CHAPTER – II
THEORETICAL BACKGROUND OF THE STUDY

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2.1 FINANCIAL ASPECTS OF THE STUDY

a) INTRODUCTION

Every organization irrespective of its size and mission may be viewed as a financial entity. Management of an organization. Particularly a business firm is confirmed with issues and decisions like the following, which have important financial implications. They are,

- What kind of plant and machinery should the firm buy?
- How should it raise finance?
- How much should it invest in inventories?
- What should be its credit policy?
- How should it gauge and monitor its financial performance?

The financial manager plays a dynamic role in development of business unit with growing influence that now extends for beyond records, reports, the firms cash position, paying bills and obtaining funds. The financial manager is concerned with a) procurement of funds required b) investing funds in assets and b) determining the best mix of financing for getting maximum return.

Investments of funds in assets determining the size of the firm, its profits from operations, its business risk, and its liquidity obtaining the best mix of financing and returns determines the firms financial charges and its financial risk.
b) CONCEPT OF THE FINANCE:

Finance: - In a broad sense it is the factor of production known as capital. The requirements for finance of business vary with the type of trade and from time to time. All business requires some permanent finance (Fixed capital) and fluctuating amounts of short-term finance (working capital).

Business finance: - "it can be broadly defined as the activity concerned with planning, raising, controlling and administrating of funds used in the business".

Finance function: - "The finance function is the process for acquiring and utilizing funds by the business".

From the above definitions, it is clear that business finance or the finance function is the process of the raising, providing and managing of the funds or money used in the business. In short it is the acquisition of funds and their effective utilization. After knowing about finance, business finance now meaning of financial management.

Financial Management: - It is concerned with the managerial decisions that result in the acquisition and financing of long-term assets for the firm. As such it deals with the situations that require the selection of specific liability (or combination of liabilities) as well as the problems of size and growth of an enterprise. The analysis of these decisions is based on the expected inflows and outflows of funds and their effects upon managerial objectives.

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*1 The concise commercial dictionary-by P.G.Osborn and S.T.Grandage-Sweet and Maxwell Universal law publishing Company Private limited. - 1st Indian reprint 1997 - Delhi PP 92
c) IMPORTANCE OF THE FINANCE

The importance of financial management cannot be denied. In every organization where finance or money is involved, sound financial management is indispensable. Following are the importance of the financial management.

1. **Finance is the lifeblood of business.** Every business unit needs money to make more money. But money will get more money, only when it is managed properly. That means sound management is absolutely necessary for every business unit, which wants to make more money.

2. Bad production management and bad sales management has slain in hundreds but **faulty finance has slain in thousands.**

3. Financial management helps a firm in optimizing the output from a given input of fund (i.e. given amount of money).

4. Financial management helps a firm in monitoring the effective employment of funds in fixed assets (i.e. Fixed capital) as well as in current assets (i.e. working capital).

5. Financial management is **important even for non-profit making organizations.** It helps to control the costs and use the funds at their disposal in the most useful manner.
d) Sources Of Finance

INTRODUCTION

In our present day economy, finance is defined as the provision of money at the time when it is required. Every enterprise, whether big, medium or small, needs finance to carry on its operations and to achieve its targets. In fact, finance is so indispensable today that it is rightly said that it is the lifeblood of an enterprise. Without adequate finances, no enterprise can possibly accomplish its objectives.

Capital required for a business can be classified under two main categories, viz.:

i) Fixed capital,
ii) Working capital

Every business needs funds for two purposes – for its establishment and to carry out its day-to-day operations. Long-term funds are required to create production facilities through purchases of fixed assets such as plant, machinery, land, building, furniture, etc. Investments in these assets represent that part of firm’s capital, which is blocked on a permanent or fixed basis and is called fixed capital. Funds are also needed for short-term purposes for the purchase of raw materials, payment of wages and other day-to-day expenses, etc. these funds are known as working capital.

The various sources of raising long-term funds include issue of shares, debentures, ploughing back of profits and loans from financial institutions & Banks etc. The short-term requirements of funds can be met from
commercial banks, trade credit, installment credit, advances etc. The various sources of finance have been classified in many ways, such as:

1. According to period

   a) Short-term sources, viz., bank credit, customer advances, trade credit, factoring, accruals, commercial paper, etc.
   b) Medium – term sources, viz., issue of preference shares, debentures, bank long, public deposits/fixed deposits, etc.
   c) Long-term sources, viz., issue of shares, debentures, ploughing back of profits, loans from specialised financial institutions, etc.

2. According to Ownership

   a) Owned capital, viz., share capital, retained earnings, profit and surpluses, etc.
   b) Borrowed capital such as debentures, bonds, public deposits, loans, etc.

3. According to Source of Finance

   a) Internal sources such as ploughing back of profit, retained earnings, profits, surpluses and depreciation funds, etc.
   b) External sources, viz.; shares, debentures, public deposits, loans, etc.

4. According to Mode of Financing

   a) Security financing or External financing, i.e., financing through raising of corporate securities such as shares, debentures, etc.
   b) Internal financing i.e., financing through retained earnings, capitalization of profit and depreciation of funds, etc.
   c) Loan financing through raising of long-term and short-term loans.
For the present study of Bakery industry, the main sources of finance include only Owned Capital and Loan Financing.

I. OWNED CAPITAL

Owned capital includes funds contributed by own, Friends and Relatives for commencement bakery unit by the proprietors and partners of the Bakery units and issue of shares etc. by the co-operative bakery unit.

II. LOAN FINANCING

One of the important mode of finance is raising of both (A) short-term loans and credits and (B) term loans including medium and short-term loans. These sources of finance have been discussed as given below:

SHORT-TERM LOANS AND CREDITS

A firm for meeting its working capital requirements raises the short-term loans and credits. These are generally for a short period not exceeding the accounting period, i.e. one-year. The main sources of short-term funds are as follows.

1. Indigenous Bankers
2. Trade Credit
3. Installment Credit
4. Advances
5. Commercial Banks
6. Public Deposits
1. Indigenous Bankers

The money-leaders and other country bankers used to be the only sources of finance prior to the establishment of commercial banks. They used to charge very high rates of interest and exploited and customers to the largest extent possible. Now a days with the development of commercial banks they have lost their monopoly. But even today some business houses have to depend upon indigenous bankers for obtaining loans to meet their working capital requirements.

2. Trade Credit

Trade credit refers to the credit extended by the suppliers of goods in the normal course of business. As present day commerce is built upon credit, the trade credit arrangement of a firm with its suppliers is an important source of short-term finance. The credit-worthiness of a firm and the confidence of its suppliers are the main basis of securing trade credit. It is mostly granted on an open account basis whereby supplier sends goods to the buyer for the payment to be received in future as per terms of the sales invoice. It may also take the form of bills payable whereby the buyer signs a bill of exchange payable on a specified future date.

When a firm delays the payment beyond the due date as per the terms of sales invoice, it is called stretching accounts payable. A firm may generate additional short-term finances by stretching accounts payable, but it may have to pay penal interest charges as well as to forgo cash discount. If a firm delays the payment frequently, it adversely affects the creditworthiness of the firm and it may not be allowed such credit facilities in future.
The main advantages of trade credit as a source of short-term finance include:

(i) It is easy and convenient method of finance
(ii) It is flexible as the credit increases with the growth of the firm.
(iii) It is informal and spontaneous source of finance

However, the biggest disadvantage of this method of finance is charging of higher prices by the suppliers and loss of cash discount.

3. Installment Credit

This is another method by which the assets are purchased and the procession of goods is taken immediately but the payment is made in installments over a pre-determined period of time. Generally, interest is charged on the unpaid price or it may be adjusted in the price. But, in any case, it provides funds for sometimes and is used as a source of short-term working capital by many business houses, which have difficult funds position.

