HOW TO MAKE CANDY

WALTER W. CHENOWETH

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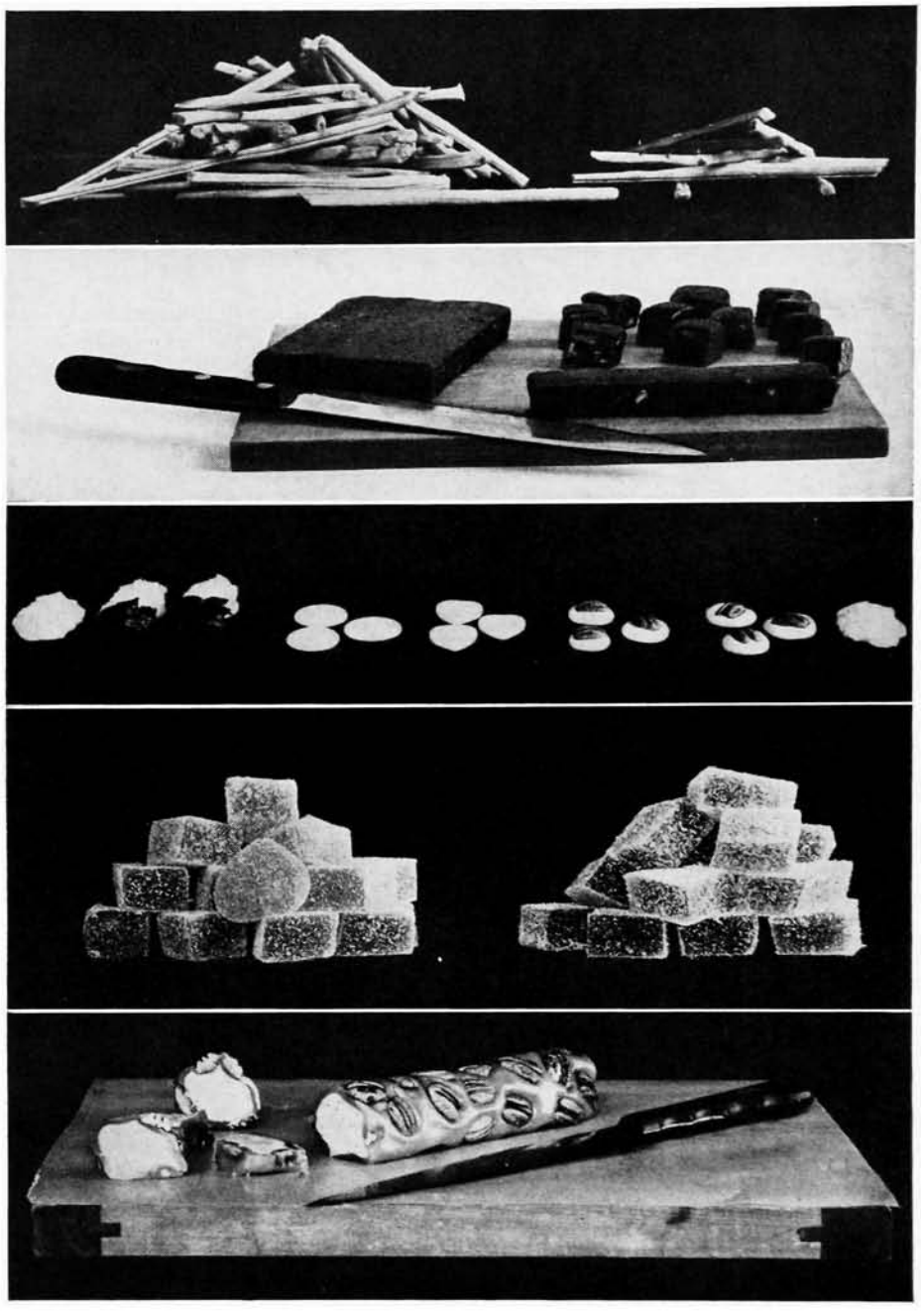

CANDIES ANYONE CAN MAKE

How to Make CANDY

By

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THIS BOOK is most affectionately dedicated to the scores of students who because of their sympathetic interest, their unbounded enthusiasm and zeal in and for their work in confections, have made possible the development and the bringing together of the material herein presented.

PREFACE

Most of the materials in this book have been assembled and modified through years of teaching a course in confections to college seniors and graduate students, by many years of painstaking research and because of impressions gained from homemakers through demonstrations and laboratory experiences with them. This should mean greater accuracy and simplicity because half-formed methods and uncertain results are not long tolerated by upper classmen, nor are they accepted by the intelligent homemaker. The writer, therefore, has tried to organize the materials at his command and to present them in the light of his experiences in such manner as will be most helpful to those who use this book.

This is not just another candy recipe book. It is much more than that. It contains discussions in simple, readily understood language, of the theories and science which underlie the practices of candy making in so far as present-day knowledge permits. These have been included because experiences in teaching both college students and homemakers have convinced the writer of their keen interest in the technical as well as in the practical phases of candy making. If the candy maker can apply intelligent understanding to the problem involved, the solution becomes a simple matter and success and progress are assured. More than that, a knowl-

edge of the "whys" in any procedure finds its reward in increased satisfaction and greater efficiency. These things do not come to those who blindly follow a prescribed procedure.

The writer believes he has removed the guesswork from home candy making. Each recipe has been adjusted to a tried and tested formula. The finish point is determined by either of two methods, each of which is as simple and accurate as it is possible to make it. Each step in the procedure for any given candy is stated in such detail that even the inexperienced person need have little fear of failure.

The final chapter, Candy Making for Profit, has been included in the belief that there are many homemakers who are temperamentally adapted to this type of work and who need only a little encouragement and proper technical understanding to find both pleasure and profit in their kitchen candy factory.

If this book can help to popularize home candy making by stimulating a greater interest and by simplifying and improving the methods now in use, it will have met the sincere wishes of the writer.

W. W. CHENOWETH

AMHERST, MASSACHUSETTS

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Chapter I

MATERIALS

There are two general methods of manipulating materials to secure a desired product. One of these is to follow implicitly and blindly a set rule. The other is to interpret the rule intelligently. This latter course is impossible unless the operator's knowledge extends beyond the mere formula or recipe. Also, an understanding of the properties of the materials employed and of the principles involved will result in superior products and will give greater satisfaction in each successful accomplishment.

In order, therefore, to help the inexperienced to apply the rules which are set up for their guidance, a brief description of the outstanding characteristics and functions of the important materials used in candy making is given with the hope that it will lead to a more intelligent use of both materials and rules. Incidentally, in some instances brief historical data are included with the belief that they will be of particular interest to at least a few who may make use of this discussion.

The materials used in confections, especially in candies, may be grouped into two general classes: (I) fundamental and (II) accessory materials. These materials have certain properties and characteristics

which should be of interest to the teacher, the student, and in fact to any highly intelligent home candy maker.

I. Fundamental Materials

A. SUGARS

Sugar was unknown to ancient peoples. It is not mentioned in the early Hebrew writings nor in the literature of other nations of that period. It was unknown to the Greeks and Romans prior to the Christian era. Pliny and other writers of his time speak of sugar as "sweet salt" or "India salt." This latter reference would seem to indicate that sugar was introduced into western civilization from India. The Moors in the eighth century carried plants of the sugar cane into Europe, where it was grown almost exclusively in Spain for the succeeding four hundred years. It was introduced into the West Indies and Brazil about the beginning of the seventeenth century. It was first successfully grown in the United States in 1810.

The early use made of sugar was as medicine. Later it became a choice delicacy enjoyed only by the very wealthy, while at the present time it is one of the staple foods of common and widespread use. It is the foundation material of candies and enters quite largely into the production of most confections.

