

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY

COLD BUFFETS

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CHAPTER 50

INTRODUCTION

1. The annual social calendar of a unit always calls for a number of important functions to be catered for. At such functions the various messes within the unit will eagerly look forward to an evening of some splendour and naturally expect a buffet supper in keeping with the occasion.

2. At these functions the elaborate, decorated dishes explained in the fish section, various meat selections, salad and cold sweet sections can be used to their full effect not only to satisfy the customers requirements but also to demonstrate the skills of the chefs. A well executed buffet can be a very rewarding experience for all concerned with such an occasion.

ADVANCED PLANNING

3. A function of this type requires planning well in advance. Planning discussions between the caterer and the organising body must take place at which the caterer must be prepared to give advice on the following aspects.

a. **Themes.** It may be that the organiser wishes to have an overall theme for the evening and it is prudent to have this in mind when selecting the basis menu. Therefore it would be sensible to select dishes with this in mind.

b. **Cost.** This is a vital factor. The organiser will be aware how much of the overall budget will be available to provide the food. The menu can be provisionally decided and later detailed costings will confirm the final choice.

c. **Types of foods.** It is certain that the customers will not want the more usual types of food available everyday. They will want something different displaying flair and innovation. It is also an ideal opportunity for the chefs to demonstrate their skills. The caterer must also consider the guest list in case any foreign nationals are invited. Their tastes and customs need to be considered.

d. **Seasons and availability.** All fresh foods have a season when they are at their best and least expensive. However, all fresh foods are in season somewhere in the world but at a price. The increased cost of obtaining foods which are not in season in the local area will affect costs. Availability of supplies must be checked.

e. **Portion size and control.** Sufficient portions of everything served must be available to the last customer. To run out of choices at such functions reflects adversely on the catering organisation to say nothing of the disappointment caused to the customer. Therefore consideration, based on experience, must be given to the amounts of each dish available, portioning and portion control. It is important to have a ready replenishment of dishes as they are required.

f. **Abilities of staff and availability of supervisory control.** A buffet is an ideal "on job" teaching situation for the young and inexperienced chef. However before finalising the menu some thought must be given to the availability of supervisory control.

THE MENU

4. a. **Starters.** A selection of starters can be offered but this may well necessitate queuing by the customer. Consider having just one starter pre-laid on the dining tables or maybe waiter service of a limited selection.

b. **Main course.** The dishes selected should include a centre piece, which would be the focal point of the buffet. This should be surrounded with a mixture of pre-carved meats and joints to be carved to facilitate ease of decision by the customer and speed of service by the chef.

The queue should flow smoothly onto the accompanying dishes such as salads. Depending on numbers to be catered for two buffet tables may be required and if both hot and cold main courses are served there will be a requirement for separate service points.

Note: Ensure sensible positioning of plates and possibly cutlery for the customer to collect. Ensure that plates are at the correct temperature for the types of food available.

c. **Other dishes.** Following on the next order of display and service will be any sauces or dressings offered.

d. **Sweets.** A good selection of tempting sweets should be available preferably at separate service points. The type will be influenced and by preference and on the funds available but with imagination need not be mundane.

e. **Cheese board.** An attractive array of cheeses is a popular alternative to the sweet counter. Points to consider when selecting cheese are given in the cheese section.

WORK PLAN

5. a. Buffets involve a considerable amount of organisation.

- (1) Ordering of the foodstuffs.
- (2) Receipt of foodstuffs in good time.
- (3) Preparation of meats and fish.
- (4) Cooking of main items.
- (5) Preparation of sweets.
- (6) Preparation of salads.
- (7) Decorating and finishing of all dishes.
- (8) Service of the buffet.

b. The preparation, cooking and finishing of dishes may well be spread over two days. Hygiene rules must be carefully observed. Laying out the buffet for service should be carried out as late as is practically possible.

PRESENTATION

6. Major part of the enjoyment of the evening is the spectacle of a magnificent buffet. So that this effect is not lost the following points need to be borne in mind:

- a. The buffet tables should either be highly polished or covered with spotless table cloths.
- b. All foods should be served in attractive dishes and bowls.
- c. The various dishes must be arranged with "eye appeal" in mind yet not forgetting efficiency of service.
- d. Unit silver trophies can be used to good effect as centre pieces.
- e. Avoid the use of pot plants and flowers in close proximity to the buffet for hygiene reasons.
- f. Remember replenishment of dishes needs to take place, so good access to the service area is important.

SERVICE

7. The service must be smooth and unhurried with diners being given access to the buffet in a steady flow. The chosen system should be such that it is immediately obvious which way people should go to collect their meal. Adequate numbers of staff must be available to serve wine, to collect used crockery and cutlery and to be in attendance once at every serving point throughout the meal service.

SERVICE OF COFFEE

8. This can either be at the table by waiters or collected from serving points by the diners.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY ONE

Royal Icing

1. Royal Icing

2. Icing a cake

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1. ROYAL ICING

Ingredients

Icing sugar	400 g
Lemon	1
Eggs	2
Glycerine	5 ml
Food colouring as required	

Method

1. Separate the whites from the yolks.
2. Place the egg whites in a bowl, add the glycerine and half the sugar and mix the ingredients together with 5 ml of lemon juice to a smooth consistency.
3. Gradually add the remaining sugar beating thoroughly until the mixture forms peaks. Cover with a damp cloth and place in a refrigerator; for best results leave overnight.

Note: To improve the appearance of white icing a spot of blue food colouring can be added.

2. ICING A CAKE

Equipment required

- a. Palette knife
- b. Metal Pastry scraper
- c. Flat metal rule/straight edge
- d. Turntable
- e. Dish cloth
- f. Cake boards
- g. Selection of plain and fancy piping tubes
- h. Rolling pin
- i. Greaseproof paper
- j. Pastry brush

Method

1. Dust a pastry board with icing sugar and roll out the marzipan 7 mm thick.
2. Place the marzipan on top of the cake and trim it to fit.
3. Remove the marzipan and brush the cake with apricot glaze.
4. Replace the marzipan on top of the cake ensuring that it adheres well.
5. Use a similar process for the sides of the cake.
6. Apply a small amount of icing to the centre of a cake board and place the cake in the centre.
7. Brush the marzipan with beaten egg white and allow it to dry. This seals the marzipan and prevents the oil from seeping through into the icing.
8. To apply the first coat of icing, stand the cake on a turntable and apply sufficient icing to cover the top.
9. Using a palette knife spread the icing evenly across the top surface ensuring the icing goes right to the edge.
10. Remove the cake from the turntable and place it on a damp cloth on a flat surface, this prevents the board from sliding.
11. Starting at the edge of the cake and using a firm straight edge, draw it across the top of the cake in one steady, even pull to achieve a smooth finish.
12. Remove any excess icing from the sides and allow the icing to dry for one hour before working on the sides.
13. To ice the sides of the cake, replace it on to the turntable and using a small palette knife apply icing to the turntable and using a small palette knife apply

icing to the side of the cake, ensuring that it adheres well.

14. Smooth and remove any excess icing by drawing along the side with a pastry scraper.
15. Continue coating the cake top and sides until sufficient icing has been applied to cover all of the cake and a flat smooth surface has been achieved. Allow about one hour for the icing to set between each application.
16. In between applying the coats of icing, carefully trim all the edges and corners with a knife to remove any icing protruding above the surface. Failure to do so will result in the surfaces becoming uneven.
17. The cake is now ready for detailed decorating. Ideas can be obtained from specialist books which will also contain advice about improving skills and techniques and also list suitable equipment to use.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY TWO

Moulding with Marzipan

1. Introduction

2. Modelling

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INTRODUCTION

1. Almond paste marzipan is a rich confection made by mixing together ground almonds and hot sugar syrup to form a stiff paste. Another more common method is to combine ground almonds, icing sugar and whites of egg. The paste is then used to provide a smooth coat for cakes, ie as a base for royal icing or it can be moulded into a wide variety of shapes ranging from large centre pieces to miniature fruits and sweets. It is also popular as a stuffing for chocolates and dried fruits and to enhance the presentation of gateaux, pastries and petits fours.

Ingredients

Ground almond	400 g
Eggs	4
Icing sugar	600 g
Flavouring, water and colouring as required	

Method

1. Separate the egg whites from the yolks and put aside the yolks.
2. Sieve the icing sugar into a bowl and mix in the almonds.
3. Add the egg whites and flavouring and mix to a stiff paste. Cover or put in a plastic bag until required for use.

Notes:

1. The amount of sugar is approximate and more or less icing sugar may be required to achieve the desired consistency.
2. Desired colours can be obtained by kneading vegetable colours into the basic mixture. Other colours can be achieved by using natural ingredients such as cocoa powder, egg yolk, molasses, coffee, blueberry and raspberry syrup. Deep and pale tones can be accomplished by spraying, brushing, dipping and painting colours onto the finished pieces.
3. Marzipan is glazed by brushing on egg whites or stock syrup or by using confectioners glaze.

MODELLING

2. Modelling with marzipan is a skill which is easily developed with practice. In the initial stages better results will be achieved by working from a model or a clear picture. A number of specialist manuals are available from booksellers for those who wish to increase their skills.

Equipment required

1. Plastic Wrap
2. Plastic Bag
3. Tooth Picks
4. Sharp Knife
5. Rolling Pin
6. Plastic Spatula
7. Sieve
8. Cutting Board
9. Paint Brushes (various sizes)
10. Muslin
11. Icing Sugar, Cornflour
12. Food Colourings (paste, liquid, powder)
13. Flavourings

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY THREE

Chocolate

- | | | | |
|----|---------------------|-----|------------------|
| 1. | Introduction | 8. | Assembly |
| 2. | Couverture | 9. | Ganache |
| 4. | Bakers covering | 10. | Piping chocolate |
| 6. | Methods of use | 11. | Method |
| 7. | Method for moulding | 12. | Storage |

CHAPTER 53

INTRODUCTION

1. There are several types of chocolate used by confectioners. The most common are:

- a. Couverture
- b. Bakers covering
- c. Supercoat

All three have a sugar base to which cocoa has been added in either butter masse or powder form. Masse is a term for a paste made from cocoa beans, which have been cleaned and roasted and the husk and germ removed. Fats and oils are added to give each chocolate its individual properties and characteristics. Because of this the different types should not be mixed as the chocolates have been prepared for different purposes and should only be used for these. The chocolate comes in block form and will require melting before use. Couverture requires "tempering", a term used by confectioners to describe the process of heating chocolate.