4. Advances

Some business houses get advances from their customers and agents against orders and this source is a short-term source of finance for them. It is a cheap source of finance and in order to minimizes their investment in working capital, some firms having long production cycle; especially the firms manufacturing industrial products prefer to take advance from their customers.
5. COMMERCIAL BANKS

Commercial banks are the most important source of short-term capital. The major portion of working capital loans is provided by commercial banks. They provide a wide variety of loans tailored to meet the specific requirements of a concern. The different forms in which the banks normally provide loans and advances are as follows:

a) Loans
b) Cash credits
c) Overdrafts

a) Loans

When a bank makes an advance in lump sum against some security it is called a loan. In case of a loan, a specified amount is sanctioned by the bank to the customer. The entire loan amount is paid to the borrower either in cash or by credit to his account. The borrower is required to pay interest on the entire amount of the loan from the date of the sanction. A loan may be repayable in lump sum or installments. Interest on loans is calculated at quarterly rests and where repayments are stipulated in installments, the interest is calculated at quarterly rests on the reduced balances. Commercial banks generally provide short-term loans up to one year for meeting working capital requirements. But nowadays, banks provide term loans exceeding one year also. The term loans may be either medium-term or long-term loans.
b) Cash Credits.

A cash credit is an arrangement by which a bank allows his customer to borrow money up to a certain limit against some tangible securities or guarantees. The customer can withdraw from his cash credit limit according to his needs and he can also deposit any surplus amount with him. The interest in case of cash credit is charged on the daily balance and not on the entire amount of the account. For these reasons, it is the most favorite mode of borrowing by industrial and commercial concerns. The Reserve Bank of India issued directive to all scheduled commercial banks on 28th March 1970, prescribing a commitment charge, which banks should levy on the unutilised portion of the credit limits.

c) Overdrafts.

Overdraft means an agreement with a bank by which a current account-holder is allowed to withdraw more than the balance to his credit up to a certain limit. There are no restrictions for operation of overdraft limits. The interest is charged on daily overdrawn balances. The main difference between cash credit and overdraft is that overdraft is allowed for a short period and is a temporary accommodation whereas the cash credit is allowed for a longer period. Overdraft accounts can either be clean overdrafts, partly secured or fully secured.
Security Required in Bank Finance

Banks usually do not provide working capital finance without obtaining adequate security. The following are the most important modes of security required by a bank:

(i) Hypothecation. Under this arrangement, bank provides working capital finance against the security of movable property, usually inventories. The borrower does not give possession of the property to the bank. It remains with the borrower and hypothecation is merely a charge against property for the amount of debt. If the borrower fails to pay his dues to the bank, the banker may file a case to realise his dues by sale of the goods/property hypothecated.

(ii) Pledge. Under this arrangement, the borrower is required to transfer the physical possession of the property of goods to the bank as security. The bank will have the right of lien and can retain the possession of goods unless the claim of the bank is met. In case of default. The bank can even sell the goods after giving due notice.

(iii) Mortgage. In addition to the hypothecation or pledge, banks usually ask for mortgages as collateral additional security. Mortgage is transfer of a legal or equitable interest in a specific immovable property for the payment of a debt. Although, the possession of the property remains with the borrower, the full legal title is transferred to the lender. In case of default, by the lender, the bank can obtain decree from the Court to sell the immovable property mortgaged so as to realize it dues.
6. PUBLIC DEPOSITS.

Acceptance of fixed deposits from the public by all type of manufacturing and non-bank financial companies in the private sector has been a unique feature of Indian financial system. The importance of such deposits in financing of Indian industries was recognised as early as in 1931 by the Indian Central Banking Enquiry Committee. It has been most common in the financing of cotton textile industry in Bombay and Ahmedabad, but in the recent years many companies have accepted deposits from the public to finance their working capital requirements. The manifold increase in demand for public deposits from the corporate sector in India has been on account of restrictive credit policy of the Govt. of India and a substantial credit gap existing in the market. As a result, companies have been accepting deposits directly from the public by offering higher rates of interest as compared to banks and post offices to meet their requirements of funds. But even by offering higher rates of interest to the investors, the cost of funds raised through public deposits to the companies has been lower than the minimum rate of interest on bank advances.

TERM LOANS

In addition to the raising of funds by means of share capital, public deposits etc., firms may also raise term loans for meeting their medium-term and long-term financial needs. Medium-term loans are for periods ranging from one to five years and long-term loans are granted for periods beyond five years. A term loan is granted on the basis of a formal agreement between the borrower and the lending institution. The major advantage of a term loan is that it is for a
fixed period and is to be paid back out of the cash generations for the operations. Term loans do not cause dilution of control, as lending institutions do not have the right to vote. Another advantage of term loan financing is saving in income tax, as interest on term loans is a deductible expense under income tax. However, term loans are deductive expense under income tax. However, term loan agreements, usually, carry restrictive convenience, which may reduce managerial freedom. Term loans also increase the financial risk of the firm. In our country there are two major sources of term lending, (a) Specialised financial institutions or development banks and (b) Commercial banks.

(a) SPECIALISED FINANCIAL INSTITUTIONS OR DEVELOPMENT BANKS

The need for establishing financial institutions was felt in many countries immediately after the Second World War in order to re-establish their war-shattered economies. In under-developed countries, the need for such institutions was much more due to a large number of organisational and financial problem inherent in the process if industrialisation. As early as 1918, the Industrial Commission had recommended the establishment of financial institutions in India. After independence a number of financial institutions has been set up at all India and regional levels for accelerating the growth of industries by providing financial and other assistance required.

These specialized financial institutions are also called Development Banks because they provide not only finances but also help in promotion of new enterprises. These institutions have to play a very significant role in the industrial development of our country for the following reasons:
(i) absence of organised capital markets,
(ii) lack of entrepreneurial latent,
(iii) low capital formation,
(iv) Shyness of capital, i.e., people prefers to invest only in traditional areas and are reluctant to take risk in new ventures.
(v) inadequacy of finance facilities to meet huge requirements of funds for industrial development, and
(vi) planned economic development to achieve the socio-economic objectives.

At present there are four such institutions at the national level i.e., the Industrial Finance Corporation of India (IFCI), Industrial Development Bank of India (IDBI), Industrial Credit and Investment Corporation of India (ICICI), and Industrial Reconstruction Corporation of India (IRCI). In addition, there are 19 State Financial Corporation (SFC's) and 24 state Industrial Development Investment Corporations. Apart from these specialised financial institutions, Small Industrial Development Corporations, Unit Trust of India, Life Insurance Corporation, National Industrial Development Corporation, etc. also provide finances for the development of industries in the country. Besides these institutions commercial banks provide short term as well long term finances. The Reserve Bank of India is also providing industrial finance through other financial institutions.

b) Commercial Banks also provide medium and long-term loan to industries. For small-scale industries, State Financial Corporations and State Industrial Development Corporation are the main source of getting the finance.
2.2 MARKETING ASPECTS OF THE STUDY:

a) Conceptual Backdrop:

Marketing is the essence of a business. It is a part of our lifestyle and delivers a standard of living to society. The term “marketing” has been used with varied connotations i.e. as a process, as an institutional setup as a system and a philosophy of a business firm in relation to its customer’s, products/services distribution process and organizational objectives. Before dealing with marketing, it is appropriate to know as to what is a market?

Market: - Market or fair is a franchise or priviledge to establish meetings of persons to buy and sell, derived either from prescription (implying such grant), (2) Dealers in different classes of commodities and securities congregate together on an exchange and are known as a market.*2

The term “Market” is used to give the following meanings.

1. It is a place where sellers and buyers of a commodity meet to trade, e.g. vegetable market, fish market, cotton market, etc. This is a narrow meaning of the term market.

2. Market is “an area of atmosphere for a potential exchange”. It refers to entire sphere in which forces of demand and supply of a commodity/services freely operate to result in exchanges at competitive prices. The buyers and dealers in a commodity may be in touch with each other through mail, telephone, telex etc. It is the wider meaning of the term “Market”.

Hence, market consists of sellers, buyers or agent middlemen, means of transport, warehouses, banks and financial institutions and communication media assisting and facilitating marketing activities.

**Marketing:** The term marketing is the means by which, a product is sold and distributed to customers. *3

**b) EVOLUTION OF MARKETING:**

The evolution of marketing.