The term "sugar" is generic and means many things to the chemist. But to the confectioner it means a group of materials which, while they differ widely in many of their characteristics, have the common one of being sweet and are all known as sugars.

The sugars vary widely in their properties and uses,

and it is because of this fact that some space has here been devoted to a discussion of them.

1. Sucrose

Sucrose, also known as cane sugar, is the common table or household sugar. It is the one thought of by the layman when the term "sugar" is used. It is produced commercially from sugar cane and sugar beets. It is also the chief sugar found in the products of the maple tree—maple sugar and syrup. It occurs in non-commercial quantities in many fruits and roots.

Sucrose hydrolyzes easily when in solution; that is, one molecule of sucrose is broken down and through the addition of one molecule of water forms one molecule each of dextrose and levulose. These two sugars are designated as invert sugars. There are two agents, either of which may bring about this hydrolysis, or inversion: (1) When a solution of sucrose is boiled in the presence of acid the sucrose is changed into dextrose and levulose. The amount and rate of inversion are determined largely by the ratio of acid present and the length of the heating period. Slow inversion may take place under suitable conditions at relatively low temperatures. (2) The presence of certain enzymes known as invertase also brings about this change in sucrose solutions.

Sucrose in solution is non-fermentable. In order to ferment it, inversion is necessary. It crystallizes out of supersaturated solutions in clear monoclinic crystals.

The following types of sucrose are recognized and used extensively by confectioners.

a. Granulated Sugar

This is the purest form of sucrose. It is more than 99.5 per cent pure sugar and is said to be the purest food product known. It is a white crystalline substance without flavor and possesses a very sweet taste. It is soluble in water up to 65 per cent at the freezing temperature of water. When heated to a temperature of approximately 310° F. or above, it will melt, becoming first yellow and then brown in color. The color is due to caramelization, and among the products formed are acrolein and furfural, which accounts for the flavor known as caramel.

Granulated sugar is the basis for practically all stirred or beaten candies and is also an important material in many other candies.

b. Yellow or Brown Sugar

Sugars in this class range in color from light yellowish white to a very dark brown. They are less highly refined than granulated sugar. The color and flavor are due to the presence of some of the "mother liquor" from which they have been crystallized. This "mother liquor" is known as molasses. The greater the amount of molasses present, the darker is the color and the more pronounced is the flavor, and because of this the light brown sugar is preferred for most confections.

The yellow sugars tend to dry out and form hard cakes or lumps, especially when stored in the ordinary pantry in open or partly open containers. This type of sugar is used in candies both for its flavor and for its influence on the texture of the finished goods.

c. Confectioners' Sugar (Powdered Sugar)

Confectioners' sugar is highly refined granulated sugar, which has been so finely ground as to resemble flour in its texture. It has a few specific uses, but is seldom or never substituted for granulated or brown sugar.

d. Maple Sugar

Maple sugar is made by the concentration of the sap of the maple tree. It varies in color, but in its most typical condition it is a light, creamy yellow, and is very finely crystalline. It has a delicious characteristic flavor and aroma. It is a sucrose sugar with probably a trace of invert sugars usually present. The intermediate product is maple syrup, which is also used extensively in confections. (For further discussion see Chapter XI, Maple Confections.)

2. Invert Sugars

The invert sugars—dextrose and levulose—are used extensively in the manufacture of confections. In many candies they are essential to give the necessary texture and the keeping qualities desired. In others they may be used as the basic material. They are for all practical purposes non-crystalline and when present in small ratio in sucrose syrups they retard or prevent the formation of noticeable size crystals. As already stated (see Sucrose, above), these sugars are formed when sucrose is hydrolyzed or inverted. They also occur in fruits and roots of plants either together or singly.

a. Dextrose

This sugar occurs naturally in many fruits and plants. It is especially abundant in grapes, and because of this it is not infrequently referred to as "grape sugar." It is manufactured commercially by the hydrolysis of starch in the presence of an acid. It is readily fermentable at a very rapid rate. It is approximately three-fourths as sweet as sucrose. It is soluble in water, but much less so than sucrose. A saturated solution of dextrose is about 43 per cent sugar. It crystallizes into wart-like masses. Small quantities of other sugars in solution will decrease this tendency to crystallize.

When dextrose is present in supersaturated solutions of sucrose it retards crystallization, and when larger amounts are present the sucrose will not crystallize from such syrups.

b. Levulose—Fructose

This sugar occurs in small amounts in many fruits, hence the common name "fructose." It is also an important constituent of honey, in which it comprises more than half the total sugars. It is classed with the invert sugars because it may be formed by the inversion, or hydrolysis, of sucrose.

It is highly soluble in water and is generally considered a non-crystalline substance. When present in a sucrose solution it retards or prevents crystallization. Like dextrose, it is directly fermentable but ferments slowly. It is sweeter than sucrose. It is deliquescent, i.e., it will absorb water from a moist atmosphere; and this property makes its presence in certain types of candies

desirable because it prevents drying or excessive hardening due to loss of moisture. It is too expensive for common use and is not, therefore, manufactured commercially.

3. Maltose

Maltose is formed when starch or starchy materials are heated in the presence of acids, and, because of this action, starches when added to candy materials should be heated for a very short time only if acids are present. The starch is hydrolyzed by the acid to form maltose, and the jellying effect of the starch is destroyed.

Maltose is quite soluble but does not crystallize from solutions. It is rarely if ever used directly as a material for making candy, but in certain processes it is likely to be produced with rather annoying results.

4. Corn Syrup—Glucose

Corn syrup, often misnamed "glucose," is a mixture of variable amounts of dextrose, maltose and dextrin. The average composition generally given is dextrose 35 per cent, dextrin 30–45 per cent, maltose 5–20 per cent. Corn syrup is produced by heating starch (in a finely divided state suspended in water) with acid—usually hydrochloric acid. This brings about the hydrolysis of the starch, which produces dextrose as the final product while maltose and dextrin are intermediate products. The process is stopped before hydrolysis is completed, with the result that a very heavy syrup is produced having the general composition given above.

Corn syrup is used very extensively in candies and in other confections. Its presence in small amounts retards

or prevents crystallization in sucrose syrups. It also forms the base of many of the table syrups which are used in the home for candy making. In fact such table syrups are better suited for home candy work than is the pure corn syrup. They are readily obtainable and are much more easily handled.

5. Cerelose—Corn Sugar

Cerelose is manufactured in much the same manner as corn syrup, i.e., by hydrolyzing cornstarch through the action of hydrochloric acid. (See Corn Syrup, above.) In the production of cerelose, however, the process of hydrolysis is carried through to completion. This gives a product which may by refining processes produce a cerelose that is more than 99 per cent dextrose. Ordinary commercial brands are rated at 75 to 99 per cent dextrose. Cerelose is non-crystalline and is much less sweet than sucrose. Authorities differ in their opinions, but it is generally understood that cerelose is about three-fourths as sweet as sucrose. It finds extensive use among bakers and confectioners. The presence of cerelose in small amounts tends to retard or prevent the formation of crystals in sucrose solutions. It is soluble in water up to about 43 per cent sugar. This low solubility prevents its exclusive use in the manufacture of jellies and other products whose sugar content runs much above 43 per cent.

Cerelose was legalized as a constituent of pure foods by an act of Congress in 1931. Prior to that time it was considered an adulterant except when used in confections and bakers' goods.

B. MOLASSES

Molasses is the residual liquor left after a large part of the sucrose has been crystallized out from the purified and concentrated juice of sugar cane. It contains not more than 25 per cent water and not more than 5 per cent ash. The sugars present are a mixture of sucrose (cane sugar) 40 to 60 per cent and equal amounts of the two invert sugars (dextrose and levulose) totalling 15 to 25 per cent. The color varies from a golden yellow to almost blue-black, depending upon the degree of refining it has had. The flavor is pronounced. It also has a characteristic odor. Its flavor and its relatively high invert sugar content make it of value to the candy maker.

