlands:	Special advertisement account
00624	"	Advertising against special advertising account
00625	"	Special advertisement contra account
00626	"	Local advertisement material account
00627	Denmark:	Advertisement allowance account
00628	"	Advertisement account
00629	"	Advertisement contra account
00630	"	Local advertisement material account
00631	"	Special advertisement account
00632	"	Advertising against special Advertising account
00633	"	Special advertisement contra account
00634	Belgium:	Special advertisement account
00635	"	Advertising against special advertising account

/ 00636

Sales expenses (Contd.)

00636	Belgium:	Special advertisement contra	account
00637	"	Local advertisement material	account
00638	Switzerland:	Special advertisement account	
00639	"	Advertising against special	advertising account
00640	"	Special advertisement contra	account
00641	"	Local advertisement material	account
00642	Germany:	Special advertisement account	
00643	"	Advertising against special	advertising account
00644	"	Special advertisement contra	account
00645	"	Local advertisement material	account
00646	British West Africa:	Special advertisement	account
00647	"	"	" Advertising against special advertising account
00648	"	"	" Special advertisement contra account
00649	"	"	" Local advertisement material account

/ 00650

Sales expenses (Contd.):

00650	British East Africa:	Special advertisement account
00651	" " "	Advertising against special advertising account
00652	" " "	Special advertisement contra account
00653	" " "	Local advertisement material account
00654	Mauritius:	Special advertisement account
00655	"	Advertising against special advertising account
00656	"	Special advertisement contra account
00657	"	Local advertisement material account
00658	Malaya:	Advertising allowance account
00659	"	Advertisement account
00660	"	Advertisement contra account
00661	"	Local advertisement material account
00662	"	Special advertisement account
00663	"	Advertising against special advertising account
00664	"	Special advertisement contra account
00665	Hongkong:	Advertisement allowance account
00666	"	Advertisement account

/ 00667

Sales expenses (Contd.):

00667	Hongkong:	Advertisement contra account
00668	"	Local advertisement material account
00669	New Zealand:	Advertisement allowance account
00670	"	" Advertisement account
00671	"	" Advertisement contra account
00672	"	" Local advertisement material account
00673	"	" Special advertisement account
00674	"	" Advertising against special advertising account
00675	"	" Special advertisement contra account
00676	Austria:	Special advertisement account
00677	"	Advertising against special advertising account
00678	"	Special advertisement contra account
00679	"	Local advertisement material account
00699	Local advertisement material to foreign countries	
00700	Foreign country commission - Aden	
00701	"	" " British West Africa
00702	"	" " British West Indian Islands

/00703

Sales expenses (Contd.):

00703	Foreign country commission:			Belgium
00704	"	"	"	Germany
00705	"	"	"	Denmark
00706	"	"	"	Finland
00707	"	"	"	Hongkong
00708	"	"	"	Indonesia
00709	"	"	"	Canada
00710	"	"	"	Mauritius
00711	"	"	"	New Zealand
00712	"	"	"	Norway
00713	"	"	"	Seychelles
00714	"	"	"	Sweden
00715	"	"	"	Switzerland
00716	"	"	"	Robert Brooks

00730	Marketing investigations:			Germany

00731	"	"	"	Sweden

00732

00733

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00735

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00738

00739

00740 Foreign country visits (Gain and Bosman)

00741

00742

/ 00743

Sales expenses (Contd.):

00743 Cost of sparkling wines for export market
00744 Cost of etiquettes supplied
00745 Analysis fees and sundry export expenses
00746 Registration of trade marks
00747 Travel and accommodation expenses - foreign
country visitors
00748 Packing and development
00749
00750
00751 Representative costs: Germany
00752 " " Netherlands
00753 " " United Kingdom

/ Appendix No.5.

K.W.V. GOODS RECEIVED NOTE.

Received from:-

..... Order No.

• • • • •

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

..... Date Ordered:.....

Request No.

Date of Request

[illegible]

Receive at.....

In good condition.....

..... Receiver.

S.A.R. Delivery Note No.....Date..... £

For use of:

Handed to

Storeman :-

NOTES:

Copy

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Appendix No.6.

K. W. V.

Wages allocation.

Depot

Date

Name			

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The methods, especially those in regard to aspects mentioned below, of a large variety of organisations and undertakings have been studied. Such organisations, etc. are classified and the number of investigations undertaken in each are enumerated hereunder:

1. Financial and cost accounting methods.
2. Budgetary and management controls.
3. Organisational set-up and clerical methods and documentation.
4. Production sharing schemes and incentive bonus schemes.
5. Production and efficiency methods.
6. Production flow and labour.
7. Job evaluation and merit rating.
8. Office mechanisation.

	<u>Total</u> <u>investigated</u>
A. <u>Government, Semi-Government and</u> <u>Railway Departments</u>	
Employing from 200 to 20,000	5
B. <u>Municipalities</u>	
Employing from 1,000 to 6,000	3
C. <u>Co-operative Societies</u>	
Employing from 70 to 1,000	3
D. <u>Engineering Workshops and Firms</u>	
Employing from 40 to 1,000	12
E. <u>Motor Trade and Workshops</u>	
Employing from 20 to 200	6
F. <u>Manufacturing</u>	
Employing from 40 to 4,000	4
G. <u>Wholesale and Retail</u>	
1 to 100 branches and employing	
5 to 1,000	3
	<u>36</u>