**The stage of barter:**

The pre-industrial revolution world was characterized by an agricultural-cum-handicraft economy. The agriculturists, whether he produced corn or cotton, meat or butter, disposed of the surplus in his immediate neighborhood. These products were required in the neighborhood by those who were not engaged in the same activity. The agriculturist bartered the corn, cotton, meat and butter produced by him for the leather, hand tools, utensils and furniture produced by the craftsman. There was no elaborate distribution system as the needs and habits of the people and the prevailing technology did not demand such a system. This represented the stage of barter in the evolution of marketing.

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The stage of Money Economy:

The next stage in the evolution of marketing was that of money economy. No fundamental or far-reaching change took place in this stage in the production and distribution of goods. The change was limited to the replacement of the better system by the money system, pricing becoming the mechanism of the exchange process.

The stage of Industrial Revolution:

The industrial revolution was the next stage. Far-reaching changing took place in this stage. The industrial revolution bore the germ of a new business system. It introduced new products, new systems of manufacture, and new modes of transportation and methods of communication and brought about sweeping changes in the physical and economic environment of man. Mass production became the order of the day. A variety of low priced goods became available in great abundance. The industrial revolution also generated the income revolution, giving a great deal of disposable income to a large mass of people. And it was this income revolution that sustained the mass production and mass distribution unleashed by the industrial revolution.

The Stage of Competition:

The mass production and mass distribution brought by the industrial revolution soon led to the stage of competition. The ever-increasing number and size of the producing firms generated the phenomenon of competition. Earlier, the main task of the industrial firms was disposal or
distribution of their products. Now, facing competition became the main issue. The situation demanded a conscious effort on the part of the firms to ensure that their products were preferred to those of their competitors.

**The Emergence of Marketing:**

After the Second World War, especially in the fifties and sixties, the size and charter of markets in many countries of the world changed enormously. There was a substantial increase in population; the disposable income of the average family registered an increase; new industrial concerns sprang up rapidly; a great variety of few products and services strengthened the rapidly developing consumer market and selling of products and services became unusually difficult because of the high intensity of competition. Abundant choices were made available to the consumer and the consumer began to occupy a place of unique importance. The industrial firms realized that it was not enough if they somehow made an one-time sale of their products, they had to ensure that the consumer who purchased their products once, come back to them again and again whenever he needed the product. They also had ensured that the product was made available at a place convenient to the consumer. In addition, they had to make available their products at a price that was advantageous to the consumer. They also had to ensure that any complaint from the consumer about the product was attended to promptly; if the product needed to replace, it had to be replaced; if it required after-sales servicing, it had to be provided. And that meant the emergence of marketing.
c) THE GOALS OF MARKETING:

A marketing system assumes four alternative goals,

1. Increasing Consumption of Products:

Large number of goods and services available for consumption is one of the means increasing happiness. Therefore, marketing system aims at increasing consumption, which in turn will increase production, employment and wealth.

2. Maximizing Consumer-satisfaction:

Marketing system shall aim at providing satisfaction to consumers. But it is to be realized that satisfaction is a psychological condition and cannot be measured easily.

3. Providing Wide Choice of Products:

Marketing system aims at offering a variety of product ranges with brand and quality variations and customers may choose right brand of goods and attain maximum satisfaction. But such an objective may result in high cost of production and consequently rise in prices. The consumers are confused and may not be in a position to make proper selection. Log of time will be wasted in shopping and selection and yet there will be dissatisfaction. Sometimes, varieties of brand may be “old wine in new bottles” and defeat the goal of wide choice of product.

4. Improving Quality of Life:

It is said that the goal of marketing system is to improve quality of life of people. It must not only focus on supply and quality of product at affordable prices but also promote the quality of the physical and cultural environment.
Economists' view of the goals of Marketing:

From the point of view of an economist, all marketing strategies aim at attainment of following objectives,

1. Creation of form, place, time and possession utility.
2. Reduction in cost of production and distribution to make the product affordable.
3. Ensure price stability by regulating demand and supply forces through market mechanisms and statutory regulations.

d) The Marketing Mix

1. Concept of marketing mix:

   In practice, how does any firm make such a total offer to the consumer? In the first place, it chooses the product that would meet the identified needs of the chosen consumer/ consumer group. Secondly, it performs various distribution functions like transportation, warehousing, channel management, etc. so that the product can conveniently reach the consumer. Thirdly, the firm carries out a number of promotion measures like personal selling, advertising and sales promotional programmes with a view to communicating with the consumer and promoting the product. Lastly, the firm uses the pricing mechanism to achieve the consummation of the marketing process, striking the level of price that is acceptable to the firm as well as the consumer. It can be easily seen that that all activities and programmes which a business firm designs and carries out in its effort towards winning customers, relate to one or the other of the four elements – product, distribution, pricing and promotion. These four elements constitute the Marketing Mix of the firm.
2 MARKETING MIX VARIABLES OR THE FOUR Ps OF MARKETING

It was James Culliton, the American marketing expert who coined the expression Marketing Mix and described the marketing manager as a 'miser of ingredients'. To quote him, "The marketing man is a decider and an artist—a mixer of ingredients, who sometimes follows a recipe prepared by others sometimes prepares his own recipe as he goes along; sometimes adapts a recipe to the ingredients immediately available; sometimes invents some new ingredients; and sometimes experiments with ingredients as no one else has tried before. "Subsequently, Neil H Borden popularised the concept of marketing mix.

It was Jerome McCarthy, the well known American Professor of marketing who described the marketing mix in terms of the four Ps, classifying the variables under four heads, each beginning with the alphabet 'P'.

- Product
- Place (Distribution)
- Price
- Promotion

Since then, the terms Marketing Mix and the four Ps of Marketing have Come to be used synonymously. In each of the Marketing Mix elements or the four Ps—product, place, promotion and price—there are several sub-elements. For example, packing is one of the sub-elements of Place or Distribution. The complete set of Marketing Mix elements and sub-elements is presented in the chart below:
MARKETING MIX VARIABLES / FOUR Ps OF MARKETING

Product Variables:

- Product mix and product line
- Design, quality, features, models, style, appearance, size and warranty of products
- Packaging, type, materials, size appearance and label
- Branding and trade mark
- Merchandising
- Service, pre-sale and after-sale
- New product

Place Variables

- Channels of distribution, types of intermediaries, channel design, location of outlets, channel remuneration and dealer-principal relations.
- Physical distribution, transportation, warehousing, inventory levels, order processing, etc.

Price Variables

- Pricing policies, levels of prices, levels of margins, discounts and rebates
- Term of delivery, payment terms, credit terms and installment facilities.
- Resale price maintenance
Promotion Variables

- Personal selling: objectives, level of effort, quality of sales force, cost level, level of motivation.
- Advertising: media mix, budgets, allocations and programmes
- Sales promotional efforts, display, contests, trade promotions
- Publicity and public relations.

Assembling and managing the marketing mix is the main part of the Marketing task. However, no marketing man is free to assemble and operate his marketing mix in a vacuum or in a setting of his creation; he has to necessarily operate it in the marketing environment in which he markets his products; he has to reckon the set of variables that make up the environment. In other words, the marketing manager of any firm handles another set of variables, viz. The Environmental variables in addition to the marketing mix variables.

3. Distribution Channels

i). MEANING AND DEFINITION OF DISTRIBUTION CHANNEL

Producers normally use a number of marketing intermediaries for taking their products to users. Marketing intermediaries bear a variety of names such as: sole selling agents, marketers, wholesalers, distributors, stockiest, semi-wholesalers, franchised dealers, retailers, authorised representatives, brokers / commission agent and jobbers. All such intermediaries constitute the distribution channel. The depots / showrooms and other direct outlets of producers also from part of the distribution channel.
ii). FUNCTIONS PERFORMED BY DISTRIBUTION CHANNELS

- They facilitate the sales process by being physically close to customers.
- They bridge the makers and users efficiently and economically.
- Break the bulk and cater to the small-size requirements of buyers.
- Assemble and offer suitable assortment of products as required by buyers.

- Help sub-distribution
  - a) Selling to sub-distributors
  - b) Transport
  - c) Handling
  - Accounting

- Help stock holding
  - a) Financing the stocks
  - b) Risk bearing
  - c) Storage of products
  - d) Making available warehouse space
  - e) Aiding the sales by transforming the static stock into operational stock.