C. SYRUPS

Syrup is the product made by purifying and evaporating the juice of a sugar producing plant without removing any of the sugar.

The common syrups are: cane syrup, maple syrup, sugar syrup and sorghum syrup. The cane and sorghum syrups contain 15 per cent or more of invert sugars, while maple and sugar syrup have merely a trace or none.

In addition to the above the trade recognizes other syrups, the most important of which are the mixed syrups. These, as a rule, are sold as table syrups under some trade name. They consist of a mixture of corn syrup and either sugar or maple syrup. Most of these syrups are used by confectioners.

II. Accessory Materials

There are many materials other than sugar used in the manufacture of candies and confections, and these are here classified as accessory materials. Those of major importance are included in the following discussion.

A. ACIDS

The kinds of acids most commonly used are the harmless organic acids, such as acetic, citric and tartaric, and since these are not always readily available in the laboratory and in the home kitchen, substitutes are used which are common and which contain some one of the above acids. These so-called substitutes are vinegar, lemon juice and cream of tartar. Vinegar and lemon juice in addition to the acid also carry a pronounced flavor, and for that reason they are often objectionable. Also they are liable to vary in their acid content. The most satisfactory form of acid for laboratory and home kitchen use is cream of tartar. It is readily available, inexpensive and for all practical purposes may be regarded as uniform in its acid content.

Acids function in three ways in the manufacture of confections.

1. Taste

A small amount of acid tends to reduce the sickish sweet taste of many products to a pleasing and acceptable taste. In a few cases acid is added in such amounts as to give the dominant taste to the finished product.

2. Flavor

Certain flavors, especially the delicate ones, are often masked or obscured in the presence of excess sweet taste. The addition of a small amount of acid to the confection will tend to correct this and will give, therefore, a much more acceptable product.

3. Hydrolysis, or Inversion

As will be seen (see Chapter V, Crystallization) the inversion of a part of the sucrose is essential to success in the making of some candies. Acids are one of the common means of bringing about the necessary inversion. Hence, their use in some confections is imperative.

B. COLORS

1. Functions

The functions of colors in confections are to add to the attractiveness of the finished goods, to give variety, and to identify certain flavors which we always associate with a characteristic color.

2. Forms

Colors may be purchased in any one of three forms, viz., paste, powder or liquid. As a general rule the liquid colors are more satisfactory for laboratory and kitchen uses. It is a simple matter to learn through experience that two or three drops per pound of materials will give the shade of color desired, whereas if the dry color or paste is used it becomes a "cut and fit" proposition each time color is used. If candies were made in

large batches the difficulties attending the use of these last two forms would be minimized to such a degree that one might prefer to use them instead of the liquid color.

3. Kinds

There are three kinds of colors available. Under present food and drug regulations there is little or no difference in the relative healthfulness of these colors.

a. Vegetable Colors

These colors are of vegetable origin. They are less stable and permanent than the other kinds discussed later. They appeal to certain persons as more desirable, simply because of their origin.

b. Coal-Tar Dyes

These colors are produced by chemical processes from coal tar. They are perfectly wholesome since they have been examined and certified as harmless by the United States Bureau of Chemistry. They are more stable than the vegetable dyes and are more permanent in character.

c. Synthetic Dyes

These colors have been made by chemical procedure, i.e., the materials necessary to produce the desired colors have been brought together under such conditions that chemical union takes place and the color desired is produced. These, like the coal-tar dyes, are wholesome and must be certified by the United States Bureau of Chem-

istry before they can be offered for sale. (See The Use of Colors and Flavors, in Chapter III.)

C. FLAVORS

1. Functions

Added flavors function in one of three ways: (*a*) to give a characteristic flavor, (*b*) to blend with other flavors to produce one more desirable, or (*c*) to give a larger variety to any given kind of confection.

2. Sources

The common sources of pure flavors are aromatic vegetable substances. These may include various parts of the plants, from the roots, as in ginger, to the bud of the flower, as in the clove, and the fruit, as in allspice. The substitution of less expensive materials is quite common. We have examples of this in cassia substituted for cinnamon and black birch for wintergreen. Besides these there are the synthetic substances. As a general rule, however, the true flavors are used except where an acceptable product at a much reduced price can be produced. The most striking illustration of this perhaps is true vanilla with its companion substitutes, blends and synthetic imitations, all of which must be sold under their proper label like any substitution or imitation flavor offered for sale.

3. Form or Condition

Many of the flavors, especially those classed as spices, may be had in any one of three forms, viz., (*a*) the spice

itself, (*b*) the oil containing the essential flavoring materials, and (*c*) extracts.

a. Spices

These are aromatic vegetable substances used in the preparation of many fruit and vegetable products. But in this form they are rarely used in the manufacture of candies.

b. Oils

The oils of spices are the volatile materials obtained from the part of the plant commonly used to flavor food. They are very highly concentrated and are not recommended for laboratory or kitchen work. Their use is quite common in commercial work where the batches are large enough to enable proper measurement of this concentrated flavoring material.

c. Extracts

Most extracts are dilute solutions of the oils of spices. A few exceptions must be made to this general statement. In a few cases this dilute flavor is actually an extract in that the flavoring substances have been dissolved from the vegetable parts. Extracts as a rule, however, are alcoholic solutions of oil which carry from 1 to 5 per cent of the essential oil. Because of their dilute strength, they are readily measurable and are by far the best form for use by the small candy maker. (See The Use of Colors and Flavors, in Chapter III.)

D. GELATIN

Gelatin is an animal product. It is a typical colloid and possesses two characteristics which make it useful to the confectioner. (1) It is soluble in water, and when present in sufficient amount it will set the material to form a jelly-like consistency. It is this same characteristic which enables it to give the light, fluffy consistency found in some candies in which it is an important constituent. (2) Since it is a colloid, it functions in a manner similar to corn syrup and albumen in retarding or preventing crystallization.

Gelatin is on the market in two forms, viz., sheet and granulated; and since the granulated is more easily measured and manipulated, it is recommended for laboratory and kitchen work. The jelling strength of gelatin is seriously injured by long cooking. Therefore, the practice of adding it during the earlier stages of the cooking period should be discouraged. In many cases it should receive only such cooking as will result when the hot syrup is beaten into it in the final stage of the process.

E. ALBUMEN

The common source of albumen for confections is egg white. Commercial manufacturers as a rule use the dried egg albumen, but the fresh egg white is better in the laboratory and kitchen where only small batches are made. The function of egg white is to give a fluffy porous nature to certain types of beaten candies. It is never added to the cooking materials because its usefulness would be destroyed by the long cooking. On the con-

trary the hot materials are added slowly to the egg white in order to give it the cooking necessary to its proper function and at the same time avoid coagulating it into large insoluble lumps.

F. MILK AND MILK PRODUCTS

Milk, cream and butter are used extensively in the manufacture of many candies. Their presence adds greatly to the food value, and they also aid materially in determining the consistency of the finished products. The butter fat also functions to retard or prevent the formation of crystals. Many commercial factories use other fats and oils as substitutes because of less liability to become rancid, which is one of the objectionable features of butter fat, especially in candies that are to be stored for some time. However, the home candy maker is not faced with this problem since she makes candies for immediate or early consumption, and the same will apply to the teacher in the laboratory.

Whole, fresh milk contains 3 to 4 per cent butter fat. Evaporated milk, which is usually reduced two volumes to one, has 6 to 7 per cent; condensed milk has 9 to 10 per cent; light cream, 16 per cent; and butter, 82 per cent butter fat.