COUVERTURE

2. This chocolate gives the best results for the high quality moulding needed to produce such items as Easter eggs. It is also ideal for covering or coating. Couverture is available as a plain chocolate or a milk chocolate. The two types should not be mixed as they have different temperature ranges. Plain couverture is made from refined sugar, cocoa masse and cocoa butter. Milk couverture has dairy butter in addition to the other ingredients and sometimes may have milk powder added.

Method of preparation

3. a. Grate the couverture and temper it by warming in a water jacketed pan or bain marie to a temperature of 47°C for milk chocolate.

b. To temper the couverture heat the plain chocolate to 47°C. On no account must these temperatures be exceeded or the couverture will be rendered useless for moulding and will only be suitable for coating or making ganache.

c. The temperature for both types must then be reduced to 26.7°C and the best way to do this is to pour out two thirds of the amount onto a clean marble slab and turn it with a palette knife. When it is cool the chocolate can then be put back into the pan with the remainder thereby reducing the overall temperature more quickly than just allowing the pan to stand.

d. Before using the couverture it must then be reheated to:
Plain 31°C
Milk 29°C
and then retained in a temperature range between 32°C and 28.5°C while in use.

BAKERS COVERING

4. This chocolate can be purchased in plain or milk form and is ideal for coating cakes. It is similar, although its flavour is different, to couverture except that most of the cocoa butter is removed and replaced by a hydrogenated fat with a stabiliser such as lecithin which prevents the fat from separating. With its increased stability this chocolate does not need tempering.

Method of preparation

5. a. Grate the chocolate through a coarse grater and heat it in a bain marie to a temperature of 48°C for plain or 43.5°C for milk chocolate.

b. Cool the chocolate as described in paragraph 3c bringing the temperature to between 40°C-43°C for the plain chocolate or 37°C-40°C for the milk chocolate.

Notes:

1. The higher temperatures shown are better for large items such as gateaux while the lower temperatures are more suitable for small flowers.
2. Supercoat, mentioned above in the introduction has similar qualities to couverture and is used in exactly the same way but it does not require tempering. It does not however have the same "snap" as couverture.
3. No water or steam must come into contact with the various chocolate or they will thicken and be unsuitable for dipping or enrobing.
4. All three types of chocolate may be used for covering or coating cakes, biscuits etc and couverture particularly for chocolates, by the methods described in the following paragraphs.

METHODS OF USE

6. a. **Dipping.** This described the immersion of whole or part of the item in the melted chocolate. Chocolates are coated to protect the fillings so the covering must be thin and remain dainty in appearance. The coating must be bright and have a good gloss which can only be achieved if the chocolate - couverture - is tempered correctly. It is advisable to have the item to be dipped at room temperature.

b. **Enrobing.** The items for coating such as chocolates or fancies should be placed on a wire tray then masked over with melted chocolate. The same quality points which apply to dipping also apply to enrobing.

c. **Moulding.** Moulds for items such as Easter eggs, can be made of metal or plastic. They are polished with a soft cloth or cotton wool to remove any impurities and to give a smooth surface.

METHOD FOR MOULDING

7. a. Pour the prepared chocolate into the mould and fill it up to the brim. Tap the mould to remove any air bubbles.

b. Invert the mould over a bowl and rotate it slowly to remove the excess chocolate.

c. Stand the mould, inverted, on greaseproof paper. Any remaining melted chocolate will run to form a flange around the inner rim.

d. When set and before removing from the mould, trim the edge with a pastry scraper being careful not to damage the flange. Carefully remove the chocolate from the mould.

Note: If the couverture has been tempered correctly the chocolate will come away from the mould without mishap. As the chocolate cools it will contract away from the mould.

ASSEMBLY

8. a. To make an Easter egg, line the appropriate moulds with couverture. Cool, trim and remove the two halves of the egg from the moulds.
- b. Pipe a line of melted chocolate on the flange of each half of the egg then place the two halves together.
- c. The egg can then be decorated with ganache, modelled flowers, crystallised violets or ribbons.
- d. Careless handling will result in smears and finger prints and the fine gloss will be spoilt.

GANACHE

9. Ganache is a mixture of chocolate couverture and cream and is very suitable for piping decorative designs. It can also be used as a luxury filling for chocolates. When making ganache it should be remembered that plain couverture will impart a strong chocolate taste, while milk chocolate couverture will have a milder flavour and more readily complement the flavour of liqueurs and spirits.

PIPING CHOCOLATE

10. Ready made piping chocolate can be purchased. However, by adding a little glycerine or stock syrup to melted chocolate it will thicken to a consistency suitable for piping. Piping chocolate is ideal for lettering, outlines and chocolate motifs for gateaux, tortes, fancies, ices etc. It can be piped directly onto a waxed paper and flavouring set can then be peeled off for use.

METHOD

11. a. Melt the couverture, bring the milk or cream to the boil and mix the two together. Leave in a cool place for 24 hours.
- b. In hot weather, adjust the consistency by adding slightly more couverture to increase the setting point.
- c. A further increase in the ratio of couverture used will firm the chocolate enough to enable it to be cut into shapes.
- d. To enable ganache to be piped from a forcing bag it must be warmed until it is light and very pliable. If it separates or curdles it should have a little warm chocolate added to it.
- e. The consistency of correctly prepared ganache should be such that it sets quickly after being piped and so retains its shape and detail.

STORAGE

12. Chocolate products are best wrapped in cellophane and stored in a cool, dark place. Wrapping helps the chocolate retain its flavour and keeps it free from dust, finger prints and other marks.

Note: With practice quite elaborate products for display or competition work can be produced. Using a variety of kitchen utensils as moulds and with some imagination, excellent results can be achieved.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY FOUR

Speciality Cakes

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| 1. | Introduction | 6. | Run-outs |
| 2. | Birthday cake | 8. | Marzipan |
| 3. | Wedding cake | 9. | Trellis work |
| 4. | Christening cake | 10. | Piping |
| 5. | Anniversary cake | 11. | Writing |

CHAPTER 54

INTRODUCTION

1. Cakes for special occasions such as Wedding, Anniversary, Birthday and Christening can either be sponge or fruit. Any tier of wedding cake can be a sponge providing adequate support is provided. Wedding cakes are generally covered with royal icing, as are anniversary and christening cakes. Birthday cakes are normally covered with buttercream or fondant. Another icing which can be used is Regal Icing (Australian Rolled Fondant) this can be used to cover any cake. The advantages being, it is easy to work with, easy to cut and easier to consume.

BIRTHDAY CAKE

2. Normally only a single tier cake, it can be made from either fruit or sponge. Birthday cakes can be made to suit the customer or the occasion ie cut in the shape of a number, fort, train, animal etc. The cake can be covered with fondant or buttercream either on top or all over. The sides can also be decorated with chopped roasted nuts or toasted coconut, other decorations can be made from praline, chocolate or marzipan.

WEDDING CAKE

3. Wedding Cakes are normally made of fruit and covered with marzipan and royal icing they usually consist of one or more tiers. The icing must be strong enough to support yet soft enough to cut, and plastic or plaster of paris pillars can be employed to support the tiers. Alternatively if Regal Icing is used wooden dowels can be used by cutting them so that they protrude very slightly after inserting them in the cake and resting the pillars on top.

There are numerous ways of decorating a wedding cake:

- a. Plastic coated flowers or manufactured flowers.
- b. Run-outs and trellis work.
- c. Coloured icing (pastel colours).

CHRISTENING CAKE

4. Christening cakes are normally one tier, usually this has been retained from the wedding cake. The cakes age will determine whether it and its coating can be used. To refresh the appearance of the cake all decorations should be removed and fresh coats of icing applied. Decorations for the top (as with wedding cakes) can be purchased such as plastic stork and baby or a baby in a cradle. It is far better to use ones skill and produce a run-out, either separately or on top of the cake. The best method for storing a cake is to wrap it in brown paper, place in a cardboard box and store well away from direct light and excessive heat.

ANNIVERSARY CAKE

5. Anniversary cakes like christening cakes are normally one tier, generally fruit and covered with royal icing. It can be cut and decorated in the shape of a figure ie Silver Wedding 25 years, Golden Wedding 50 years.

RUN-OUTS

6. A run-out for any cake can either be made separately or put straight onto the cake depending on the skill and confidence of the individual, the following method applies:

a. Make a tracing of the design to be used and either place the design onto the cake and pin prick through the paper, thereby transferring the design onto the cake, or place the tracing onto a flat surface such as a biscuit tin lid and stretch cling film tightly over the tracing.

b. Using white icing and a number one tube, pipe over the pin pricks or over the tracing, this will form a border. Pipe all the internal lines as well thus enabling the various colours of icing to be used separately.

c. When flooding the icing should first be coloured (strong colours can be used) as food colours will alter the consistency. Correct the consistency using egg whites, preferably old whites as this will result in a better shine. The icing should run into itself when piped leaving a smooth flat surface. Prick any bubbles that may appear before the surface dries or use a small damp paint brush and gently stroke the icing before it sets.

d. When flooding various parts of the run-out it is advisable to allow sufficient time (minimum one hour) to dry. Flooding an adjacent section too soon will result in the colours blending together.

e. Depth can be achieved in a run-out by flooding a part of a large area first ie leg of a dog, then after a minute or so complete the flooding (remainder of the body) slightly higher or lower. With practice this will become very easy and is extremely effective.

f. When complete allow the run-out to dry well, preferably overnight before beginning to paint using food colours or food paints. For the best results when painting use a fine brush and refer to the original picture or print for guidance.

g. Run-outs produced separate from the cake will dry in about 48 hours provided they are left in a dry atmosphere, they will then peel easily from the cling film. Any parts of the run-out such as arms, logs, flowers, trees etc which are likely to break when transferred to the cake, may be produced separately and added to the cake once the main body of the run-out is in position.

The size and complexity of the run-out will depend on the size of the cake, time available and skill of the individual. A good shine can be achieved on the finished product by placing it under a heat lamp or in an open area at 93°C for two minutes.

MARZIPAN

7. Marzipan is a good material to use for decorative work. It is reasonably inexpensive, can be coloured, moulded and shaped to represent almost anything such as different fruits or cartoon characters. A point to remember when using marzipan for fruits or models is the size in relation to the cake. Again individuals will find pictures, prints or photographs of great assistance.