- Provide salesmanship
- Provide pre-sale and after-sale services.
- Assist in sales promotion
- Assist in merchandising
- Aid the introduction of new products in the market
- Aid the price mechanism between the firm and the ultimate customers
- Assist in developing sales forecasts for the territory concerned
- Provide feedback on market intelligence
- Maintain records/ registers
- Maintain liaison
- Extend credit to retailers as well as actual users
- Transfer technology to the users and act as ‘change agents’
iii). PATTERNS OF DISTRIBUTION CHANNELS AND TYPES OF DISTRIBUTION INTERMEDIARIES

Distribution channels pose a kaleidoscopic variety. The simplest pattern is the one where the producer takes his products directly to the consumer without any marketing intermediaries. The other patterns involve varying number of tiers and various types of intermediaries.

Different Patterns of Distribution Channels

- Manufacturer – user
- Manufacturer – Mail Order – user
- Manufacturer – Door to Door salesmen – User
- Manufacturer – Manufacturer’s Showrooms – User
- Manufacturer – Retailers – Users
- Manufacturer – Wholesaler – Retailer – User
- Manufacturer – Marketer – Stockist/Distributor – Semi-wholesaler – Retailer-User
e) The Marketing Problems of SSI Units

Marketing occupies an important place in the management of small scale industries. Marketing mechanism in SSI’s differs from one industry to another. Tiny and Ancillary units like Bakery industry opt for simple mechanism. Marketing is one of the major stumbling blocks for small-scale industries. Many of the marketing are as given below:

a) Lack of Standardization

b) Poor Designing

c) Lack of quality Control

d) Lack of After Sales Services

e) Lack of Expert Knowledge of Marketing

f) Tough Competition

g) Financial Weakness

h) Limited Local Market

i) Dependence on Middlemen

j) Lack of advertisement

k) Adoption of Modern Obsolete Technology

l) Availability of Transport Facility etc.
2.3. HISTORY AND PRODUCTION PROCESS OF BAKERY PRODUCTS

a) History of Bread Making and Its Production Process.

History Of Bread Making: -


YOUR DAILY BREAD

In thousands of homes across the country and in the world too, the day begins with a no-fuss and, perhaps, no-cook breakfast, thanks to that ubiquitous, dependable food-item called bread, dipped in tea or milk, spread with butter and jam or toasted brown and teamed with egg, it provides a wholesome, convenient an acceptable meal with which to start the day. What would happen, one wonder, if all the bakers struck work even for a day? The frustration and chaos would certainly be enormous.

Bread was one of the first things that civilised man cooked. The earliest bread goes back to the Stone Age and it was made from wild wheat and barley. These early people learnt to separate the chaff from the grain, by parching it on hot stones and then threshing it. Stone mortars pestles and grinding stones found in ancient sites indicate that people in the Middle East were making some form of unleavened bread even before they began making pottery. To this day, peasant in Iraq bakes the bread of the ancient Sumerians—
flat bread of barley flour, ground sesame seeds and onion. The first leavened bread was made by the Egyptians in about 2600 BC. They used sour, fermented dough (sourdough) that was added to the mix to make the bread rise. They kneaded the dough with their feet. In time, they learnt the fermenting wheat forms a gas that causes dough to rise and make the bread lighter and tastier - - the first leavened loaves. By the 2nd century BC the Greeks had become the new master-bakers and were producing over 50 different breads, including a cheese loaf! When the Romans took over, bake-houses were put under the control of magistrates, with slaves and criminals to pound the grain.

Leavened bread came into India with the advent of the British, but did not gain entry into Indian households. In fact, even in the middle of the 20th century, many orthodox Hindus abstained from eating it. There were at least two reasons. One was that it used fermented dough and therefore considered stale food. Secondly it was ‘pav roti’ or bread that was kneaded using the feet. It was accepted as food for the invalid though, as doctors practicing allopathic considered it bland food, ideal for those who were ill. Slowly but steadily, however, attitudes changed and with the passage of time, the children in the family were allowed to have it. It was something in the nature of a delicacy and I remember toasting thick slices of bread to rich brown with generous amounts of fragrant homemade ghee and topping it with golden marmalade. It tasted as near to heaven as anything else! Today a loaf of bread is a common item of food available everywhere and acceptable to all.
India, of course, has its own versions of bread. Puri, chappati, parathas and naans have all been rightly called 'breads'. These form an integral part of a meal in the North, though, in recent times, they have made inroads into the rice-eating South and are very popular. There could be regional differences in the way they are made. The Kashmiri's, I have read; cook five different kinds, though they are not so well known outside the State. They are gird, kulcha, bakhirkhan, kerp and sheermal.

Since bread forms the principal part of a meal, it is not surprising that the word 'bread' is used as a powerful metaphor in the realm of thought and expression. In fact, bread, as the staff of life has been part and parcel of social history and literature. There is the 'daily bread' of Christ's Prayer and the reminder to 'cast the bread upon the waters'. Those who give stones instead of bread are to be despised. 'Knowing which side of your bread is buttered' (where one's interest lies) may help you 'butter both sides of your bread' (easy prosperity).

Bread has succeeded in shaping history too. During his Last Supper, Jesus broke bread, gave it to his disciples and asked them to continue doing it in memory of Him. It is an act that is now sacred to Christians the world over.

The Roman emperors, according to historian Juvenile, offered people 'bread and circuses' to pacify them and prevent them from rioting. The French Revolution had its beginnings, so the story goes, in the cry of the poor for bread and the callous reply they received from the empress Marie Antoinette, 'Let them eat cake'.
Bread, undoubtedly, is one of the most versatile forms of food ever created. It can be eaten plain, toasted, layered or filled. It can also from the basis for exotic dishes, both savory and sweet.

Man, it will be readily admitted, does not live by bread alone, but without it, he would not be ruling the world as he does today. As Hendrik Van Loon points out in ‘The Story of Mankind’, ‘The history of the world is quest of his daily bread and butter’.

Source: Deccan Herald 18th November 2000

BREAD MAKING PROCESS:-

Bread has been the oldest and most general food of the world ever since man acquired the herd instinct, settled in-groups more or less permanently in one spot and started to cultivate the ground. The fundamental materials are easy to obtain: wheat flour, salt, yeast and water and the making of bread – of a sort – is a relatively simple process.

INGREDIENTS OF BREAD

It cannot be said that there is any one flour which, used by it alone, is ideal for this purpose and the flour from different countries show big differences in their value as bread making flours. Moreover, tastes in different countries and even in the same country are for different flavors and types of bread. Bread making has grown, therefore, from a simple household piece of cooking to a complicated science.
To remedy these differences in the natures of the flours used and to satisfy regional tastes, bakers accordingly use one or more other materials besides the four basic ones. These may be such things as fat, malt extract and other enriches fermentation controllers usually denominated by the term “yeast foods” and, in the last ten years or so, vitamins and other accessory factors.

**Proportions of Materials Used**

The first step in the process consists in making as uniform a mixture as possible of the various ingredients. The actual proportions of the materials used depend on the kind of bread it is proposed to make, e.g., oven bottom or tin bread; the locality in which the bakery is placed (Scotland requires a different type of bread from Lancashire, Lancashire bread would not be popular in Birmingham, and none of the three would sell well in, say, London or South Wales) and the process to which it is to be subjected. This may be a short process of 2 to 3 hours, a longer one of 4 to 6 hours or the method known as the sponge and dough, in which part of the ingredients are allowed to ferment for a certain time before the dough is completed by the addition of the remainder of the ingredients.

The variations in process adopted are very numerous; even in the same town, supplying the same type of palate, bread will be made in several different ways, according to the ideas of the individual master baker. The variations in the quantities used and in the kinds of bread marketed are not, however, very great as a rule.
The first part of the process is the most important. Dough is a very still and difficult material to do anything with when it is made and any error in the quantities of the ingredients used cannot be easily rectified. Moreover, the salt, yeast, and other ingredients added to the water and flour are only about 1 to 2 percent of the total of the latter ingredients and it is essential for success that the dough be uniform in composition. The flour is put into the bowl of the kneading machine and its temperature taken. The dough-maker requires his finished dough to be at a certain temperature and from the temperature of the flour he can either calculate or read off on prepared tables the temperature at which he should take the water. This latter is contained in a “Tempering” tank, which is fitted with a thermometer and marked off in gallons and fractions thereof, and fitted with a hot and cold water supply.