The various brands of canned and evaporated milk sold in the stores may be used by the candy maker. While cream and butter are concentrated forms, milk contains casein, which adds quality and body. Fresh milk requires careful handling to prevent scorching. All fats have a shortening effect on the wax-like candies. This is particularly noticeable in caramels. A high fat content makes for ease in chewing.

G. STARCH

Cornstarch has two main functions in candy making: (1) It is used especially by commercial concerns in the production of a few of the gum types of candies, and (2) it is used extensively to form molds in which cast candies, principally centers, are made. Cornstarch should not be boiled long in the presence of acid because the acid hydrolyzes the starch and the products formed will not give the results wanted.

H. GUMS

The two most commonly used gums are gum arabic and gum tragacanth. These give to the candies in which they are used either the characteristic gum-like consistency as in "gum drops" or the light and porus texture of the marshmallow. It is seldom that either of these will be required for ordinary work in the laboratory or kitchen.

The gums have been largely superseded in commercial work by gelatin, starch and pectin, because they are much less expensive and are very satisfactory substitutes in the manufacture of many candies in which it was formerly thought that a gum was indispensable.

I. FRUITS

Fruits enter into a large number of confections. They add color, flavor, give body, and aid in securing a desired consistency, and since many of them are inexpensive they tend to reduce the cost of many homemade confections. (See Chapter X, Fruit Confections.)

J. HONEY

Honey is mostly invert sugars with approximately 20 per cent water. It is valuable in confections because of its flavor and because of the effect it has on the keeping quality. (See Chapter XII, Honey Candies.)

K. CHOCOLATE

When Cortez invaded Mexico in 1520 he found the natives using the fruit of the cacao tree. This tree had at that time been under cultivation for several centuries. Linnaeus later gave this plant the name of *Theobroma cacao*. The name Theobroma means "food of the gods." The Spaniards introduced the use of cacao fruit to Europeans.

The cacao tree is small, 12 to 20 feet, and is indigenous to Mexico, Central America, the West Indies and the northern countries of South America.

The fruit is a bean of about the size of an almond, and it grows in a pulpy pod six to eight inches long. The beans are removed from the pod, piled in heaps and allowed to undergo a species of fermentation. They are then sacked and shipped to the factory. Here they are sorted and blended to secure most satisfactory results. They are then roasted in huge ovens at temperatures of 300 to 400° F. The shells are then removed and the germs are separated from the cotyledons, which are now called "cocoa nibs." The "nibs," or kernels, are ground very fine, and this operation produces what is known in the trade as chocolate liquor, but to the layman is bitter chocolate.

Bitter chocolate is the starting point from which other valuable products are formed. If the chocolate liquor or bitter chocolate is placed under hydraulic pressure and a part of the fat is expressed, the cake remaining is pulverized and after being standardized as to fat content, it becomes the cocoa of commerce. The expressed fat is cocoa butter. Chocolate liquor is mixed with confectioners' sugar and flavors to make the various grades of sweet chocolate. The addition of milk gives the well known milk chocolate whose chief use is to eat out of hand.

Chocolate has many uses in the confectioner's art, chief of which are decoration, flavor and protection through coating. The chocolate coating on a candy helps to retain the consistency since it forms an air-tight covering. Soft or plastic or even liquid fillers once enrobed with chocolate may be kept for months or may be shipped long distances without injury.

L. NUTS

The nuts are rich in fats and proteins. When used in candies they increase the food value of the candy, add to its attractive appearance, and give their own distinctive flavor or blend with other flavors to produce some desired effect. The most important of the nuts are almonds, peanuts, pecans and walnuts.

Chapter II

EQUIPMENT

The necessary equipment for making most candies in the home or laboratory is very simple, and most if not all of it will be found in the well equipped home kitchen and in the modern home economics laboratory. In addition to the really necessary equipment there are many other things which will simplify the work, will enable one to extend the field of operations beyond the common homemade candies, will make for accuracy and economy and, last but by no means least, will add much to the interest and pleasure of the work.

Cooking Utensils

The cooking utensils should be of aluminum or other acid-proof material such as agate or enamel ware. The saucepan is easier to manipulate than the kettle type. The size should be commensurate with the amount to be cooked at one time. The 4- to 6-quart size will handle materials sufficient to make up to 2 to 3 pounds of most finished candies. A double boiler is very desirable. While it is not used for cooking, it is indispensable in making fondant creams and maple sugar, and for coating bonbons and chocolates. An improvised double boiler may be made by using two saucepans of such relative size

that the one may be set into the other. This may be used for practically all purposes except chocolate dipping.

Cooling Pans

Agate or enameled pans are most serviceable for cooling candies which must be hand-stirred, since they may be stirred without having to transfer them to a suitable vessel. Pans for this purpose should be shallow (2–3 inches) and broad (10–12 inches) so that the hot materials may be spread out in a relatively thin layer in order to hasten cooling. Small batches of taffy may be cooled in pie tins. A marble slab, if available, may be used instead of a cooling pan. In general laboratory practice the cooling pans have proven more satisfactory than marble slabs.

Candy Pans

The so-called pan candies are stirred to a creamy consistency and then molded into a candy pan to harden before cutting, as are the fudges, or the hot materials are poured directly into the lightly buttered pans and allowed to cool, as are caramels and toffees. Pie tins and baking pans may be used, but since they are either round or have sloping sides there will always be a large number of pieces of uneven size and irregular shape. For strictly home consumption this may not be objectionable. But when company comes or when candies are to be packed into boxes for gifts or for sale, these odd pieces become somewhat of a problem.

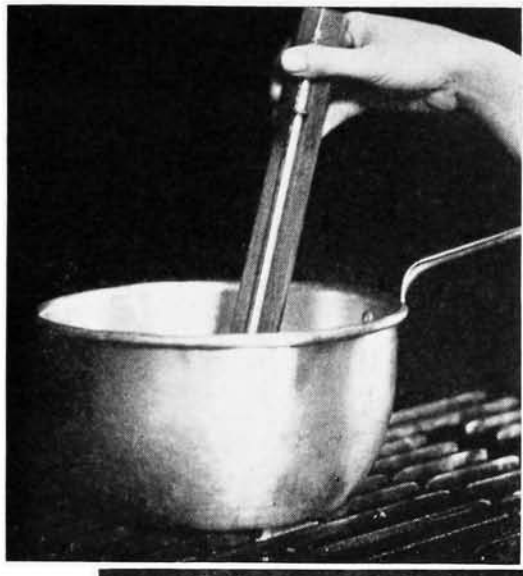
The best candy pans are square or rectangular and have perpendicular sides. They should be ¾ inch deep

and approximately 6 inches wide by 8 inches long. In using these pans for stirred candies, the bottom of the pan should be covered with a waxed paper cut to fit the pan from side to side and about twice as long as the pan. The candy is packed into this waxed-paper-lined pan, and the free end of the paper is doubled back over the candy and smoothed snugly against the upper surface to protect it against undue loss of moisture by evaporation. Candies treated in this manner never stick to the pan and may be stored in the pan for weeks.

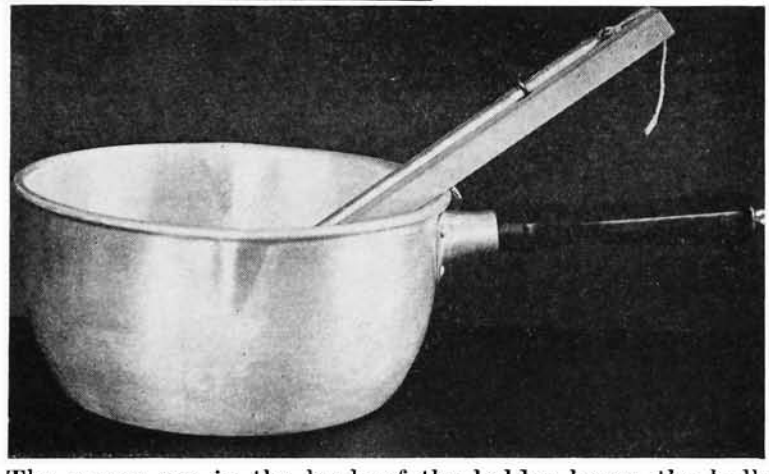
Candies that must be poured hot should go into lightly buttered pans. If one has a marble slab and a set of molding irons the candy pan problem is solved for all time in so far as stirred and poured candies are concerned.