TRELLIS WORK

8. Trellis work on a wedding cake can be extremely effective. A simple trellis is achieved by using royal icing which is slightly tighter than for normal piping. Decide on the area to be piped and pipe a straight line between A and point B continue to pipe over the whole area in the same direction with approximately 10 mm between the lines. Allow to set for ½ hour then pipe across the lines at an angle of 45° with 10 mm between the lines until the whole area is covered. Trellis work either curved or domed can be achieved by piping the trellis onto shapes such as a rolling pin or a dome shaped lid, then carefully removing the set. Any trimming necessary must be done before the trellis is set as once set any attempt to trim it may cause it to shatter.

PIPING

9. Piping for decoration can take many forms and as with most skills time and practice are essential. By following guidelines set down in cake decorating books some very effective finished products can be achieved. Lines whether straight or curved are piped by first placing the tip at one end and applying gentle pressure, then by raising the bag a little a thread of icing is suspended in the air so that it can be guided along the line. Pressure is released just before the end is reached and the bag is carefully lowered so that the suspended thread of piping can be placed accurately to complete the line.

WRITING

10. There are various styles of writing used in cake decoration, such as decorated letters which can be found in most cake decoration books. As with piping the bag should not be over-filled it should be held as a pen would. Monograms (letters that have been artistically intertwined) are reasonably easy to do and extremely effective.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY FIVE

Gum Paste, Pastillage

1. Pastillage
2. Making a casket

CHAPTER 55

PASTILLAGE

1. Pastillage is royal icing strengthened by the addition of gum tragacanth. It is ideal for making decorative models or caskets which need to be particularly robust because of their size or the fact that they may be subjected to handling or movement. Items made from pastillage should be stored in a dry, dust free atmosphere.

Ingredients

Icing sugar	800 g
Gum tragacanth	10 g
Eggs	2
Acetic acid	6 drops
Cornflour for dusting	

Method

1. Separate the egg whites from the yolks and discard the yolks.
2. Using the two egg whites and half the icing sugar make a royal icing.
3. Mix in the powdered tragacanth, cover with a damp cloth and allow to stand for 30 minutes.
4. Add the remainder of the icing sugar. Knead to a smooth firm paste on a flat smooth surface. The amount of sugar is approximate and may be reduced or increased to vary the texture.
5. Store the paste in a polythene bag until required ensuring all the air is expelled from the bag before sealing.

MAKING A CASKET

2. The paste should be rolled out using a very smooth rolling pin and cornflour for dusting. It can then be cut into a variety of shapes using templates cut from card. A wide range of curved panels can be produced by using improvised formers such as bowls, ladles, spoons and plates.

a. Making a casket is straightforward but when rolling out the paste speed is required. If the paste is exposed to air for too long it will quickly dry and crack. Cutting must be clean and accurate to reduce excessive handling and trimming at a later stage.

b. For the best results, paste should be rolled out to a thickness of 2 mm. Having decided upon the design of the casket, make the necessary templates and cut out the base, lid and sides, beginners working with pastillage are advised to cut extra panels in case of breakages. Only use sufficient paste for the job in hand and mix any trimmings with fresh paste for re-use.

c. Allow the panels to dry thoroughly. The drying process may be hastened by putting the panels on a flat surface such as a pastry board or sheet of glass then placing them in a hot cupboard or open oven at a very low temperature - distortion will occur if too high a temperature is used. To mould feet for the base, use a parisienne cutter or similar tool and dry in the same way.

d. When fixing the casket together use royal icing of an identical colour to the casket. Tidying up the joints at this stage is advisable rather than when the joints have set. Any rough edges can be removed by carefully rubbing with fine glasspaper.

e. Gum paste can be coloured with food colourings. Sufficient paste must be coloured at one time to complete the whole lot as matching at a later

stage will prove difficult. The finished casket will look better if very light or pastel shades are used.

f. The lids and side panels can be suitably embellished with floral sprays, painted scenes, badges, moulded objects, figures or relief piping.

g. Badges can be made by first producing a mould by pressing a badge into soft pastillage. Allow this to dry thoroughly after which castings can be taken and highlighted with the wide variety of food colours or paints available.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY SIX

Pulled and Souffle Sugar

1. Introduction
2. Working temperature

CHAPTER 56

INTRODUCTION

1. Lifelike and artistic reproductions of such items as sugar flowers and ribbons can be made using pulled and soufflé sugars although to achieve high standards in such a skill requires some natural artistic flair and considerable practice and experience. The notes below are intended to give the beginner sufficient knowledge to attempt to develop the basic skills. Those who find such work enjoyable and satisfactory will be able to obtain specialist books containing greater detail about the subject.

Equipment required

- a. Sugar boiling thermometer
- b. Ribbon frame
- c. Two copper saucepans
- d. Marble slab
- e. Pastry and artist brushes
- f. Confectionery colours
- g. Blow pipe
- h. Steel plates
- i. Two bar electric fire
- j. Pastry ovens
- k. Glass cases
- l. Silica gel
- m. Naked flame ie a gas jet; a small paraffin night lamp is very good if fuelled with methylated spirits.
- n. Banana, pear, apple, peach, orange and leaf shaped. Other moulds such as ribbon frame and basket frames can be improvised.
- o. Basket frames.
- p. Wooden or metal pegs.
- q. Wire for handles and flower stems.
- r. Palette knives.
- s. Scissors.
- t. Cooks knife 11cm long

Ingredients

Cube sugar	800 g
Liquid glucose	150 ml
Water	300 ml
Lemon	1

Method

1. Put the ingredients into a copper saucepan, insert a sugar thermometer and boil stirring occasionally to a temperature of 155°C.
2. Occasionally wash down the side of the pan with a pastry brush dipped in hot water, this prevents the sugar graining.
3. Remove the sugar from the heat and pour it onto a lightly oiled marble slab.
4. Allow the edge of the sugar to become firm, then lift it with a palette knife, always turning to the centre until the whole mass thickens.
5. The stretching and folding process must begin whilst the sugar is very hot.
6. Move the mass of sugar to a heated marble slab. Stretch the sugar by holding it steady with one hand and shape it into a 10 cm wide strip, folding into three as for puff paste turns. This process should be repeated about 12 times.

7. The sugar will be getting quite firm and the pulling should begin in earnest. No time must be lost as the sugar will begin to set rapidly.
8. Lift the sugar up using both hands and pull it to a length of 50 cm, holding it vertically.
9. Fold this over into a loop, the lower hand bringing the sugar to the upper hand and repeat this operation until the whole mass becomes slightly creamy and a high sheen has developed.
10. Shape the sugar into a ball and place it on a slightly oiled steel plate, keeping it hot enough to be worked and shaped as required.

KEEPING THE SUGAR AT WORKING TEMPERATURE

2. There are two methods for keeping the sugar at the correct working temperature:

- a. In the doorway of a fairly hot oven.
- b. By an electric fire mounted on a robust frame about 45 cm above the sugar. Do not mount this in such a position that the heat is directed onto the marble slab which must remain cool at all times. This allows a variety of controlled heat ranges ensuring maximum flexibility in the moulding of the sugar.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY SEVEN

Potato Work

- | | | | |
|-----|-----------------------------|-----|---------------------------------|
| 1. | Introduction | 11. | To make the basket |
| 2. | Making of the framework | 14. | Frying |
| 6. | Preparation of the potatoes | 16. | To make the handle |
| 8. | To prepare for first cut | 17. | To make the base |
| 9. | To prepare for second cut | 19. | Potato dowelling sticks |
| 10. | Soaking | 20. | Assembly of the complete basket |

CHAPTER 57

INTRODUCTION

1. To successfully make and present attractive works in potato requires patience and skills which can only be acquired by practice. This section gives an insight into the techniques and equipment required to produce a simple potato basket. With experience more ambitious projects can be attempted.

Equipment required

- a. Base of plywood in various sizes
- b. Wood dowelling rods 6 mm in diameter
- c. Stationery pins
- d. Butchers twine
- e. Pliers
- f. Scissors
- g. Paring knife
- h. Mandolin
- i. Pan for frying

Soaking solution

This solution is required to soak the prepared potato.

Ingredients

Water	1 ltr
White vinegar	25 ml
Salt	teaspoon
Sodium Metabisulphate	5 g

Method

Mix all the ingredients together and allow them to dissolve in a glass, china or stainless steel container.

Frying medium - Vegetable cooking oil.

MAKING OF THE FRAMEWORK

2. Take a sheet of plywood then mark out and cut a base to the desired shape usually oval or round. Draw a line 13 mm in from the outside of the base. On this line mark the positions for drilling of uprights allowing 13 mm between the centre of each hole.

3. Note that it is essential to have an odd number of holes. Drill completely through the wood base at each mark with a 6 mm drill. The holes can be drilled with an outward slope to give a better effect to the finished potato basket.

4. Now cut the lengths of dowelling rods to the required length, at least 5 cm higher than the intended height of the finished basket.

5. Fry all the prepared wood in oil or fat. This will destroy any resin and coat all surfaces to prevent the potato sticking. When the wood is cold insert the dowelling rods.

PREPARATION OF THE POTATOES

6. The best potato for this type of work is Maris Piper. Select large potatoes and peel and rewash them in the normal fashion.

7. For successful weaving, two distinct cuts are made from the potato and each type of cut is used in a specific way. They are referred to, for easy reference as first cut for a commencing and finishing weave and making the basket uprights and second cut for the middle weave and making the handle.

TO PREPARE FOR FIRST CUT

8. Set up a mandolin with the plain blade to cut at 4 mm thick. Slice off lengthways two pieces of potato and discard. Cut the remaining potato into slices. From each slice, with a sharp small knife, pare around in a constant spiral 4 mm thick until the whole slice is cut. The result should now resemble a long length of spaghetti. Roll this up into its original shape and place it into the soaking solution.

TO PREPARE FOR SECOND CUT

9. Open up the mandolin blade to its widest cut. Cut the first slice and discard. Cut the remaining potato into thick slices and repeat the spiral paring process used for the thinner slices. Roll up and place into the soaking solution.

SOAKING

10. The potato strips need to be soaked in the solution for at least 30 minutes. When ready for use it should feel like cooked spaghetti.