A gallon or two is drawn off first into one or two containers. In one the yeast is thinned down to a liquid, in another the salt or mineral improver is dissolved or worked into a suspension and any other ingredient used in small quantity is treated in the same way. Malt extract should be thinned down; milk powder worked into a cream, and so on. The kneader is started and the remaining water is then added steadily to the flour in the bowl. The small quantities of yeast, and other ingredients are poured into the bowl and when all are added the dough is kneaded for about 10 to 20 minutes. The finished dough should be smooth and “clear.” To decide when this has been done is where the art of the dough-maker comes in.
Fermentation of the Dough

After making, the dough is either allowed to remain in the pan, if this is removable, or transferred to a trough, covered with a cloth to prevent draughts which may cause a skin to form and placed in a part of the bakery where the temperature is reasonably uniform. There it is allowed ferment for a predetermined period and is only disturbed for the process of "knocking back" referred to below.

What is there in Dough?

Though this is quite well understood in a general way, it is impossible to give a complete answer to this question. It must be borne in mind that there are an enormous number of different substances in dough in its first stage and most of them can have some effect on the final result. Flour contains water, proteins, fat, carbohydrates, salts and other substances in small quantities, which are not without some action on fermentation. Salt is a reasonably pure substance but water normally contains dissolved salts, some of which are essential for a good fermentation. Yeast today is almost a 100 percent standardised product and that helps to simplify control. Finally, there are bacteria in flour and one cannot prevent bacteria from the air entering the dough. Some of these are importance during the fermentation period.

What Happens in the Dough during Fermentation?

Here again it is impossible to give a complete answer to this question but the main changes are two in number:
(a) THE AERATION OF THE DOUGH - Yeast is capable of decomposing sugars with the production of carbon dioxide and alcohol. The latter is of no value in the bread and is almost entirely, but not completely, expelled from the dough in the oven. This change is not, however, a simple one and does not take place in one stage. Secondary reactions take place and numerous bodies have been identified in small quantities in dough. The carbon dioxide produced renders the dough acid and aerases it; the small bubbles permeate its mass, making the network which it characteristic of a cut loaf.

Without aeration, bread would be an extremely heavy and unpleasant food to eat and difficult to digest. More carbon dioxide is produced, however, than is necessary merely to aerate the dough and in as much as all the carbon dioxide and alcohol produced come from the flour and therefore represent so much flour solids, and are subsequently expelled into the air, thus being entirely lost as food, it is clear that the reasons for a longer fermentation than is necessary for aeration alone must be good ones.

(b) THE MATURING OF THE DOUGH when water is added to flour and dough made, the proteins combine to produce a complex called "gluten." Wheat flour is unique in this respect and this is the reason why it makes better bread than flour from any other cereal. When first made, however, gluten is not in the ideal condition to form a skeleton or framework which can be stretched without breaking and will support the network of gas bubbles produced by the action is even more important than aeration, which can be achieved by other methods, e.g., baking powders, or forcing a gas into the dough under pressure as was actually done on a commercial scale. A comparison of the flavour and character of yeast-raised and baking powder-raised loaves shows the superiority of yeast-raised bread.
The Factors Affecting Gluten Maturing

This is important enough to be considered under a separate heading. While all the factors affecting this maturing are not known, the important ones are recognised and the chief one is the hydrogen ion concentration of the dough. As mentioned above, the dough is rendered acid by the carbon dioxide present and this affects the maturing very favorably.

Another influence at work in long dough's is the proteolytic enzymes, which have the power of breaking done complicated proteins such as glutenin and gliadin (of which gluten is mainly composed) to less complex proteins. This process of degradation must not proceed too far, otherwise the gluten will lose its character not, equally, must the acids be allowed to act excessively on the dough, otherwise the dough will be “over”- fermented and will make bread of a squar, heavy and unappetising appearance.

It has also been found that certain mineral salts have an accelerating action as regards gluten maturing, so that instead of allowing 2 to 3 hours for the formation of these acids and for their action and that of the enzymes in the gluten to take place, the time can be reduced by 20 percent and more. In as much as, during all this time, yeast is at the same time destroying flour solids and producing carbon dioxide and alcohol from them, it can be seen that the use of these maturing agents results in an appreciable saving of flour, with a resultant greater yield of bread from the sack of flour.
“Knocking” or “Cutting-back” the Dough

Should the fermentation period be over two hours, it is a common and beneficial practice to “cut-back” the dough. This process consists in turning over and squeezing the dough so as to reduce its volume. The accumulation of alcohol in the interior of a big mass of dough tends to kill the yeast and by turning it over in this way, a certain amount of the alcohol is driven off, fresh surfaces are exposed to the air, a certain amount of air occluded in the dough, and parts of the dough which may not have been in contact with the yeast have a chance of being acted upon. The actual time or times when this cutting-back is carried out vary according to the length of the process and the preferences of the master baker, but in a four-hour process would normally be between 1 ¼ and 3 ¼ hours.

After — Fermentation Treatment

The dough being properly fermented, i.e., when the gluten has matured — this being ascertained by the feel and an examination of the way is stretches — it then passes on to the scaling or dividing process. From the fermentation stage onwards in large bakeries the remaining processes are automatic, and very little variation is possible. The importance of preparing the dough correctly and of fermenting it to the correct stage cannot, therefore, be stressed too strongly.
Dividing the Dough into Loaves

In small bakeries the dough is "scaled," i.e., weighed by hand; in larger bakeries the dividing of the dough is done by machinery, depending on delivery of a certain volume of dough. Dividers are adjustable and can be made to deliver any required volume of dough. Until the last war loaves had by statute to be one pound in weight or multiples of one pound. This is not the law now but weights are standardised and the weight of the dough to be taken is about one-eighth more than the finished loaf, e.g., to make a one-pound loaf take one pound two ounces of dough. This additional weight allows for the loss of weight in the oven due to evaporation of water and the expulsion of alcohol and some of the gas.

The "Hander-up"

After dividing, the dough travels to the next machine, the "hander-up." The "hander-up" is a machine for molding roughly the dough piece. At this stage the dough is in a very delicate condition and requires a little rest to recover from the harsh treatment of the divider, which has squeezed and cut it and handled it generally rather roughly. The cut edges want "healing," and it is the purpose of the "hander-up" to close up these cuts and to form a skin all rounds the piece. In this form, the piece is in the best condition to recover. This period of rest is called "intermediate proof" and lasts for 10 to 20 minutes.
The "Molder"

After recovery, the piece goes through a "molder," in which it again undergoes a gentle squeezing and pressing action. This renders the condition uniform throughout the piece, so that during the last half-hour or so of fermentation (called the "final proof") the expansion and gas formation will be regular. In some bakeries, the same machine serves as both hander-up and molder. The only essential difference in their action is that the molder handles the dough much more gently than the hander-up. Both of them tend to set up a state of tension in the gluten network, rendering oven expansion and texture even throughout the loaf.

THE BAKING PROCESS

The Action of the Oven

The dough has now arrived at the oven and the actual transformation into bread is to take place. The normal temperature for a bread oven is 450°F. to 500°F. And the time of baking is from 40 to 50 minutes for a 2-lb. loaf. With brown and other breads the temperature is usually lower and the time longer.
Fig. 2.1 – Principal Methods of Bread making
Yeast Activity increases as the Temperature Rises

The main changes that take place in the oven are as follows. For about the first 15 minutes the temperature does not rise above the point at which yeast ceases to be active. If the preceding stages have been carried out accurately, the dough arrives full of life at the oven and as the temperature increases this yeast activity is also very considerably increased.

The loaf can be seen to rise, owing to the greater development of carbon dioxide and expansion of the gas already contained in it, until it reaches the well-known dimensions of a 2 lb. Loaf.

The temperature of the interior of a loaf never exceeds 212°F. but the exterior can, of course, go much higher. The first stage is the drying out of the outer surface of the dough and the formation of an impermeable skin.