Stirring Equipment

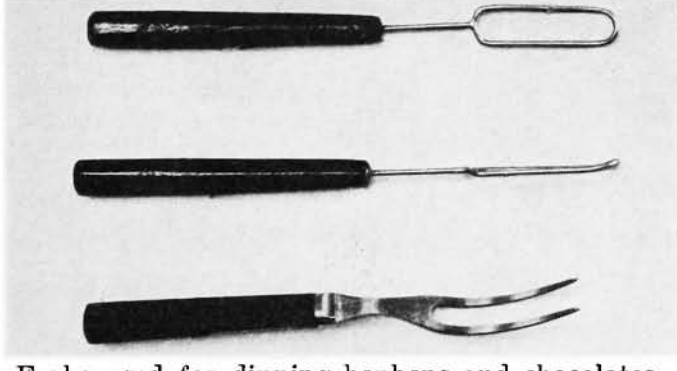
The stirring equipment should include a wooden spoon or small paddle, a large metal spoon—it may be of aluminum or of iron if tin-coated—and an egg beater. An egg whip is very useful for some operations but not necessary. If a marble slab is used, then one or two medium sized putty knives will be required for working stirred candies. An electric beater or mixer, if of sufficient size, will take care of a large part of the stirring and whipping necessary for home candy making. If the thermometer and holder described below under Measuring Equipment are available, the holder which is also a stirrer will take care of all stirring required during cooking and will do it more effectively than a spoon or paddle.



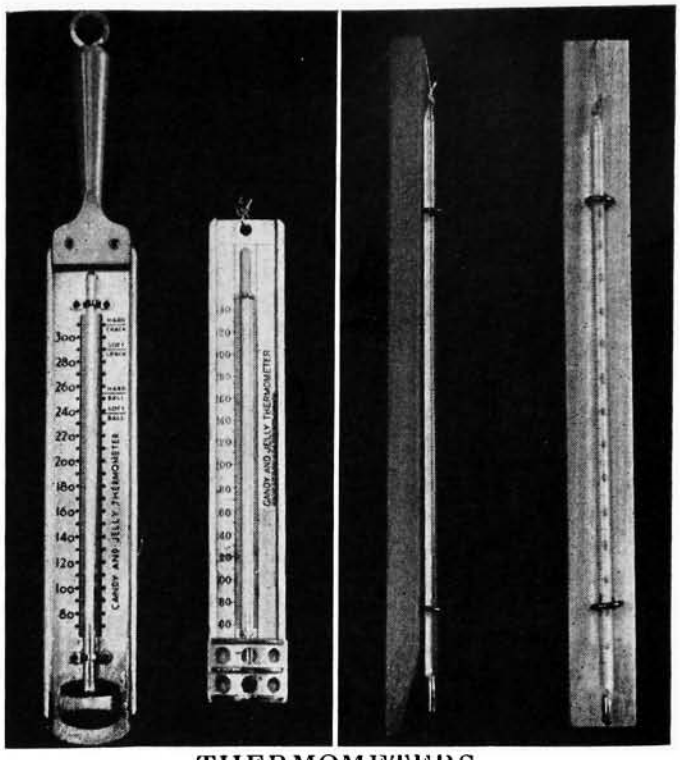
The thermometer holder used for stirring.



The screw eye in the back of the holder keeps the bulb of the thermometer in correct position.

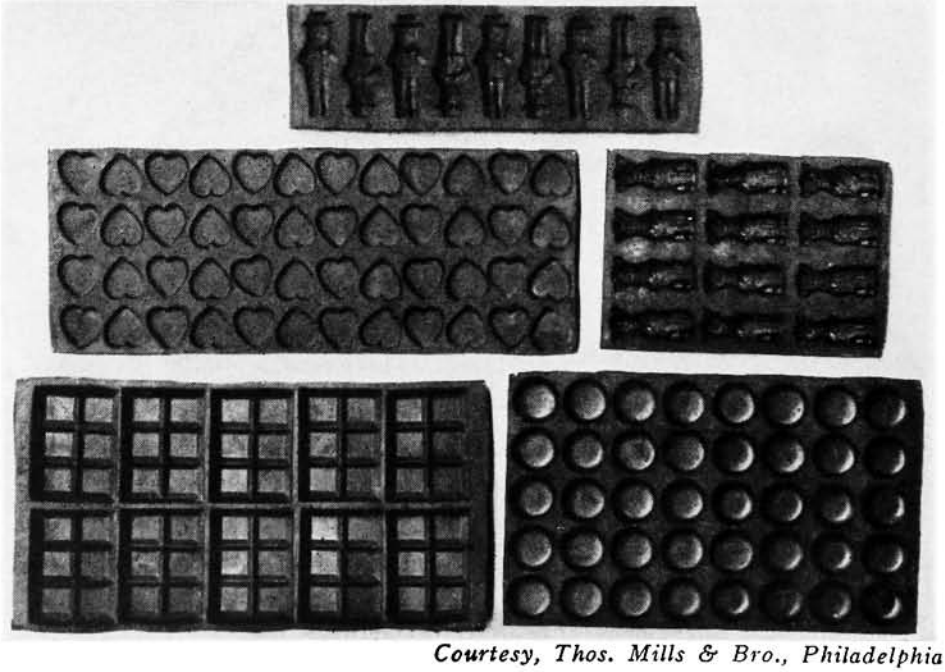


Forks used for dipping bonbons and chocolates.



THERMOMETERS

Left, two types of candy thermometers; *right,* chemical thermometers with "stirrer" holder.



Courtesy, Thos. Mills & Bro., Philadelphia

TYPES OF RUBBER MOLDS

Measuring Equipment

Success in candy making depends largely upon accurate measurement of materials and temperatures. The most important items under this heading are: a measuring cup, graduated in its fractional parts; a set of measuring spoons capable of measuring from one-fourth teaspoon to one tablespoon; scales of some sort that will weigh in ounces, and a good thermometer, preferably of the type known as chemical thermometer, which has the graduation marks etched on the glass stem. It is inexpensive, is easy to read and to wash, and will pay for itself many times over during a year of candy making.

In order to handle this type of thermometer most satisfactorily, a holder is necessary, the construction of which is relatively simple. Secure a piece of tasteless wood, preferably white wood, about 1½ inches wide, ½ inch thick and 12 to 15 inches long. One end of the piece should be planed or cut so that one of the flat surfaces will taper uniformly to a thickness of ⅛ inch at the end, beginning about two inches from the end. Cut off the other end so that the holder will be about one inch longer than the thermometer. Secure two brass screw eyes of size to admit the thermometer and place these on the flat side of the holder which you have cut to the tapering end. The screw eyes should be about two inches in from the end and should be countersunk so that when the thermometer is in position it will lie snugly against the holder. A third screw eye should be placed in the back of the thermometer holder in such position that it will catch on the rim of the saucepan

with the lower end near the center of the bottom. At the top of the holder, cut out a very narrow wedge-shaped piece. Tie a short piece of strong cord in the eye of the thermometer. When it is in position with its stem through the two screw eyes, the string is drawn into the cleft at the top so as to adjust the bulb of the thermometer just above the thin-edged bottom. Since the bulb lies over the tapered area, it is surrounded by the materials whose temperature it is to record.