TO MAKE THE BASKET

11. Take a length of first cut potato, sufficient in length when doubled to pass one and a half times around the basket framework. Fold in half and hook the loop over a dowelling rod then holding a strand in each hand work one of the strands behind the adjoining rod and the other strand in front of the same rod. This weave should resemble a figure of 8 and is called double weave. Continue this method until the start point is reached then pass the ends inside the basket and secure them to the plywood base with a stationery pin.

12. The main body of the basket is now completed using the second cut potato strips and utilising a simple weave in and out between the rods. Care must be taken to ensure that when joining any ends together this is neatly done to prevent unsightly gaps in the weave. Once the desired height is reached the end strand is again pinned to the inside of the plywood base.

13. To complete the top of the basket take a strand of the first cut potato and repeat the original double weave process. Again pin down the ends to the plywood base.

14. Now take a suitable length of butchers twine and repeat a double weave on top of the finished potato basket. This will hold the potato in place whilst frying.

Note: Do not weave the potato tightly as a misshapen basket will develop and the removal of the dowelling rods will prove difficult.

FRYING

14. Fry the basket on its base, in clean oil, at a temperature of 116°C. The exact length of time will vary depending on the water content of the potato, the size of the basket and the thickness of the potato. The finished article should be a pale biscuit colour and firm and crisp to the touch.

15. When the basket is cooked remove it from the fat and immediately remove the dowelling rods carefully, with pliers, then remove the butchers twine. Cut off the secured ends with scissors and remove these from the

base. Place the basket onto a clean board and when cool, store in a moisture free atmosphere.

TO MAKE THE HANDLE

16. Take three strands of second cut potato and plait in the normal way. Put sufficient dowelling rods into the plywood base to make a semi-circle and secure the plait around the outer edge with stationery pins. Fry as described above, then remove from the base and trim and store with the basket.

TO MAKE THE BASE

17. Take a square of plywood slightly larger than the original base. Using a second cut of the potato lay parallel strips sufficient to cover the board and secure these at both ends with pins then using similar strips cover with a layer running at right angles to the first layer and also secure these with pins. Fry in a similar fashion to the basket.

Note: The outer edges may become discoloured but this will not matter.

18. Now make a template of cardboard to the exact size of the inside of the potato basket. When the flat weave is cooked, remove it from the fat and whilst still hot cut out the base using the template and a very sharp knife. Store as before.

POTATO DOWELLING STICKS

19. Using the remaining first cut potatoes pin out sufficient straight lengths on to the flat square of plywood to fill all the dowelling holes. Fry as before. Whilst still hot remove the pins and cut to the desired length. Store as before.

ASSEMBLY OF THE COMPLETE BASKET

20. Using a suitable glue such as a fish base glue, assemble the basket as follows:

- a. Glue the basket base to the inside of the basket.
- b. Insert the potato dowelling rods securing these with a little glue.
- c. Glue on the handle using suitable props to hold it in place whilst the glue hardens.
- d. When the glue is set fill the basket with soufflé potatoes, game chips or gaufrette potatoes.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY EIGHT

Spit Roasting

- | | | | |
|-----|-------------------------------|-----|---------------------|
| 1. | Introduction | 14. | To Test for Cooking |
| 3. | Choosing and preparing the ox | 15. | Service |
| 6. | Preparations for roasting | 16. | Transport |
| 9. | The Spit Frame | 17. | Summary |
| 10. | The Fire | | |

CHAPTER 58

INTRODUCTION

1. Spit roasting was probably the original and most common way of cooking meats, fish and poultry. Equipment and facilities which have evolved over the centuries have caused it to be almost discarded as a method of cooking and nowadays it finds very little use except as an eye catching spectacle which is mainly carried out at venues where large groups of people gather to celebrate a special occasion.

2. Whilst providing a simple and easy method of cooking large joints spit roasting whole animals involves a considerable amount of planning and preparation and this chapter is devoted to providing guidance about the planning and execution of the procedures involved in successful spit roasting.

CHOOSING AND PREPARING THE OX

3. The size of the ox chosen will be dictated by the number of customers expected. The maximum ratio of meat to bone is found in beasts weighing between 220 kg and 400 kg, the largest size yielding approximately 3,000 slices but this is also dependent on the skill employed when cooking and carving. Almost half the weight of the animal is lost as a result of the preparation process, cooking shrinkage and bone waste.

4. Ideally an animal being slaughtered for spit roasting requires to be prepared a little differently to one which will be cooked by more conventional means and the special instructions to the slaughterer should specify that:

- a. The belly should only be cut sufficiently for evisceration and not full length as is usual.
- b. Have the head, skin, hooves and tail removed. The kidneys and fillets should always be removed and cooked separately.
- c. The carcass should then immediately be impaled on a steel rod or tube so that it will set in the required position. To do this the following items are required:
 - (1) One 4 metre long steel rod or tube, possibly a scaffolding pole.
 - (2) 3 one metre long steel rods or tubes of 25mm diameter threaded at both ends.
 - (3) 6 wing locking nuts.

5. The 4 metre long pole should have holes drilled in it at places to allow passage through it by the threaded rods. This pole should be inserted through the carcass from rump to head, as it will form the main support for the carcass during roasting. The shorter rods are then inserted through the carcass and the main supporting rod at a 90° angle and secured in place by the wing locking nuts. This procedure ensures that the carcass sets into the correct position and shape during the onset of rigor mortis. The rods also enable heat to be transferred to the interior of the meat during the roasting process.

PREPARATIONS FOR ROASTING

6. Ideally the site should be firm, level and well drained. However, the choice of the site may not be left to you. For example, you may have to roast the ox in the middle of a field or in a market square of a town. What is certain however is that you will be responsible for your own layout and organisation. The following essential items are required to be located on site:

- a. Fire box.
- b. The spit.
- c. Table for service.
- d. Rope barriers to keep the public at a suitable distance.
- e. Open sided canopy or shelter in case of inclement weather.

- f. Cooking and service equipment.
- g. Fuel in its appropriate storage area.
- h. Sledge hammer.

7. In a field location it may be necessary to have a caravan or tent available for the cooks to rest in. When situated in a town centre a hotel room might be more convenient.

8. To build the fire box requires some skill since the fire must burn correctly and be of suitable dimensions to adequately roast the ox.

a. **Materials required:**

- (1) 60 double holed breeze blocks 46cm x 23cm x 23cm.
- (2) Heavy duty expanded metal mesh 2.5m x 1.75m.
- (3) 12 x 1.5m angle iron posts to act as a wall.

b. **Method of construction:**

- (1) Lay out the first row of blocks.
- (2) Lay the second course of blocks.

Note: To assist ventilation some blocks in both of these courses should be set on their sides.

- (3) Bend the back and front edges of the mesh up 30cm and the sides up 15cm. This will form a basket for the fire.
- (4) Place the fire basket into the fire pit.
- (5) Complete the fire pit by laying 4 more courses of blocks.

Note: It may be necessary to buttress the walls with the angle iron posts.

THE SPIT FRAME

9. The spit frame should then be constructed from scaffolding. This will support the ox during roasting.

a. **Materials required:**

- (1) Two 3m long scaffold poles which are about 5cm in diameter.
- (2) Two 2.5m scaffold poles of similar diameter.
- (3) Eight 1.5m scaffold poles of similar diameter.
- (4) 4 paving slabs which are 61cm square by 5cm thick.
- (5) 4 scaffold foot plates.
- (6) 8 scaffold clamps (to join the poles).
- (7) Cartwheel or similar object to fasten to the ox pole to facilitate roasting the carcass.

b. **Method of construction:**

- (1) Place one paving slab at each of the 4 outside corners of the fire box flush with the base of the 2 end walls.
- (2) Place one scaffold foot plate on each base.
- (3) Place one 1.5m pole into each foot so that they stand upright.
- (4) Join a 3m pole to the 1.5m uprights at the rear of the fire box wall 15cm from the top of the upright using 2 scaffold clamps.
- (5) Using a 1.5m pole construct supports for the 2 front uprights, thereby forming a tripod.
- (6) Secure the 2.5m poles from front to rear at each end of the fire box to be clamped to the front tripods and above the rear 3m pole. The overall construction should fit flush to the fire box walls, to prevent the frame tipping forward when the ox is in position.
- (7) When the ox is to be roasted it will be placed onto the 61cm overlap at the front of the spit frame with the wheel attached to the centre pole. This will allow the ox to be roasted easily and to be moved towards or away from the fire.
- (8) The second 3m pole can be placed on the spit frame without securing it between the side walls and the ox to support the metal heat deflectors used when required during the cooking process.

THE FIRE

10. It is important that the fire is properly laid. Charcoal is expensive and may have to be ruled out because of high cost, however the fuels listed below are good substitutes.

- a. **Materials required:**
 - (1) Kindling wood (dry).
 - (2) 100 kg of coal.
 - (3) 600 kg of coke.
 - (4) 100 kg of dry logs. Although logs are cheap it is difficult to maintain an even flow of heat and they also produce quite a lot of smoke.
- b. **Alternative materials:**
 - (1) Strip wood and shavings from a timber yard to start the fire.
 - (2) 100 kg of coal.
 - (3) 700 kg of coke.
- c. **Method of lighting the fire and its maintenance:**
 - (1) Lay some newspaper on the wire mesh and cover it with kindling or strip wood and shavings.
 - (2) Place on sufficient coal to give a good fire.
 - (3) Light and when burning well add the remainder of the coal to give a good heat before the ox is placed in position.
 - (4) Coke should be added when required to give a fire which burns strongly. Initially the bulk of the fire should be at both ends of the fire box, towards the fore and hind of the ox. The centre of the fire should be less strong as the middle parts of the animal are less dense and require less cooking. After approximately 2 hours cooking the fire should be drawn towards the centre to ensure that the ox is evenly coloured.
 - (5) Constantly check the fire while the ox is being turned and keep the fire clean at the bottom. Ensure that there are no smoky coals as these will spoil the taste of the meat.
- d. **Fire equipment:**
 - (1) Metal poker
 - (2) Shovel
 - (3) Rake
 - (4) Bass broom
 - (5) Fire extinguisher

STAFF

11. In order to ensure that the ox roast is successful it is necessary to have adequate staff present. The number required will depend to some extent on whether the meat is to be given free to the public or sold. The basic staff requirement is as follows:

- a. Chef supervisor
- b. Two cooks
- c. Stoker
- d. Service staff as appropriate