A) Why Steam is injected into the Oven

Up to this point steam can pass out of the interior of the loaf and the loaf can expand. The presence of this steam keeps the skin of the dough flexible. Until steam is produced from the loaf itself, it is customary to inject steam into the oven. All this while the gluten is coagulating and becoming “set,” thus forming a framework for the whole of the loaf.

B) The Death Point of the Yeast

About the time the skin is formed, the death point of the yeast is nearly reached and expansion stops. If the fermentation has been correctly carried out, the loaf will keep the shape obtained at this point, because the gluten will be strong and able to support it.
Faults Due to Incorrect Fermentation

If, unfortunately, the loaf has suffered from incorrect fermentation, faults of several kinds will appear, tears in the side of the top crust, later on "flying tops," which is a sufficiently descriptive term not to require further definition. In the interior of the loaf the heat is gelatinizing the starch and making it easier to digest. It should be mentioned here that there is never sufficient water in a loaf to enable the whole of the starch to be gelatinized, and under the microscope it is possible to see in bread individual starch grains.

Why Loaves are a Pleasant Brown Color

When the crust is dried out, it begins to caramelize. The pleasant brown color of a loaf is due mainly to caramelisation of the sugar contained in the dough. Now it must be remembered that sugar is one of the important foods that yeast feeds on. There is a certain amount of sugar naturally in the flour, but the bulk of it is obtained by the action on starch of an enzyme called diastase, present in smaller or greater degree in the flour. The yeast may use up the sugar, however, more quickly than the diastase can produce it, and in some cases there will be a shortage of sugar in the dough when it goes to the oven.

BREAD WRAPPING

In bakeries, where bread is wrapped, care is still necessary. On cooling, the solid crust contracts and small cracks appear through which steam can escape from the interior. If bread is wrapped warm, it will be maintained for several hours in a warm moist atmosphere, which is the ideal condition for the growth of moulds and the development of that bogey of the bread-trade, "rope." It also results in the formation of a soggy crust. It is, therefore, necessary to allow the bread to cool to an extent, which will prevent the formation of these conditions.
b) Evolution Of Biscuits and Biscuit Making Process.

Evolution Of Biscuits

The leavened bread, inspite of all the varieties, had a limited shelf life. Thus these breads are not suitable for long journey by sea, trade or warfare and the demand for a bread from which had a much longer shelf life of more than a few weeks and even months, became very high. Thus, 'BISCUITS' were developed. 'BIS' means twice and 'CUT' means baked. If properly prepared, biscuits were observed to be capable of being kept for a long time and hence these came to be used as a coming form of bread at sea. After this came the development of several other products based on unfermented dough's both saltiest and sweet.

Bread and Biscuits are good nutrition supplements. In recent years bread is usually fortified with Vitamins and minerals such as thiamine, niacin and iron. In addition of 0.5% L-Lysine, and 0.1% to 0.2% thiamine considerably improves the protein quality of the bread.

BISCUIT MAKING PROCESS

Biscuit doughs are made mainly from flour far, sugar and water, with minor amounts of flavors, colors and aerating agents and possibly eggs and fruit. The dough's are formed to the required shape by one of various processes and baked in traveling ovens to moisture content of 1 to 4 percent.
INGREDIENTS

Flour

The principal flours are milled from English soft wheat's, Canadian Spring wheat, Canadian Winter wheats and Australian wheats may also be used if the currency position permits them. The baking character of flour is the largest variable among the ingredients and it is with the English flours that the main variations occur.

Sword lists some seventy wheats grown in Britain, which he has examined; seven of which are consistently suitable for biscuits and seventeen frequently suitable. Variations in quality arise from (a) differing climatic conditions from locality to locality and from year to year, (b) possible preliminary drying by the farmer, (c) different conditioning of the wheat before it is milled and (d) different systems of milling.

The requirements for a suitable English flour are difficult to stipulate objectively but it is generally agreed that the protein content should be low (under 8.5 per cent) and that dough's made from the flour should be easily extensible, but not elastic, and should flow somewhat in the oven. A determination of the protein or of the complex known as gluten (a mixture of protein, fat, fiber and starch obtained by washing out as much starch as possible from the dough) is next to useless as a test for suitability. This is because not only the quantity of protein is important but also its character, and this latter is not determinable chemically. The only really satisfactory method is to bake several stone of dough in the bake house but, as this may prove expensive, several laboratory tests have been developed.
The simplest is to measure the sedimentation volume of flour suspended in an alkaline medium. High negative correlations between the sediment volume and the flow of the biscuit in the oven are claimed. Two tests which try to follow the conditions give above are the Chopin Alveograph in which a thin sheet of dough is blown into a bubble by a controlled flow of air until the bubble ruptures and the Halton Extensimeter in which the force required to stretch a dough and the degree of extension when the dough breaks are measured. The latter instrument has shown promise in selecting flours for the semisweet hard dough biscuit (e.g., Marie or Thin Arrowroot). Various types of the well-known Brabender instruments are also used mainly for strong flours.

In general a test should aim at a determination of the characteristics, which are most vital in the manufacturing process employed. These characteristics vary from one type of biscuit to another. Thus it is a common experience that flour which is suitable for, say, a semi-sweet biscuit may be unsuitable for a sweet kind such as ginger nut.

**Fats**

Fat is used in biscuits to remove hardness and to improve the shortness of the biscuits – that is to lower the forces necessary to break and crush the biscuits.

A variety of fats, mainly vegetable, are used (coconut oil, palm oil, hydrogenated groundnut, rapeseed and cottonseed oils, palm kernel oil and hydrogenated whale oil are among the main ones) and these should be bland in smell and taste. Butter and oleo oil are also used and the natural flavoring of these fats is valuable in the finished product.
In most biscuits, particularly sweet kinds, it is necessary that the fat should be soft enough to disperse easily in the dough during mixing and yet remain solid. If the fat melts, the dough may become unworkable on the machine. In semi-sweet kinds the fat will largely melt because of the mixing temperature but should not become hard when the dough is cooled on the rollers. In puff kinds, however, the fat is chilled before use because here it is necessary that the fat (incorporated separately into a flour-water dough) should separate the seventy odd layers of dough during the preliminary manipulation and rolling and should not be squeezed out of the side of the layers. At the same time, the fat, layers of dough.

If the fat contains some high melting triglycerides it will be necessary to textures it that is to cool the liquid fat very rapidly so that only small crystals are formed. If this is not done the high melting components will, on standing, crystallize first and form large crystals, which will not disperse in the dough. Texturisation also leads to a fat whose consistency varies fairly slowly with temperature.

Physical tests to determine the hardness and rate of melting are useful besides the normal chemical and organoleptic tests. Various penetrometer tests, are in use, and a useful method devised by Williams allows the rate of melting to be found. In this method the variation of density of the fat with temperature is found by weighing the fat in a bell submerged in water. The rate of change of density is greater the smaller the temperature range over which the fat melts.
Biscuits may be kept for several years before they are eaten and it is therefore essential that rancidity (due to atmospheric oxidation) be avoided. This means in practice that the linoleic acid content of the triglycerides should be as low as possible and that hardened fats should be selectively hydrogenated to accomplish this. Butter is somewhat prone to rancidity but it is interesting to note that partially rancid butter is often preferred to the fresh fat. Fats are often tested for atmospheric stability by accelerated oxidation at, say, 60°C or 100°C and are followed by smell and taste and, for an objective valuation, by peroxide values. It is preferable, however, to incorporate the fat into biscuits and to store the biscuits in air-proof tins. This besides bringing the fat into the state in which it will be used (always an admirable idea in any test) allows the natural anti-oxidants in the flour to exert their effect.

Anti-oxidants act by being preferentially oxidized and thus delaying the oxidation of the unsaturated fatty acids in the fat. Several which have been introduced during the last decade or least double the shelf life of biscuits. Butylated hydroxyanisole is one of the most promising because it is less water soluble and less inactivated by metal impurities than others. This means that its activity is retained to a high degree in the fat after the dough stage.

Another use of anti-oxidants may be to incorporate them in the wrapping papers in contact with the biscuits when they are packed. If the temperature of the pack rises so that the fat melts (as might easily happen in tropical climates), then fat will be absorbed by the wrapping papers and a small amount of fat will be spread over a large area. The increased chance of oxidation under these conditions would be reduced by the presence of anti-oxidants in the
paper. Certain impurities, mainly metallic, act as pro-oxidants. Of these copper is the most important. 0.1 parts per million has a noticeable effect on fat by itself and a few parts per million can seriously effect the stability of biscuits.