This holder performs a double function. It not only supports the thermometer but also makes an excellent stirrer for all candies which require stirring during cooking.

Miscellaneous Equipment

The really necessary items under this heading would include: a large pair of scissors; a sharp knife (preferably two knives—one small, the other large, with long thin blade); a spatula of medium size (a table knife can be used in a pinch); one or two cake coolers; a large metal tray or cookie sheet; a two-tined fork, or a dipping fork (see Fork Dipping, in Chapter IX); a cutting board, which may also be used as a molding board; at least two medicine droppers for measuring flavors and colors; and a roll of heavy waxed paper, such as may be bought at the chain stores. Oilcloth may be used for making such candies as fondant mints, cocoanut patties and maple sugar discs.

Additional items desirable but not altogether necessary are a few rubber molds for fondant cream and maple sugar candies and a starch board or a pan which may be used as a starch board.

Chapter III

TECHNIQUE FOR THE CANDY MAKER

General Discussion

The ability to do many of the things required of the successful candy maker depends upon knowledge and experience. The quality of all candies is determined largely by the technique of the operator, i.e., the manner in which the materials are handled through each operation. Many of us have a limited ability to achieve a high technique, even though we have a thorough knowledge of the necessary requirements. Others easily achieve the high art of perfection.

There are a few practices which are fundamental to the production of quality confections. Without a knowledge of these, one must be satisfied with mediocre products and must of necessity have many failures. Some of the more important of these will be discussed here.

Measuring

The accurate measuring of materials is one of the fundamental rules of success. This is particularly applicable to the beginner.

All measures by spoon or cup should be level, not rounded nor heaped. Thin liquids like water and milk may be measured easily in a cup, but other materials

such as sugars, syrups, nut meats and cocoanut can be much more easily weighed provided facilities for weighing are available. For those who do not have scales the recipes include close approximation of measures. Also consult the table of Equivalent Weights and Measures, in the Appendix.

Cooking

When sugars and liquids are to be mixed, solution may be effected more easily if they are heated while they are being stirred. If sugar and water with acid are to be cooked together to make fondant or similar candies, much of the crystallization on the side of the vessel may be eliminated by covering the vessel for the first few minutes (3–5) after boiling begins. The steam will loosen the crystals, and they may then be easily scraped from the side down into the boiling liquid.

When milk products, chocolate, molasses or a few other similar materials are present, there will be less trouble from these crystals and the cover should not be used.

It is good practice always to wipe the side of the saucepan from which the materials are to be poured. The best time to do this is just after removing the vessel from the fire. A damp cloth will be found most effective.

It is not necessary to stir boiling mixtures of sugar and water, although no harm will result from such practice. Any candy which tends to "boil up" in the vessel will require frequent or continual stirring throughout the boiling period. Once the finish point is reached, stirring should cease except that which is necessary to

thoroughly mix some material which is added after the finish temperature is reached.

The Finish Point

A candy is at the finish point when it has been boiled long enough to give the sugar concentration necessary for the particular candy that is being made.

There are two methods in common use by which one may determine when the boiling material has reached the proper concentration. They are known as (A) the water test and (B) the temperature test.

A. THE WATER TEST

This method can give only a close approximation of the degree of concentration. In the hands of an experienced candy maker very good results may be had, but the beginner may expect many failures and many unsatisfactory candies.

The water test is based upon the fact that when sugar syrups are boiled to a certain minimum point of concentration or above, the hot syrup will no longer go into solution when poured into cool or cold water. On the contrary the syrup solidifies, and the character of the solid formed is an index to the concentration of the syrup. For pure syrups or for syrups containing only a small amount of solids other than sugar the minimum temperature at which a reliable test can be made is approximately 18 to 20° F. above the boiling point of water. Syrups which contain a large ratio of solids other than sugars will give tests at slightly lower temperatures.

Procedure

The water test is made as follows. Take a cup of cool water from tap or well, and into this pour about a teaspoonful of the hot syrup. After a moment or two, observe what has taken place. If the syrup has gone into solution its concentration is too low to give a water test. Replace the used water with fresh and after a short boiling make another test. It will be found that eventually the syrup will form a soft gelatinous mass, and subsequent tests after further boiling will show increasing hardness in the water-cooled syrup until the piece becomes very hard and brittle. These various tests indicate to the experienced person the approximate concentration of the cooking materials.

The temperature of the water in which the tests are made is an important factor. It should be self-evident that the colder the water, within certain limitations, the more pronounced will be the test and the lower the concentration of the syrup necessary to secure a desired test. Therefore, any rules formulated to guide the inexperienced worker in the use of the water test must be based upon a reasonably constant temperature of the water.

The guide set up here assumes the temperature of the water to be approximately 60° F. Water from the average tap or well will have that temperature for many months of the year. During the extreme months of winter and summer there may be considerable variation, and adjustments will need to be made if the temperature fluctuates more than ten degrees above or below the arbitrary temperature of 60° F.

It will be noted from the following table that there is considerable range for each test, and that each succeeding test merges into the next higher concentration so that accuracy of finish temperature is rather difficult, especially in the lower-cooked candies where a variation of one or two degrees may seriously affect the consistency of the finished candy.

At the time of making the test the cooking materials should be removed from the heat. If the test shows the concentration is too great a small amount of water (¼ cup) may be added and the materials recooked to the proper test.

WATER TEST FOR CANDIES [1]

Test	Degrees F. Above Temperature of Boiling Water
A small amount of soft gelatinous mass forms on bottom of dish. When disturbed forms threads and spirals.	18–19
A fairly firm gelatinous mass. May be lifted off bottom of vessel with a spoon.	20–21
A very soft ball. Can just be formed into a ball under water.	22–23
A medium soft ball. May be removed from water. Retains shape only momentarily in the hand.	24–25
A soft ball. Will retain shape for a half-minute when laid on the palm of hand.	26–27

[1] Temperature of water 60° F.

Test	Degrees F. Above Temperature of Boiling Water
A medium firm ball. Holds shape for considerable time when held in hand. May be rolled between palms or on table.	28–30
A firm ball. When dropped onto table top from height of 2 feet gives a dull sound—does not bounce.	32–34
Medium hard ball. Thrown onto table or floor with force flattens a little. Does not bounce.	36–38
Hard ball. Will bounce when dropped onto table from height of two feet.	40–42
Very hard ball. Can be formed into ball only with difficulty.	44–50
Medium crack. The threads and thin areas formed in the chilled mass are somewhat brittle while under water but become soft and plastic when removed. The mass is chewy and inclined to stick to the teeth.	54–65
Hard crack. The threads and thin areas formed in the mass remain brittle when removed to the air. They break easily and will not bend. The mass will crush easily between the teeth and does not tend to be sticky.	70–100

B. TEMPERATURE TEST

This test when properly made may be depended upon to give the desired finish point. Improperly or carelessly made, it has little advantage over the cold water test. There are two factors either of which may cause

a variation in the boiling temperature of water and consequently the finish temperature of candies. They are (1) elevation above sea level and (2) variations in the atmospheric pressure.

(1) At or near sea level with the atmospheric pressure normal—30 inches of mercury—the boiling point of water is 212° F. But if we go up into more elevated sections the boiling point becomes lower because the atmospheric pressure is less. In Laramie, Wyoming, with an elevation of more than 7,000 feet, the average barometer reading is 23 inches of mercury and the boiling point of water is 198° F. A candy, therefore, that would finish at a temperature of 238° F. in Boston would under average conditions be finished at 224° F. in Laramie. Or the candy would be at the finish point at either place or anywhere if cooked to a finish temperature of 26° F. above the temperature of boiling water.