COOKING THE OX

12. **Equipment required:**
 - a. 2 corrugated metal sheets
 - b. One 1.8m table
 - c. 2 large drip trays
 - d. One 4 inch brush
 - e. Dishes for dripping
 - f. Greaseproof paper
 - g. 3 knives for carving
 - h. 3 forks for carving
 - i. Butchers steel
 - j. 2 ladles
 - k. Cooks cloths

METHOD OF ROASTING

13. Roasting the ox is a lengthy affair and may take anything from 14 to 24 hours depending on its size and the heat of the fire. The success of the cooking depends greatly on ensuring that the meat is constantly basted during the roasting process and that the heat from the fire is carefully regulated whilst the carving and cooking procedures continue. The roast should be started about 14 hours before initial service:

- a. Place the ox on the spit 40cm to 60cm from the fire. The larger the carcass the further it must be away from the fire.
- b. Place drip trays underneath the carcass.
- c. Seal the outside of the meat without scorching or it will be discoloured and hard, this will prevent heat penetrating to the inside and the meat will have disagreeable taste.
- d. The meat will now start to ooze fat and juices which will fall into the drip trays. This fat is to be used to baste the carcass and this must be done continuously.
- e. At this stage ensure that the bulk of the fire is at each end of the fire box and not at the centre.
- f. Rotate the spit continuously to ensure even cooking. This demands skill as care must be taken to ensure that when the thicker parts of the ox are near the fire the spit must be turned slowly and when the thinner parts, the flank and belly are near the fire it is turned more quickly.
- g. Use the corrugated sheets as heat deflectors. If one end of the fire is too hot place a sheet between it and the ox. This will help to prevent burning or scorching and will aid even cooking and colouring.

TO TEST FOR COOKING

14. The meat will appear to be cooked well before it actually is. To be certain it is cooked:

- a. Press the lean parts of the meat with the fingers. If the meat is firm and springs back when pressed it is a sign of it being cooked enough to start carving. If it does not, continue cooking.
- b. Although after a number of hours the ox may visually appear to be fully cooked this will not be the case and it is important to regulate the carving so that it is carried out over the whole of the outer layer enabling the carcass to continue cooking evenly throughout the whole process.

SERVICE

15. The manner of service will depend on whether the meat is being distributed free or if it has to be paid for. In either case the following basic equipment will be needed:

- a. Service counter or tables
- b. Table cloths or sheets
- c. Serving tray
- d. Serving utensils
- e. Containers to hold the serving equipment
- f. Paper serviettes

Note: There may also be a requirement for condiments and accompaniments as decided.

TRANSPORT

16. **Transport.** Large enough to carry the ox from the slaughter house to site may be required if the slaughterers will not deliver. It is also advisable to have a safety vehicle on site in case of accidents. There is also a requirement to transport building materials to and from the site prior to and after the event.

SUMMARY

CHAPTER 58

17. A successful ox roast efficiently cooked and served is a considerable and unusual achievement and a source of satisfaction for those involved in its organisation and execution. It is also a novel and tasty treat for those attending. Ensure that yours is a success by following the simple instructions given in this section and using a little imagination. You may of course wish to roast something smaller perhaps a pig or a sheep. The methods to be used are exactly similar.

PART 5 - SPECIAL SKILLS

CHAPTER FIFTY NINE

Bottling

1. Introduction
2. Equipment
3. Preparation of fruit
5. Packing the bottles
6. Methods of processing
11. Testing the seal
12. Storage
13. Bottling pulped fruit
14. Uses
15. Bottling vegetables
18. Bottling chart fruit water bath method
19. Bottling chart fruit pressure cooker method
20. Bottling chart fruit oven methods
21. Bottling charts vegetables

INTRODUCTION

1. Bottled fruits are a delicious and practical addition to a store cupboard. They can be used to liven up desserts and pies at times when seasonal fruits are not available. Bottling is one of the methods of preserving food by heat, and will only be successful if the processing is efficiently and correctly carried out and the bottles are completely sealed for storage. Home bottling of vegetables is not recommended unless a pressure cooker with a very accurate pressure control is available. The reason for this is that vegetables are low in acid and may contain forms of bacteria which are resistant to heat. They may also contain a toxin which develops during storage that could cause fatal food poisoning. It is possible that this would not be destroyed during normal processing unless the sterilisation temperature is higher than the boiling point; this must be at least 115°C which can only be achieved in a reliable pressure cooker. However, it is inadvisable to try unless you are really experienced in using a pressure cooker. On the other hand food that contains a high percentage of acid like fruit and tomatoes are ideal for bottling as the acid inhibits the growth of bacteria and prevents formation of toxin. Different fruits vary in the amount of acid they contain and those with a lower content require to be processed for a longer time.

EQUIPMENT

2. There are two types of bottles specially made for this purpose, one with a spring-clip and the other with a screw band. These are available in various sizes and are obtainable from hardware, kitchen equipment or department stores. Whichever type of bottle is used, it must not be chipped or cracked and should be scrupulously clean. If glass lids are used these should not be chipped. Metal lids should not be scratched or damaged in any way.

a. Clip-sealed bottles have a rubber ring between the lid and rim of the bottle. This helps to form a complete seal when the bottle has been processed. During the processing the lid is kept on by spring-clip which allows any air and steam to escape. When the bottle is cooling the clip holds the lid in position while a vacuum is forming inside the bottle. These are removed when the bottles are stored.

b. Screw-band bottles either have glass lids and separate rubber rings or, more generally, a metal lid fitted with a rubber ring, kept in place by a band which screws on. During processing (except during the oven methods) this band should be loosely screwed on and then tightened while the bottle is cooling. If you are using a separate rubber ring make sure they are the correct size. Always use new ring; once used they will not stretch and will not form a satisfactory seal the second time around. Before using rubber rings, soak them in warm water for about 10 minutes then quickly dip into boiling water immediately before use.

c. A large container for processing the bottles is another essential. If the processing is done on top of the cooker then the container must have a false bottom (a wooden or wire rack is ideal) so that the bottles do not come into direct contact with the container. If they do they will crack. The container also must be deep enough to hold sufficient water to cover the bottles completely. Special bottling pans are available and one of these is a good investment if a lot of bottling is undertaken each year.

However, if you use the oven method, a large asbestos mat is necessary to stand the bottles on.

Other useful items of equipment are a thermometer, a long handled spoon, a pair of tongs and a heat-proof jug.

PREPARATION OF FRUIT

3. Fruit used for bottling must be fresh and clean. Wash the fruit in cold water and leave to drain in a colander. Soft fruits eg

raspberries, blackberries and loganberries can be soaked for a few minutes in salted water to remove any grubs or insects, rinsed in fresh cold water and left to drain. Hull fruits such as raspberries and strawberries, "top and tail" gooseberries and blackberries. Remove the peel and pith from citrus fruits, cut the segments away from the tissue and remove any pips. Pears and apples are best peeled, cored and cut into slices or quarters. Apricots, peaches and plums may be bottled whole or halved with the stones removed. Fruit may be bottled in plain fresh water or syrup. Syrup is preferable as it helps to preserve the colour and flavour. The strength of the syrup depends on the sweetness of the fruit and also how it is packed. The proportions are generally 200g sugar to 500ml water. Dissolve the sugar in the water over a moderate heat and when the sugar is dissolved boil for one minute. If the syrup is cloudy, strain it through muslin as clear syrup gives a better finish to the fruit. The sugar used for syrup may be granulated or loaf or for a different flavour, honey or golden syrup could be used instead. The syrup is used either cold or very hot, depending on the processing method.

4. A brine solution is best for tomatoes. Make it with 10g of salt to 1 litre of water. If the tomatoes are packed solidly no water is necessary but 5g of salt should be added to each 450g of tomatoes.

PACKING THE BOTTLES

5. Rinse the clean bottles in cold water, drain them but do not dry, it is much simpler to pack the fruit into wet bottles as it slips down more easily. Fill with the prepared fruit and press down well. Make sure the fruit is tightly packed but be careful not to bruise it. Fill the bottles to within 10mm of the rim then pour the syrup or water over the fruit a little at a time. Twist the bottle from side to side after each addition to remove any air bubbles.

METHODS OF PROCESSING

6. Processing the bottles may be carried out on top of the cooker, in a pressure cooker, or in the oven; the first is known as the water-bath method, the latter the oven method. Times and temperatures for different fruits and methods are given in the charts at the end of this section. The water-bath method is the most reliable and economical but needs a container large and deep enough to allow bottles to be completely immersed. The pressure cooker method shortens the cooking time and ensures that the temperature is controlled exactly. The oven method, while more convenient is less exact as the temperature is difficult to maintain and also the processing time is much longer.

7. There are 2 variations of the water-bath method. They are:

a. **Slow Water-Bath.** Pack the bottles with fruit, place the lid on top and secure it with a spring clip or screw-band. Place the bottles in a deep container, making sure they do not touch each other or the sides of the container. Completely cover them with cold water, cover the container with a lid, if no lid is available a pastry board is a good substitute. Bring the water to the boil. The temperature of the water should be raised gradually from cold to 55°C in one hour and up to the required temperature in another half hour. If the water is heated too quickly then more time may be needed at the maximum temperature to enable heat to penetrate the fruit in the centre of the bottle. When the processing is finished remove the bottles from the container using a pair of tongs and place them on a wooden table or board. Tighten the bands on the screw-topped bottles and leave for 24 hours before testing that the seal is complete.

b. **Quick Water-Bath.** This method is similar to a. and is recommended when no thermometer is available. However, temperatures are given for those who have a thermometer in order to achieve the best results. The main

difference between methods a. and b. is that hot syrup at 60°C is poured into the packed bottles which are then placed in the container and covered with warm water at 38°C. Water should reach 88°C after 30 minutes and should be kept simmering throughout the whole process. If the bottles are over 1kg capacity extra time will be required. Remove and finish the jars as in method a.

PRESSURE COOKER

8. This is a quick method of bottling fruit, as the temperature of boiling point is raised when under pressure, so reducing the processing time and saving energy. The pressure for bottling should be L. Pressure cookers are fitted with a weight gauge which is measured either by the appropriate weight or by the letters L, M or H, which stands for low, medium or high. When using a pressure cooker for bottling it is always advisable to follow the manufacturers instruction booklet. However the basic principles are the same as in the other water-bath methods: the cooker must be deep enough to hold the bottles and have a trivet or rack in the bottom. There should be 850ml of water in the cooker before the trivet or rack and bottles are put in and it should be at boiling point before the filled bottles are inserted.