Other Ingredients

The main sweetening agents are sucrose, invert sugar and commercial glucose (glucose plus dextrins). The monosaccharides leads to enhanced color in the baked biscuit because of the Maillard reaction and polymerization (particularly under alkaline conditions) and invert sugar is effective in diminishing checking in biscuits. Sugar also affects the heat denaturation of flour proteins.

Aerating Agents commonly used are ammonium bicarbonate by itself and sodium bicarbonate with either sodium pyrophosphate or calcium hydrogen phosphate. Ammonium bicarbonate has the advantage that it leaves no residue and evolves a greater volume of gas per unit weight than any of the others but, in the absence of phosphate and sodium ions, it leaves a raw taste in the biscuits. Sodium pyrophosphate residues give a burning taste and excess sodium bicarbonate gives a fine granular texture to the biscuit (which is desired) but only at the expense of a burning taste. Biscuits are normally baked to a pH of about 6. This gives maximum retention of flavor, which is usually of an aldehydic nature. However, if cinnamon is present a definitely alkaline reaction (pH about 8) is needed in the full flavor is to be kept.

Various safe water-soluble coal tar colors are available but increasing resort has to be made to natural oil-soluble colors for creams between biscuits as possible health hazards
THE BAKING PROCESS

The factors, which determine the shape and size of the baked biscuit in the oven, are (a) the flow or contraction of the dough as the temperature rises, (b) the rate of loss of moisture and (c) the heat denaturation of the flour proteins. Starch in this connection is unimportant because very little or no swelling of the starch grains occurs. Puff types of biscuit are made from strong Canadian flours (spring wheat) and the stresses imposed on the dough during the rolling process lead to contraction of the biscuits as the temperature rises and the dough becomes less viscous. This contraction is greater along one axis than along the orthogonal one and, if the baked biscuits are desired to be circular, then the cutter must be oval in shape. A similar contraction, although not so marked, occurs in cream crackers where the flour is an equal parts mixture of strong Canadian and weak English.

If all-English flour is used then, because of the weaker nature of the proteins, there is a general tendency to flow. This will be controlled to a large extent by the amount of sugars: the percentage of sugar rises so the temperature at which the flour proteins are denatured rises and, therefore, the biscuits will reach a higher temperature and have a greater chance to flow before their shape is fixed. In fact, in very sweet kinds, such as ginger nuts in which the characteristic surface cracks demand a large amount of flow, the proteins (with the exception of those immediately at the surface of the biscuit) are not denatured at all. In this class of biscuit loss of water is the controlling factor in the amount of flow and steam may be injected into the oven to slow down this
loss. The action of sugars in retarding heat denaturation of proteins is vaguely known as peptisation. It presumably occurs through the energy necessary to break the characteristic protein configuration being raised – possibly by the formation of some secondary bonds between protein and sugar.

**FAULTS**

**Checking of Biscuits**

It is sometimes found that biscuits after they have been stored a day or so develop cracks which tend to run near the center of the biscuits but not from edge to edge. This phenomenon is known as checking. A paper by Dunn and Bailey has explained the causes and suggested control measures. The incidence of checking varies with the fat content and the maximum occurs at the level of fat used in semi-sweet hard doughs. The cause lies in stresses set up in the biscuits and these may occur through under-baking, a low relative humidity or too rapid cooling. Under baking results in the outside portion of the biscuit drying out more than the center portion and, as the biscuit moisture tends to equilibrium, the outer portion will expand and the inner portion contract. A low relative humidity will tend to accentuate the moisture differences while too rapid cooling makes the biscuits harden before the stresses have been relieved. The inclusion of invert sugar in the recipe tends to reduce checking, possibly by making the biscuit softer and thus more capable of absorbing stresses. In this country under baking the main cause of the trouble. Too rapid cooling has been largely eliminated by carrying the biscuits back over the oven while they are cooling.
Bacteriology

Only certain heat resistant bacterial spores but no moulds or vegetative forms of bacteria survive the baking process. Bacillus subtilis, or a similar species, is the most likely to survive but, as biscuits are stored dry (they become inedible if the moisture content rises to 10 percent), the spores do not germinate. It is only if some moisture rich substance is deliberately deposited on the biscuit that trouble may arise. This is most commonly experienced in chocolate mallows. These confections consist of a biscuit on, which is deposited, a gelatine-sugar-water foam known as marshmallow. The whole is then covered with chocolate. Even in this cake the percentage of sugar in the biscuit and marshmallow is sufficient to inhibit the growth of bacillus subtilis and the only likely causes of infection are form moulds and yeast's which can grow in a high sugar content medium. Aspergillus glaucus and several torulopsis are examples.

c) History of Cakes and Cake making Process.

- History of Cakes

The history of European cakes and baked sweet meats begins in the Middle East. Early records show that the Egyptian baked over 40 kinds of bread and pastries made from honey, milk and eggs and prettily than shaped in the form of animals and birds.

For centuries after the fall of the Roman Empire, Northern Europe was cut off from the Mediterranean world. But during the eleventh century, Crusaders from Europe rediscovered the delights of Middle Eastern Cuisine and took the recipes and ingredients back to their European homelands beginning a
tradition, which continues to this day in the spiced cake and nice pies, bread at Christmas time.

Monasteries played a major role in the development of European baking. The marks also experimented with the new ingredients brought back by the crusaders and their cooking and baking gained a finer reputation their spiced honey cakes were particularly popular.

In 1953, Caterina de Medici Journeyed from Florence to France for her marriage to the future King Henry II, bringing with her a team of expert cooks and pastry cooks. In this way, the French were introduced to the New Italian Style of Cooking and Baking, with its oriental inspiration. However, the Italians remained firmly established as the leaders of European cookery. Cooking and Baking increased in importance and came to be considered as one of the civilized arts. Pastries, cakes, sweets, cream and cheese cakes now appeared at aristocratic European tables, and the Royal Court set the standard, that all the major cities of Austria, Hungary, Germany, Switzerland, Spain and Britain tried to emulate.

During the eighteenth century, coffee, tea and chocolate became the fashionable beverages of the upper classes. Baked confections were natural accompaniments and by the mid nineteenth century "Coffee and tea time" were established as meals in their own right, among all classes of society, throughout Europe and even in America, where the immigrants from Europe had taken their customs.
Today the different European and American baking traditions still reflect their historical roots, Italian regional baking in the south, in Sicily and Sardinia, bears a strong resemblance to the early eastern influences.

In Hungary and Austria, Switzerland and Germany, the home baking tradition of the housewife it still deeply rooted. Her reputation as a homemaker is important to her, how better to show this off than with a heavily laden coffeetable.

In France, the tradition of a Patissier i.e. the Specialist Pastry Cook continues and it is customary to buy cakes from them. Home baking in France tends to confine itself to fruit taste, but even this custom is becoming less common.

In Britain the Christmas cakes are still bakes at home, but the temptations of ready cream filled pastries are strong. America has long fallen prey to the "take away" mood and has accepted a poor replacement for what was once good quality baked produce.

More recently, however, while the "Coffee and Tea Time" traditions are still popular in Europe and America, the last decade has seen further development in the consumption of sweet confectionery. The dinner table once again offers a place for the special desert – a gateau of European Splendor, at the end of an elegant meal.
CAKE MAKING PROCESS

Cakes basically are made from flour, fat, sugar, eggs and water with possible additions of fruit, nuts, milk, colors, flavors and chemical aerating agents.

INGREDIENTS

Flour

A wide range of flours, depending on the type of cake, is used, but weak English flours are probably the most common.