(2) Because of weather conditions the atmospheric pressure at any given place will vary over a relatively wide range of 2½ inches as expressed in the barometer reading. This range in air pressure causes a corresponding variation in the boiling temperature of water. A change of ½ inch in the barometer reading will vary the boiling point of water by one degree. It is, therefore, impossible to give a reliable thermometer reading —expressed in degrees on the scale—that can be applied in actual practice which will give uniform results.

The Finish Temperature

It will be noted that throughout this book the finish temperature is given as so many degrees above the

temperature of boiling water rather than an arbitrary thermometer reading which cannot possibly have a very wide range of application. By a careful use of the method given here the finish temperature may be depended upon to give uniform results regardless of elevation above sea level or weather conditions.

The procedure recommended is as follows. The thermometer is placed in a small dish of water and boiled for 3 to 5 minutes or until the temperature remains constant. This thermometer reading is the temperature of boiling water for that time and place as registered by that particular thermometer. To find any given finish temperature add to the thermometer reading the number of degrees given in the procedure. This will give the temperature reading on your thermometer at which the candy will be finished. Because of weather conditions the boiling temperature of water should be determined each day candy is made. At no time should the bulb of the thermometer rest upon the bottom of the vessel, but the bulb should always be completely submerged in order to secure accurate reading.

When the thermometer reading approximates 230° F. the change in temperature of a boiling syrup is very rapid as cooking goes on. Therefore, if the thermometer is to give a true reading the rate of boiling must be slowed down in order to reduce as much as possible the lag of the thermometer behind the actual temperature of the boiling materials. In high-cooked goods, the last few degrees must be obtained by very slow cooking—in fact it may be necessary to lift the saucepan above the fire at frequent intervals long enough to secure accurate temperature readings. The thermometer should

not be clamped to the side of the vessel. It is much better to have the thermometer equipped as a stirrer (see Chapter II), thus enabling it not only to do any necessary stirring but to record the temperature more accurately.

Cooling

Many types of candies require cooling after they have been cooked in order to carry on subsequent operations necessary to their manufacture. If the candy has been cooked to a low temperature, it is usually best to transfer the hot material from the cooking vessel to a shallow pan or to a marble slab if one is available. At the finish point the candy is at or very near its point of saturation for that temperature, and any unnecessary disturbance will tend to cause crystallization (see Chapter V, Crystallization). There must be no dribbling of the syrup from the cooking vessel into the cooling pan, nor should the syrup be scraped out from side and bottom with a spoon.

Cooling should be as rapid as can be effected by ordinary means; i.e., have the syrup in a relatively thin sheet in the shallow pan, which should be supported above the table top by a cake cooler or similar device so that cooling may take place from both top and bottom. The cooling pan should be set in a cool place but not exposed to a wind as this will disturb the surface and cause crystals to form. The thermometer should not be placed in the pan until the syrup has cooled somewhat because crystals will form on the bottom of the pan along which the thermometer will scrape if the syrup is too thin. A good plan is to dip the tip of the

thermometer into the cooling syrup, getting it well covered. This syrup is smeared over a half-inch space on the top edge of the pan. If allowed to cool for a few moments, it will become quite viscous. The thermometer may then be placed in the syrup with the bulb submerged near the center of the pan and the stem firmly embedded in the smear of syrup on the edge of the pan.

A great many people can determine when the candy has cooled sufficiently by placing the hand on the bottom of the pan. If the pan feels slightly warm, it is assumed that the temperature is approximately 110° F. This is not always a safe method of testing because, while the hands of many have a temperature of 90 to 96° F., others have hands whose temperature is 80° F. or below. The safe method is to rely upon the thermometer.

Stirred candies, such as fondants, fudges, penuchi, should be cooled to around 110° F. if creamy candies are to be made. Taffies and others that are to be pulled should cool to a point where they can be handled with comfort. If making divinity, nougatines, marshmallows or similar types, the syrup may be allowed to cool in the cooking vessel for the few minutes necessary before pouring into the materials in which it is to be beaten.

Caramels and similar candies are poured into the candy pan and allowed to cool undisturbed to room temperature.

Completing the Process

The finishing process depends upon the type of candy and, while specific instruction is given under each

candy, a few words in general might well have a place in this chapter.

The finishing processes as a rule consist of some one or more of the following: (A) stirring, (B) kneading, (C) pulling, (D) cutting, (E) casting, (F) wrapping and (G) storing.

A. STIRRING

Stirring, whipping and beating are procedures which many candies require for their completion. These operations have one common objective, i.e., proper crystallization of the candy. Whipping or beating has also another purpose; that of including air which gives the characteristic texture to such candies as divinity, nougatines and the marshmallows. Any one of these movements applied to a cooled or partially cooled candy induces the formation of microscopic size crystals. Then before the crystals have time to grow to any noticeable size they are, because of the continued movement of the material, enveloped in a thin film of syrup or other retarder of crystallization such as butter fat or egg white. Once the stirring has begun it should continue uninterrupted until the completion of the process. A heavy spoon or paddle is best suited for stirring while an egg whip, egg beater or electric beater is more effective for whipping or beating.

Stirred candies as a rule are cooled to 110 to 115° F. before stirring begins. It is well to keep the syrup from the side of the pan as much as possible and to make sure all the syrup is thoroughly stirred. When creaming becomes noticeable there will be a change in both appearance and consistency. At this time it is most desirable

to work the candy well to one side or to the center of the pan so that when completed it is not spread all over the bottom of the pan but is in position to be formed into a lump for kneading. If stirring is carried too far or if the finish temperature has been too high, the candy may form a very firm mass almost too hard to handle. This condition may be overcome as follows. Wet a cloth or towel and wring it well, then spread it over the hardened candy and tuck it down snugly against the hard surface. After a half-hour or more it may be kneaded.

Quite often at the beginning of the stirring there will be a few noticeable size crystals on the bottom of the cooling pan. If the bottom of the pan is pretty well covered, the best procedure is to carefully transfer the syrup to a clean pan as quickly as possible and start the beating at once.

B. KNEADING

Kneading is the operation of working a stirred candy in the hands or on the molding board after stirring. The purpose of kneading is to give a more creamy consistency to the candy than can be had through any other simple process. The heat of the hands combined with the movement of the particles causes some of the crystals to go into solution in the syrup present, which makes the mass soft and plastic. Excess kneading, therefore, may result in a candy too soft for practical purposes while on the other hand a stiff dry batch of fondant or fudge may be turned into a soft and plastic candy by judicious kneading.

As soon as the stirred candy becomes too heavy to

manipulate with the stirring spoon, it should be taken into the hands or transferred to a molding board for kneading. If the candy is left too long in the pan, uncovered, after stirring it may form a hard mass which should be treated as directed under Stirring. It is not enough to form the candy into a ball, and roll it around over the board or in the hands. Pressure should be applied to cause the entire mass to move throughout and to become thoroughly mixed. If fondants and fudges are kneaded as though to thoroughly distribute an added color or flavor, a real job of kneading will be done.

Fudges that are stirred to the heavy dough stage, then properly kneaded, will have much better keeping quality than those that are poured into the pan and allowed to complete their crystallization from the semi-fluid condition. Kneading is useful in making hand-molded fondant creams, as both color and flavor may be thoroughly distributed by this process.

Divinity and nougatines should not be kneaded because it will expel the air which has been incorporated by beating and will therefore injure the texture. These should be handled only just enough, after beating is completed, to arrange them in the pans.

C. PULLING OR STRETCHING

The kind and amount of pulling given to taffies is determined in considerable degree by its character. Pulling tends to "shorten" the candy, aerates it, and in some kinds determines the characteristic color and general appearance. If pulled candies are high-cooked goods—

270° F. or above—they must be pulled near a source of heat. Lower-cooked goods may be pulled at room temperature.