9. The fruit is packed into warm bottles and boiling syrup poured on top leaving 25mm head space. Cover the bottles and place them in the cooker making sure they do not touch each other or the sides. Cover the pan and bring up to L pressure over moderate heat and process for the times given in the chart. Leave the bottles for the times given in the chart. Leave the bottles in the cooker and allow the pressure to reduce at room temperature. Remove the bottles and complete as in the previous methods.

OVEN METHOD

10. There are 2 variations of the oven method. They are:

a. **Slow oven method.** This method is not suitable for light coloured fruits which discolour in air, apples, pears, peaches or for solid pack tomatoes. The fruit will go brown and the temperature is not high enough to penetrate a solid pack. It is however suitable for gooseberries and

dark coloured fruits such as Victoria plums, black cherries, blackberries or blackcurrants. Preheat the oven to 120°C. Pack the bottles with the fruit but do not pour over the syrup or liquid. Place the lids on top, but without clips or screw-bands. Place the bottles on an asbestos mat or a piece of thick cardboard it is easier if these are placed on the centre oven shelf first, allowing at least 50mm between the bottles and the sides of the oven. After the processing time remove the bottles one by one and fill quickly to the top with boiling syrup, securing the lids with clips or screw-bands immediately. Sometimes the fruit may shrink down in the bottles in which case add fruit from another bottle before pouring over the syrup. The way to success with this method is to quickly fill and seal the bottles as soon as they are removed from the oven. Leave overnight and test for seal.

b. **Moderate Oven Method.** This method can be used for all types of fruit and also for solid pack tomatoes. Preheat the oven to 150°C. Pack warm bottles with the fruit and pour in boiling syrup or brine leaving 25mm head space. Place the lids on top but not the clips or screw-bands. Put the bottles 50mm apart on a baking tray lined with newspaper and place in the centre of the oven. After the processing time, secure the lids with clips or screw-bands. Leave for 24 hours and test for seal.

TESTING THE SEAL

11. Testing the seal is necessary to ensure that a complete vacuum has been formed during the processing and there is no air in the bottles which would quickly cause mould to grow on the fruit. After the bottles have been left for 24 hours and are completely cool, remove the clips or screw-bands. Lift the bottles

carefully by the lids. If these are tight and secure the seal is complete. The clips should be washed, dried and set aside for future use. The screw-bands may be replaced after being washed, dried and greased on the inside with a little oil. Be careful not to screw them back on too tightly as they may be difficult to remove after the bottles have been stored. If the lids are loose the fruit should be reprocessed, the liquid should be poured off and reheated separately except when using method one or used within 2 days. Label each bottle with the name of the fruit, date processed and whether with water, light or heavy syrup, or brine.

STORAGE

12. The bottles should be stored in a cool, dry, dark place and if a lot of bottling is done throughout the year use them on a "first bottled first used" principle.

BOTTLING PULPED FRUIT

13. Bottling pulped fruit is a convenient and simple way of preserving fruit and is ideal for uneven sized fruits and those that may be slightly bruised providing the bruised parts are discarded. Stew the fruit in a little water and add sugar to taste; for tomatoes add a little salt and sugar. When the fruit is soft and pulped pour it into hot jars, cover with lids and seal with clips or screw-bands. Process the bottles as in method one.

USES

14. Bottled fruit may be used straight from the bottle and served cold as a dessert or as part of many hot or cold baked desserts. Citrus fruit such as oranges particularly Seville, lemons and grapefruit are useful for making marmalade. If the fruit has been bottled in syrup take note of how much sugar has been used and subtract

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this amount and the amount of the liquid before adding the required amounts for marmalade making.

BOTTLING VEGETABLES

15. As already emphasised, the bottling of vegetables should only be carried out in a reliable pressure cooker, if in doubt it is wise to check with the manufacturer of the cooker. As the processing is rather lengthy it is sensible to bottle the more expensive vegetables and those with a short season such as asparagus, sweetcorn, red and green peppers, peas or beans. Vegetables should be young and very fresh and processed as soon after gathering as possible. After preparation they should be washed in cold running water. Vegetables must be blanched and thoroughly drained before bottling them, pack them into sterilised, warm bottles. This helps to retain the colour of the vegetables and causes them to shrink slightly making them easier to pack into the bottles. Do not pack them tightly or press them down. Fill the bottles with boiling brine made with 25g of salt to 1 litre of water leaving 10mm head space.

16. Green food colouring may be added to the brine to retain the colour of vegetables such as peas and beans. Cover the bottles in the same way as for fruit. Follow method 3 for the processing except for the pressure and length of time. Place the covered cooker over medium heat and reduce it to low when steam starts to escape through the vent. Bring up to M pressure and maintain this for the required time, between 30 and 50 minutes. This may vary according to the type of pressure cooker, so check in your instruction manual first.

RED OR GREEN PEPPERS

17. Peppers can be bottled using a pressure cooker although the method is slightly different from other vegetables as no brine is required. Blanch the peppers the younger the better for 4 minutes in boiling water. Remove the outer skin, then cut in half and scrape out the seeds and white pith. Pack in tight layers in sterilised jars. Prepare the jars as for other bottled vegetables and cook under M pressure for 40 minutes.

BOTTLING CHART FRUIT

WATER-BATH METHOD

18.

<i>Item</i>	<i>Slow Water Bath</i>		<i>Quick Water Bath</i>	
	<i>Temperature</i>	<i>Processing</i>	<i>Temperature</i>	<i>Processing</i>
(a)	(b)	(c)	(d)	(e)
Apples	74°C	10	88°C	2
Apricots	83°C	15	88°C	10
Blackberries	74°C	10	88°C	2
Cherries	83°C	15	88°C	10
Citrus Fruits	83°C	15	88°C	10
Currants (black, red and white)	83°C	15	88°C	10
Damsons	83°C	15	88°C	10
Gooseberries	74°C	10	88°C	2
Greengages	83°C	15	88°C	10
Loganberries	74°C	10	88°C	2
Peaches	83°C	15	88°C	20
Pineapples	83°C	15	88°C	20
Plums	83°C	15	88°C	10
Raspberries	74°C	10	88°C	2
Rhubarb	74°C	10	88°C	2
Strawberries	74°C	10	88°C	2
Tomatoes	88°C	30	88°C	40

Notes:

1. Cols (b) and (d): Indicates sterilisation temperature.
2. Cols (c) and (e): Processing time in minutes.

BOTTLING CHART FRUIT
PRESSURE COOKER METHOD

19.

<i>Item</i>	<i>Time at low pressure in minutes</i>
Apples	1 min
Apricots	1 min
Blackberries	1 min
Cherries	1 min
Citrus fruits	1 min
Currants (black, red and white)	1 min
Damsons	1 min
Gooseberries	1 min
Greengages	1 min
Loganberries	1 min
Peaches	3-4 mins
Pineapples	1 min
Plums	1 min
Raspberries	1 min
Strawberries	1 min
Tomatoes	5 mins

BOTTLING CHART - FRUIT

OVEN METHODS

20.

<i>Item</i>	<i>Slow Oven</i>	<i>Moderate Oven</i>
(a)	(b)	(c)
Apples	(2)	30-40
Apricots	(2)	50-60
Blackberries	45-55	30-40
Cherries	55-70	40-50
Citrus fruits	(2)	40-50
Currants (black, red and white)	55-70	40-50
Damsons	55-70	40-50
Gooseberries	45-55	30-40
Greengages	(2)	40-50
Loganberries	45-55	30-40
Peaches	(2)	50-60
Pineapples	(2)	50-60
Plums	(2)	40-50
Raspberries	45-55	30-40
Rhubarb	45-55	30-40
Strawberries	(2)	30-40
Tomatoes	80-100	60-70

Notes:

1. Processing time in minutes for 450g - 1.8kg.
2. (2) method not recommended.

BOTTLING CHART - VEGETABLES

21.

<i>Item</i>	<i>Blanching Time in Minutes</i>	<i>Blanching Time in Minutes</i>
(a)	(b)	(c)
Asparagus (1)	2-3	35
Beans broad (2)	3	40
Beans French	3	35
Beans runner	3	35
Peas	2	45
Peppers, green and red	3-5	40
Sweetcorn	3	50

Notes:

1. Tie in bundles of 6. Pack into bottle with stalks uppermost.
2. Broad beans may turn brown during sterilisation.

PART 5 - SPECIAL SKILLS

CHAPTER SIXTY

Chutneys and Pickles

- | | | | |
|----|--------------|----|---------|
| 1. | Introduction | 3. | Chutney |
| 2. | Equipment | 5. | Pickles |

CHAPTER 60

INTRODUCTION

1. Pickles and chutneys are often thought to be similar. However, while both are preserved with vinegar and spices, the similarity ends there. Pickles require a different processing method to chutneys, and do not need to be cooked for such a long period of time, the exception being fruit pickles where the fruit is heated gently to allow the vinegar and spices to penetrate. Chutneys are generally made with a mixture of ingredients but most pickles are made from individual fruits or vegetables.

EQUIPMENT

2. Pans should be large enough to contain all the ingredients. Brass, copper or iron pans should not be used as they react with the vinegar and give a metallic flavour to the chutney. A long-handled spoon is required. Heat-proof jars of any type can be used to contain chutney. These should be clean, dry and warm before pouring in the finished produce. A large ladle or heat-proof jug is useful, especially when making a large quantity of chutney, it makes it easier to fill the jars. The covers are most important. Paper or jam covers should not be used as these allow the vinegar to evaporate and allow the chutney to shrink and become dry. Special rolls of vinegar proof paper is available and this is secured to the jars by tying with string. Special preserving or bottling jars are suitable, either with screw-on or clip-on lids. Jars with tight fitting corks may also be used, providing the corks are new. They should be bottled before using, then covered with a piece of greaseproof paper and tied into the tops of the jars with string. Make sure that any metal cover is well lacquered and not scratched. To be on the safe side it is advisable to place a disc of vinegar-proof paper on top of the chutney/pickle before screwing on metal lids.

Note: All chutneys/pickles should be labelled with the name and date then stored in a cool, dry, dark place. Providing they have been correctly covered and stored most chutneys/pickles will keep for between one and two years.