It used to be rare to use more than sixty parts of sugar to one hundred parts of flour but with the introduction of so-called High Ratio flour, up to one hundred and forty parts of sugar may now be used. (High Ratio cakes have enhanced eating and keeping properties.) High Ratio flour is composed of very fine particles and is heavily treated with chlorine containing about 1 per cent nitrosyl chloride. The chlorine treatment almost completely destroys the formation of flour protein strands in the dough and tends to make the starch more easily gelatinized. The treatment also lowers the pH of the flour to about 5.0. Kent Jones and others have shown the importance of particle size. A satisfactory High Ratio flour had no particles larger than 65 microns in diameter (normal flour approximately 28 per cent) and had 55 per cent in the 15 to 25 microns range (normal flour approximately 20 per cent.)
Fat

The main actions of fat apart from acting as a lubricating agent are to entrap air (creaming) and to emulsify water. It is necessary to use fats, which tend neither to run to oil nor to be too hard. This is accomplished by ensuring that the solid triglycerides are in the form of very small crystals, which form a stable matrix and enclose the liquid components. Texturisation, described above, will do this. These kinds of fat are called plastic and are made either by partially hydrogenating liquid oil or by mixing together high melting fat with liquid oil. If the latter is used, the liquid component may go rancid rapidly and a quick sale of the cakes will be necessary. Emulsifying power is increased by including a small percentage of glycerol mono-and distearates, which are powerful emulsifying agents. These fats are often called Super glycerinated.

Sweetening Agents

Sucrose, commercial glucose and invert sugar are commonly used. Crystalline sucrose enables air to be incorporated into a mix more readily than does pulverized sugar. Probably the crystals, because of their sharp edges, give a stronger mixing effect. Invert sugar, being hygroscopic, tends to slow down the loss of moisture from the cake (a most important characteristic) and, in fact, the more sugar it is possible to incorporate the better from this point of view. This is probably because most of the water will then be present as syrup, which has a lower vapor pressure than water by itself.
Eggs

Eggs in a variety of forms are used. Frozen whole, sugared frozen white, spray dried whole, sugared spray dried whole, frozen white and dried white are the more important types. Egg white is used in angel cakes and the foaming power of the albumen is important in connection with the size of the finished cake. Whole egg is used in sponges and here again the foaming power is important. Sugar dried whole egg was introduced because it was found that if sucrose or lactose were dissolved in the egg before it was dried then the foaming power of the reconstituted egg was as good as that of fresh or frozen eggs. If sugar was not added then the foaming power would fall by 50 per cent or more.

In types of cakes in which fat is added, there is a connection between the solubility of spray dried whole egg and the eating quality of the cakes but the foaming power is unimportant. In the latter types of cakes aerating power is provided mainly by the creaming process and by chemical aerating agents.

Liquid egg is an excellent medium for bacterial growth and it is necessary to ship and store frozen egg at \(-10^\circ\text{C}\). and to thaw it is temperatures not higher than \(15^\circ\text{C}\). It should then be used as quickly as possible.

Aerating Agents and pH

Ammonium bicarbonate is not used in cakes because all the ammonia might not escape and might taint the finished product. Sodium bicarbonate and either sodium pyrophosphate or calcium hydrogen phosphate are mainly used. Potassium hydrogen tartarate may also be used but it tends to react with the sodium bicarbonate before the dough is baked.
It is better on the whole to have a pH less than 7 in the finished cake. This results in a lightening of the colour, an improvement in the keeping properties, more stable emulsions with hydrogenated fats, better retention of flavors and a finer texture. However, if the cake is very acid it may be too tender to handle.

THE MIXING PROCESS

In the majority of cakes in which fat is added, there are two main mixing methods. The fat is creamed either with the sugar or with an equal weight of flour. In the fat-sugar better method the creaming incorporates air and the action of the sugar is purely mechanical. The original volume should be doubled. The egg is then added in aliquots and water in fat emulsion is formed. If the egg is added too rapidly large water drops may be formed which separate out of the emulsion and may cause a complete breakdown. This is known as curdling. (The egg should preferably be warmed a little before it is added otherwise the cooling due to the sugar dissolving in the egg may reduce the ability of the egg protein to stabilize the emulsion and curdling may occur.) The flour should then be mixed in gently so that the foam and emulsion are preserved. In the fat-flour better method, the mechanical effect of the flour is not as great as that of sugar because it is not crystalline and creaming takes considerably longer. The egg and sugar are creamed separately and added and then the rest of the flour is added. No curdling occurs in this method.
THE BAKING PROCESS

When a cake is baked the increase in temperature results in (a) the formation of carbon dioxide from the chemical-aerating agents, (b) and increase in water vapor and (c) an expansion of entrapped air. These three factors make the cake rise. The amount of rise and the structure of the cake are controlled by (i) heat denaturation of the egg and flour proteins and (ii) gelatinisation of the starch. The art of cake making lies in obtaining the correct balance between these two opposing sets of forces. Sugars modify the second set by increasing the denaturation temperature of the proteins and by slowing the gelatinisation of the starch. This last is accomplished by the sugar solution reducing the absorption of water by the starch granules by osmotic effects.

Staling

Staling of cake— that is the development of dryness, crumbliness and toughness in eating properties— occurs through two causes, only one of which is partially avoidable. First, the cake may lose moisture to the atmosphere and second, a redistribution of moisture in the cake itself always occurs. Loss of moisture to the atmosphere may be avoided by a water-vapor proof wrapping, but the danger here is that the relative humidity inside the wrapping may become high enough to allow the growth of air-borne moulds, which have settled on the cake before it is wrapped.
Although a lot of work has been done on the internal redistribution of moisture, particularly in connection with bread, the causes are as yet not fully known. It would seem probable that the amylopectin fraction of the starch becomes gradually insolubilised and together as staling develops but the role, if any, of the protein is not known. No method of stopping the development of the second type of staling under normal storage conditions is known, but several compounds have been suggested to keep the crumb from toughening. Glycerin is commonly employed. As it has a low vapor pressure, it will remain in the cake and probably acts solely as a non-evaporatable liquid.

**Bacteriology**

As in biscuits, only heat resistant bacterial spores survive the baking process. Bacillus mesenteric is the chief of these and may lead to "ropiness" in the cake. It has been found that acetic acid at about 0.07 per cent on the flour will effectively inhibit the development of the bacillus.*4

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*4 Food technology processing and Laboratory Control, Advisory Editor F. Aylward, Allied Scientific Published 1991, A.S.P. (PP - 95 to 117)
2.4 NEW POLICY FOR MODERNIZATION AND TECHNOLOGICAL UPGRADEATION OF S.S.I.:

Karnataka Government has announced the new policy to meet technological upgradation and modernization of small-scale industries to face the new challenges due to severe competition and obsolescence of technology. S.S.I.'s will have to modernize and upgrade the technology to meet the demands of new and emerging industries and markets. Karnataka Government leads in announcing this policy to help S.S.I.s.

Order no CI 66 SSI 98, Bangalore, dated 18th October 2000.

- Karnataka State Financial Corporation will avail a line of credit of Rs. 50 crores from SIDBI at an interest rate of 11.5% to implement the Scheme. KSFC will sanction assistance to the eligible units at an interest rate of 8.5% and the Government will subsidise and reimburse to KSFC the difference between the borrowing rate and lending rate of KSFC (3%) along with the service charge of 1% i.e., a total interest subsidy of 4%.

- While same norms as prescribed under the SIDBI scheme will be applicable, the minimum loan amount to be sanctioned will be Rs. 5 lakhs.

- Assistance under the scheme will also be available to units, which are potentially sick, but viable and revisable and need assistance to upgrade their technology.

- Assistance under the scheme will be available to the units financed by KSFC or commercial banks and other institutions including KSIDC are also to the self-financed units.
• In case, the units which avail assistance under the scheme are not in a position to secure the additional working capital loan from commercial banks, KSFC will sanction need-based additional working capital funds sanctioned by KSFC will be charged.

• KSFC will consider all cases recommended by the District Level Single Window Agency and this subject will also be reviewed in the District Single Window Agency in all its meetings.

• The Governments will release the amounts to KSFC in one lump sum and KSFC will account for the interest accrued on this amount as the Government releases for this scheme. Before release of further amounts to KSFC, the interest accrued on the previous release will be verified and suitably adjusted.

The issues with the occurrence of Planning and Finance Departments Vide UO Notes No. PD 40 FRO 98, dated 31.3.1999 and FD 1552/Exp.I/99, dated 16.10.1999. By order and in the name of the Governor of Karnataka

Sd/- (C.S. Jayaram)