CHUTNEY

3. Chutney is a condiment made with a mixture of fruits and/or vegetables which are preserved by the addition of vinegar, salt and spices. Although they are now a popular and accepted preserve throughout the world they originated in India, the name chutney being derived from the Hindu word chatni. One of the great advantages of making chutney is that many types can be made at any time of the year without being confined to seasonal produce. For example, many chutneys are made with dried fruits, others use fresh fruits and vegetables that are available throughout the year. There are those which are made with fruits and vegetables at the height of their season. Unlike the other processing methods, many of which require perfect and unblemished produce chutney can be made with misshapen or bruised ingredients with the bruised or damaged parts removed and discarded: this also makes it an economical method of preserving.

PRESERVATIVES

4. The preservatives used in the making of chutneys are:

- Vinegar** is one of the most important ingredients in successful chutney making, so it should be of good quality and have an acetic acid content of at least 5%. Bottled vinegar is better than that sold from barrels. Any well known brand of malt vinegar is suitable, or use wine vinegar for a special flavour. As vinegar has a slightly hardening effect on some produce, particularly onions, carrots and other firm vegetables, it is advisable to partly cook them in water for a few minutes, before adding them to the other ingredients.
- Sugar.** The sugar used may be granulated or brown; the latter is often used in dark coloured

chutneys. Prolonged cooking of sugar has a darkening effect on chutney which is usually desirable. If a lighter colour is preferred then the sugar should only be added when the fruit and/or vegetables are already soft and mushy.

- Ground spices.** Ground spices are preferable to whole ones when making chutney as they give a better flavour. If whole spices are used, double the amount given in the recipe, bruise them and tie in a muslin bag before adding to the pan. The bag is then removed before the chutney is poured into the jars.

PICKLES

5. Pickles may be made from a wide variety of fruit and vegetables. As with all methods of food preservation, the produce must be of good quality, fresh, firm and clean. Large vegetables such as cauliflower, cucumbers, cabbage and marrows are best if they are separated or cut into pieces. Small vegetables such as onions - the small pickling variety - whole mushrooms and tomatoes can be left only requiring to be peeled. Generally fruits that are most suitable for pickling are the larger ones such as apples, pears and peaches. As well as fruits and vegetables, other items such as boiled eggs, and some nuts, particularly walnuts may be pickled.

PRESERVATIVES

6. The following preservatives are used in the making of pickles:

- Salt.** Block, coarse or sea salt gives better results than refined table salt; the latter may give a cloudy effect to the finished product. If brine is used to soak the vegetables, an average solution is 450 g of salt to 4 litres of water. The salt must be dissolved in boiling water, left to cool and then strained before use. It is essential that the vegetables are completely covered with the brine. A large plate with a small weight placed on top will ensure that the vegetables do not rise and float above the surface of liquid. If dry salt is used the vegetables should be placed in layers with a generous sprinkling of salt over each layer. Use about 15 g of salt to each 450 g of vegetables.

- Vinegar.** This must be of good quality, and have an acetic acid content of at least 5%. Brown malt vinegar is suitable for all pickles but if a light colour is required, particularly for light coloured fruit and vegetables, then white malt, wine or cider vinegar may be used.

- Spices.** Spices are added to vinegar to give it a good flavour and they also help as a preservative. Whole rather than ground spices should be used for spiced vinegar as the latter will make the vinegar cloudy. The spices used may be varied depending on the type of pickle and personal taste. The ingredients for spiced vinegar: 50mm piece cinnamon; 5g cloves; 10g allspice; 5g black peppercorns; 5g mustard seed; 3 bay leaves; 1 ltr vinegar. Place the spices and vinegar in a saucepan, cover and bring just to the boil, do not allow the liquid to bubble. Remove the pan from the heat and set aside for 3 hours. Strain the vinegar and if it is not for immediate use pour it into clean, dry bottles. Spiced vinegar is used either hot or cold. Cold vinegar is best for vegetables that need to be kept crisp such as onions, cauliflower and cabbage, while hot vinegar gives a better result to the softer fruit pickles. Although it takes a considerably longer time, an alternative method of making spiced vinegar is to steep the spices in the unheated vinegar in a bottle for 3 months. Shake the bottle occasionally. The advantage of this method is that all the flavours of the spices fully penetrate the vinegar. Mixed pickling spices can be easily bought and will give a fairly good result but preparing your own enables wider variety of flavours to be produced.

PART 5 - SPECIAL SKILLS

CHAPTER SIXTY ONE

Jam

- | | | | |
|-----|-------------------------|-----|----------------------------------|
| 1. | General | 18. | Potting |
| 6. | Equipment | 20. | Making jams in a pressure cooker |
| 7. | Pectin content | | |
| 11. | Preparation and cooking | | |

CHAPTER 61

GENERAL INFORMATION

1. Jam is probably the most popular and widely used form of fruit preservation. It is an excellent way of using up surplus fruit and despite the high quality of some commercially produced jams there is nothing to beat the really well made home product.
2. Jam will only set if there are sufficient amounts of pectin, acid and sugar present. Pectin is a naturally-occurring substance found in most fruit and it is essential for setting jams.
3. The fruit must be fresh, firm and under-ripe rather than over-ripe. The pectin turns to pectic acid in over-ripe fruit and its setting properties deteriorate.
4. The acid in fruit helps to extract the pectin thus ensuring a good set and a bright clear colour.
5. Sugar acts as the preservative and affects the setting qualities. Granulated, cube or preserving sugars are the most economical. Preserving sugar and cube sugar produce less scum and the finished product will be brighter and clearer. The use of brown sugar is not recommended as it can adversely affect the flavour and colour of the finished product.

EQUIPMENT

6. Some special utensils, while not essential make jam making easier. These are:
 - a. Saucepan. The most important item is a suitable saucepan. This is because when the sugar is added to the fruit the ingredients tend to rise over the sides during cooking. Ideally preserving pans should be used as they are deep and wider at the top than at the bottom.
 - b. Stirring Spoon. A long handled wooden spoon for stirring the jam.
 - c. Jars. Any type of jar is suitable providing it is free from cracks or chips. The jars should be scrupulously clean and dry. They should be warmed in an oven to prevent them from cracking when the jam is poured in.
 - d. Covers. Packets of jam covers can be bought from most stationers or chemists. They consist of waxed discs, which are placed on top of the jar when the jam is hot. Rubber bands used to secure the covers and labels are required for identifying the product.
 - e. Heat-proof jug. For pouring the jam into the jars.
 - f. Perforated Spoon. For removing the scum from the surface of the jam.
 - g. Sugar-Boiling Thermometer for testing the setting point of jam. There are a variety of methods for testing the set but the use of a sugar-boiling thermometer is the most accurate.

PECTIN CONTENT

7. Measuring pectin content. The pectin and acid content of fruit can vary according to weather conditions,

type of fruit, season and ripeness. Therefore to ensure a good set the pectin content must be measured.

8. This can be done by:
 - a. Simmering a little of the fruit until it is soft and the juice runs out.
 - b. Straining off approximately 5 ml of the juice and allowing it to cool in a small glass.
 - c. When it is cold add 15 ml of methylated spirits. Shake the mixture and leave it for 2 minutes. If a large transparent jelly-like clot forms the fruit is high in pectin. If it forms into 2 or 3 pieces the pectin content is medium. If it divides into numerous small pieces the pectin content is too low.
9. Fruits that are low in pectin require the addition of fruit or fruit juice which is high in pectin or the addition of commercially produced pectin.
10. Fruits to use. Some fruits such as strawberries, blackberries, pears, cherries and rhubarb are low in pectin. Citrus fruits, damsons, red and blackcurrants, cranberries, crab apples and gooseberries have a high pectin content.

PREPARATION AND COOKING

11. The fruit should be checked and washed before use and prepared according to variety. It should then be placed in a preserving pan with a little water and cooked slowly so that the skins soften and the pectin is released. The amount of water and length of cooking time depends on the quality of fruit used and also its juice content and how ripe it is. Soft fruits such as blackberries, raspberries and strawberries require very little water and the softening time will be shorter. If extra pectin is needed it should be added at this stage.
12. The next step, adding the sugar, should be taken when the fruit has been sufficiently softened. The pan should be removed from the heat and the sugar stirred in until it dissolves. Warming the sugar before adding to the fruit enables it to dissolve more quickly.
13. The amount of sugar required to give a good set depends on the pectin quantity of the fruit and should represent 60% of the fruit weight of the jam. For example if a recipe uses 3 kg of sugar the final yield of jam should be approximately 5 kg. The following is a guide to the amount of sugar required per 450 g of fruit.
 - a. Fruit with high pectin content - 600 g.
 - b. Fruit with medium pectin content - 450 g.
 - c. Fruit with low pectin content - 350 g.
14. Using too much sugar causes loss of flavour and the jam may crystallise. Too little sugar may result in the jam fermenting. If a less sweet jam is preferred less sugar can be used, however its preserving quality is diminished and the yield will be smaller.
15. When the sugar is dissolved the pan should be returned to the heat and the jam boiled rapidly until it reaches setting point. Care must be taken not to boil beyond the setting point otherwise the colour, texture and flavour will be spoiled. The pan must be removed from the heat during testing.

16. There are several methods of testing for a set, the most accurate being the temperature test. This is achieved by using a sugar-boiling thermometer. The thermometer is placed in a jug of hot water before and after testing. The jam is stirred and the thermometer is placed in the jam making sure the bulb does not touch the pan bottom, otherwise it may break and ruin the whole batch. When the temperature of the jam registers 105°C a set should be achieved.

17. Some fruits may need a degree lower or higher therefore it is sensible to combine this test with one of the following:

- a. **Saucer test.** A small amount of the jam is put on a cold saucer and left to cool. When cool the surface should wrinkle when pushed with a finger. If it is still runny return the pan to the heat and continue boiling and testing until set.
- b. **Flake test.** Dip a spoon into the jam, remove it and after a second or two tilt the spoon so that the jam drips. If the jam has been boiled long enough the drops will run together in large flakes.

POTTING

18. When the setting point has been reached remove any scum from the surface and pour the jam immediately into warmed jars. Place the waxed disc on top while the jam is still hot.

19. Wipe the rims of the jars clean with a damp cloth and cover immediately or when the jam is cold. Label and store the jars in a cool dark place.

MAKING JAMS IN A PRESSURE COOKER

20. Normally the temperature of the boiling point of liquids is 100°C and is controlled by atmospheric pressure and cannot be raised by the length of boiling time. If the atmospheric pressure can be raised, the temperatures can be increased accordingly but this can only be done using a pressure cooker ideally one with a pressure control with 3 temperatures.

Low - Boiling Point 108.5°C

Medium - Boiling Point 115.3°C

High - Boiling Point 122°C

It is always advisable to follow the manufacturers instructions. They may vary according to the make of the cooker, but generally the method is similar to the one shown below.

- a. Remove the rack or trivet from the pan.
- b. Never fill the pan more than half full.
- c. Pre-cook the fruit at medium pressure.
- d. Use only half the amount of liquid in the recipe.
- e. Finish cooking with the sugar in the pan without the pressure lid.

21. Generally the pre-cooking time of the fruit is about a third of the time taken by cooking in the usual way.

However this may vary from cooker to cooker, so follow the manufacturers instructions.

PART 5 - SPECIAL SKILLS

CHAPTER SIXTY TWO

Jelly Making

- | | | | |
|----|-------------------------|----|------------------|
| 1. | General information | 4. | Adding the sugar |
| 2. | Preparation and cooking | 5. | Potting |
| 3. | Straining of fruit | | |

CHAPTER 62

GENERAL INFORMATION

1. The difference between making jelly and jam is that the fruit for jelly is cooked until very soft then strained through a jelly bag, a piece of cheesecloth or double muslin. Only the juice is then cooked with sugar. The basic principles are the same as for jam making, and to achieve the required consistency the same substances such as pectin, acid and sugar are needed. The low pectin fruits such as cherries, pears, strawberries and marrow are not really suitable on their own for jelly making as the amount of pectin required to give a good set will disguise the flavour of the fruit. A mixture of high and low pectin can be used. Cheap or wild fruits are often used in jelly making. Blackberries, sloes, elderberries, bilberries, crab apples are all suitable, currants, red, white and black, cooking apples, gooseberries and quinces also make delicious jellies. The fruit should be just ripe and if there are any bruised parts these should be discarded. There is no necessity to peel or remove stems but the fruit should be washed and the large ones cut into pieces.

PREPARATION AND COOKING

2. The amount of water required depends on how juicy the fruit is. Hard fruit and fruit with tough skins such as apples, damsons or sloes should be covered with water and will take a longer time to cook. The fruit should be gently simmered for about an hour, pressing occasionally with a spoon.

STRAINING OF FRUIT

3. When the fruit is really soft pour it into the jelly bag with a large bowl underneath. Allow the juice to drain through the jelly bag and leave it for several hours or overnight. Do not be tempted to push the pulp through with a spoon or squeeze the bag as this will make the juice cloudy. If there is any doubt about the amount of pectin in the juice, testing can be carried out in the same way as for jam. It is also worth noting that if the juice is thick and sticky it is a sign that there is sufficient pectin. The pulp and juice can be re-cooked if the pectin content is low. Alternatively return the juice only to the pan and simmer, allowing some of the water to evaporate.

ADDING THE SUGAR

4. Measure the juice and pour it into a preserving pan or large saucepan and bring it to the boil before adding the sugar. The amount of sugar used depends on the pectin quantity of the juice. For every 600 ml of juice rich in pectin add 450-575 g sugar and for medium pectin quantity add 300 g sugar. After adding the sugar cook the mixture slowly until it dissolves, then boil rapidly for 10 minutes. Remove the pan from the heat and test for setting.

POTTING

5. When setting point has been reached, remove any scum from the surface of the jelly then pour it into prepared jars. Cover and store as for jam. It is not possible to give accurate yields in recipes for jellies as they will vary according to the ripeness and quality of the fruit and also the amount of pulp lost when straining. An approximate yield is 2.5 kg jelly to every 1.5 kg sugar.

PART 5 - SPECIAL SKILLS

CHAPTER SIXTY THREE

Marmalade

- | | | | |
|----|--------------------------|----|------------------|
| 1. | General information | 5. | Jelly marmalade |
| 2. | Equipment | 6. | Test for setting |
| 3. | Measuring pectin content | 7. | Potting |
| 4. | Preparation and cooking | | |

CHAPTER 63

GENERAL INFORMATION

1. Marmalade is a preserve made with citrus fruit and is traditionally British. The name is said to be derived from the Portuguese word marmalade, a preserve made with quinces. The connection with the Iberian peninsula is strengthened by the fact that the bitter Seville oranges are popularly used to make marmalade. Marmalade can be made with oranges, lemons, limes, grapefruit or tangerines, each imparting its own tangy flavour. On the other hand citrus fruit may be mixed with other fruits, such as apples, pears or pineapples to make a pleasant combination, or flavoured with ginger or other spices if wished. The best time of year for marmalade making is during January or February. This is the season for the genuine Seville oranges and it is very short. If you have a freezer, Seville oranges and other citrus fruits with a short season can be frozen, allowing marmalade to be made throughout the year. To freeze citrus fruits put them whole in a freezer bag and store until required. Alternatively the fruit can be cut up, cooked and packed into wax cartons. When using whole fruits cook them while they are still frozen, as this prevents discoloration. If the fruit has been cooked prior to freezing, allow it to thaw before the final cooking with sugar. As there may be some pectin loss in Seville oranges and tangerines during storage it is advisable to add extra fruit, about one eighth to the amount stated in the recipe. The main difference between marmalade and jam making is that citrus fruit skin requires slow cooking in a greater amount of water to soften it before adding the sugar. However the length of cooking time can be shortened considerably with the use of the pressure cooker. There are two types of marmalade: thick marmalade and jelly marmalade. The yield from the latter being less than that of thick marmalade.

EQUIPMENT

2. The equipment required to produce marmalade is exactly similar to that used in jam making.

MEASURING PECTIN CONTENT

3. There will be sufficient pectin if using Seville oranges. However the pectin content in other citrus fruits can vary and to ensure a good set it is prudent to measure the pectin content.

- a. Simmer a little of the fruit until it is soft and the juice runs out.
- b. Strain off approximately 5 ml of the juice and allow it to cool in a small glass.
- c. When it is cold add 15 ml of methylated spirits. Shake the mixture and leave it for 2 minutes. If a large transparent jelly-like clot forms the fruit is high in pectin. If it breaks into small pieces the pectin content is too low. Fruits that are low in pectin require the addition of fruit or fruit juice which is high in pectin or the addition of commercially produced pectin.

PREPARATION AND COOKING

4. The fruit must be fresh and just ripe. It should be washed and if necessary scrubbed with a clean brush. There are 3 methods of preparing thick marmalade, and whichever method is used remember that the pectin content is in the pulp, white pith and pips, not in the peel, so it is important to add these to the fruit while cooking.

In some recipes lemon juice or citric acid is added. This is because the acid content of the fruit may be lowered owing to the high proportion of water and sugar used in making marmalade. There is no necessity to add extra acid to marmalade if it is made with 2 or more fruits, or to lemon and lime marmalades. Thick cut methods are as follows:

a. **Method one.** This is the simplest and most usual method. Scrub the fruit and scald it in boiling water making it easier to remove the peel. Remove the peel as thinly as possible and cut into thick or thin shreds as required. Place the peel acid if used and half the quantity of water in a preserving pan. Bring to the boil, then simmer for 2 hours until the peel is soft. Meanwhile cut the fruit and pith into pieces and simmer in another pan for 1½ hours. Strain the mixture through a colander placed over a bowl, discard the pips, coarse tissue and pith and then add the pulp to the peel. If a thicker marmalade is required the pulp can be pressed through a fine nylon sieve. Add the sugar and cook over a low heat stirring frequently until the sugar dissolves. Bring to the boil and cook rapidly until setting point is reached. Care must be taken not to boil beyond the setting point otherwise the colour, texture and flavour will be spoiled. The pan must be removed from the heat during testing.

b. **Method two.** Wash the fruit and cut each piece in half. Squeeze out the juice and pips and strain the juice into the preserving pan. Tie the pips and pulp in a piece of muslin. Cut the peel and pith into thick or thin pieces, depending on choice, and add the bag of pips, the peel, the acid and water to the juice in the pan. Simmer for 2 hours or until the peel is soft. Remove and squeeze any liquid from the bag of pips into the fruit and discard the bag. Add the sugar and cook over a low heat, stirring frequently until the sugar has dissolved. Bring to the boil and cook until setting point has been reached. Care must be taken not to boil beyond the setting point. The pan must be removed from the heat during testing.

c. **Method three.** Wash the fruit and put it whole into the preserving pan with the water. Cover the pan and simmer for at least two hours or until the fruit is soft. Test by piercing with a thin skewer or knitting needle. Lift the fruit out of the water and chop it using a knife and fork as the fruit will be hot. Remove the pips and tie them in a piece of muslin and return to the cooking liquid. Boil for 5 minutes then squeeze the bag to extract any juice. Discard the pips and add the fruit to the pan. Add the sugar, cook over a low heat stirring frequently until the sugar dissolves. Bring to the boil and cook until setting point is reached. Care must be taken not to boil beyond setting point otherwise the colour, texture and flavour will be spoiled. The pan must be removed from the heat during testing.

JELLY MARMALADE

5. Wash the fruit and remove the peel very thinly. Cut the peel into fine strips and tie in a piece of muslin. Cut the remaining fruit and pith into pieces and place in the preserving pan with the acid and water. Simmer for 2 hours. Place the bag of peel in another pan, cover with water and simmer for at least 1½ hours. Remove the peel and set aside. Pour the cooking water into the pulp mixture. Pour the contents of the pan into a jelly bag

placed over a large bowl and leave to drain overnight. Measure the juice and pour it into the preserving pan, bring to the boil and add 450 g sugar to every 600 ml juice. Add acid, if required and the reserved peel.

Cook over a low heat stirring frequently until the sugar dissolves, bring to the boil and cook until setting point is reached. Care must be taken not to boil beyond setting point otherwise the colour, texture and flavour will be spoiled. The pan must be removed from the heat during testing.

TEST FOR SETTING

6. Exactly similar tests to those used when making jam are suitable when making marmalade.

POTTING

7. When the setting point has been reached remove any scum from the surface. Leave the marmalade to cool for 15 minutes so that the preserve is thick enough to support the peel and prevent it rising to the tops of the jars, then distribute the peel. Pour into warmed jars and place the waxed disc on top while the marmalade is still hot.

8. Wipe the rims of the jars clean with a damp cloth, cover immediately or when the marmalade is cold. Label and store the jars in a cool dark place.