The candy puller should grasp the taffy by the tips of the fingers and thumb and exert only the minimum amount of pressure necessary. If the candy is grasped tightly in the hands while pulling, much of the air will be pressed out, and one of the objectives of pulling will be defeated; i.e., the taffy will tend to be heavy and vitreous instead of light and porous. Pulling should continue until the piece becomes quite elastic and should cease just short of the condition where it becomes so "short" that when stretched to arm's length it breaks apart. When a candy is fairly well finished, an examination will show the surface is composed of a great many tiny parallel ridges and grooves. Also, if stretched out a few inches and released, it will contract and thicken the extended part.

The change in color due to pulling is caused primarily by the inclusion of air, which tends to reduce the intensity of the color. In some cases this change may be the result of the oxidation of the color bodies.

Properly made taffies will not stick to the hands during pulling. If the candy should for some reason become sticky, dust the hands with a small amount of powdered sugar.

The nut brittles are not, strictly, pulled candies but are poured out in a thin sheet which usually should be stretched as soon as cool enough to handle. This is done by taking hold of the edge and pulling the sheet out for several inches. By having the candy thin its eating quality is greatly improved.

D. CUTTING

In cutting caramels, nougatines and other wax-like pan candies the procedure is as follows. The sheet of candy is removed from the pan to the cutting board. Two small blocks of wood are placed one on each side of the candy. These are to be used to hold the candy in place with the thumb on one piece and the tips of the fingers on the other. A slender-bladed sharp knife is best for cutting. The knife is drawn across the piece at the place desired with just enough pressure to make a shallow cut. Then the knife is moved back and forth across the piece in this groove until the strip is separated from the piece. Only moderate pressure is necessary. If the knife is forced through the piece with heavy pressure the finished pieces will be pressed out of shape. When the piece has been divided into strips each strip is taken separately and cut into suitable lengths. This cut may be made with downward pressure only if the knife blade is a thin one.

Fudges and other soft pan candies are usually cut through by using the extreme outer portion of the knife blade. The knife is held at an angle of about 45 degrees, and as it is drawn across the piece it should be given a slight sawing or up-and-down motion. If the candy is soft or sticky and adheres to the knife, the blade should be wiped clean after each cut or as often as is necessary in order to have pieces with smooth surfaces. When the piece has been divided into strips these are then cut into lengths as desired.

Pan candies should never be cut in the pan. Only a sharp knife should be used. If for some reason the wax-

like candies tend to stick to the bottom of the pan, they may be easily removed if the pan is passed a few times over a flame or is set over a hot plate just long enough to heat the tin through. Be careful not to overheat.

After dinner mints, taffies and marshmallows are most satisfactorily cut with a pair of medium or large scissors. Taffies are pulled into the size cylinder desired in the candy and are then cut into short lengths with the scissors. If the taffy has been thoroughly pulled, it will be quite elastic; and the beginner is often surprised to find that even though the candy has been pulled to a half-inch cylinder and cut to lengths of 1½ inches, the pieces after a short time are almost as thick as they are long. In order to avoid this the candy should be pulled and cut into lengths of a foot or more; and should these contract they may be again stretched out to the former length and then cut into pieces for wrapping.

A few hard candies, such as butterscotch, molasses sponge and hard toffees, are creased or marked while still hot so that when cold they may be broken along the creases. The marking or creasing must be done just as soon as the surface of the piece has cooled enough to hold the impression. The piece is creased off in one direction, say lengthwise, to divide it into strips of suitable width—½ to ¾ inch. After a short interval to allow these to set, the piece is creased across the first set to form squares or suitable sized rectangles.

The knife should not cut through the cooled surface but rather should force it downward into the softer material beneath, thereby leaving a true crease rather than a cut. When cold the piece may be easily broken along the marks.

E. CASTING

The home candy maker will be limited to a very few of the cast candies because of lack of proper equipment. These few may be grouped into two classes: (1) those which require molds, and (2) those which do not require molds.

(1) Molds for making cast candies are of two types: (*a*) temporary and (*b*) permanent.

(*a*) Temporary molds are usually made with cornstarch. They function only for the one casting and must be re-formed for subsequent use. (See Uses for Fondant, in Chapter VI.)

(*b*) Permanent molds are of rubber or metal. These may be had in an almost infinite variety of both size and form. They are rather expensive, and rarely will the home candy maker use them unless a market has been established and candies are made for sale. The procedure in casting is the same as for starch molds (see Chapter VI).

(2) Cast candies without molds. These candies are made by placing the desired amount of a finished candy, in a liquid condition, on a surface where it cools and hardens. The surface used for the casting will depend in some degree upon the temperature of the candy. The low-temperature candies, such as fondant creams (see Chapter VI), may be cast on waxed paper or oilcloth. The high-temperature candies, such as butterscotch and lollipops, should be cast on a very lightly buttered metal surface—preferably the bottom of an inverted tray or a cookie sheet.

In casting high-temperature candies the general

practice in the kitchen is to form discs. These may vary in size to suit individual preference. Their thickness will be determined by the consistency of the liquid candy and the temperature of the surface upon which the candies are formed.

Without special equipment the home candy maker's method of casting will be to transfer, with a spoon, the liquid candy from the containing vessel to the molds or casting surface. A tablespoon is the most suitable size. The procedure is as follows.

The liquid candy should be near the molds or casting surface, and the top of the vessel should be at about the same level as that of the molds. The casting spoon is dipped into the candy, and sufficient liquid is taken to form the pieces. The bottom of the spoon should be cleared of syrup either by quickly revolving the spoon with the fingers or by scraping the bottom of the spoon with a stirring spoon or spatula. Avoid scraping the spoon on the top edge of the containing vessel. The candy in the spoon is transferred to the molds or casting surface. It is held at a height of about 1 inch and quickly turned so that the contents may flow readily from the side of the spoon with the flow all at one point into the piece being cast. When enough has been deposited, the spoon is given a quarter-turn so that its bottom is down and the flow is immediately stopped. High-temperature candies like the butterscotch are quite liquid and flow readily, while the heavier fondants and other low-temperature candies flow with difficulty.

It will require only a little experience to enable the average candy maker to cast disc and molded candies quite rapidly and to have the finished pieces sufficiently

uniform in size and shape to meet all ordinary demands.

The candies which are most commonly cast are centers for bonbons and chocolates, assorted mints or fondant cream candies, marshmallow, sea foam, maple sugar, divinity and cocoanut patties among the low-temperature candies, and butterscotch, lollipops, hoarhound drops and scotch kisses among the high-temperature candies.

F. WRAPPING

Many types of candies require wrapping if they are to be packed, shipped or stored. In fact, if some of these are inclined to be sticky, they should be wrapped even for home consumption.

If the regular commercial wraps are not available, the waxed paper wrapper of bread or other similar foods may be used in an emergency. The waxed paper sold in rolls at the ten-cent stores and labeled "heavy" or "extra heavy" will give very satisfactory results because it is of approximately the same grade as the commercial wrappers except it is not cut to size. The standard sizes are: kiss wrappers, 4 by 5 inches; caramel wrappers, 2½ by 4 inches.

There are two general styles of wrapping candies. (1) The candy is rolled in the wrap, and the ends, which should extend approximately 1 inch beyond the piece, are grasped between the thumb and finger and are given a half or one full twist to form the commonly used kiss candy wrap. (2) The piece is wrapped in a paper the ends of which extend approximately ½ to ¾ inch beyond the piece. These ends are so folded as to form the well known caramel wrap except the home

candy maker instead of bringing the folded ends upward from the bottom to lie at the ends of the piece, folds them downward and under so that when the wrapped piece is placed on the table or in the box it rests on the folded ends and does not, therefore, come unwrapped as readily as when they are folded upward against the ends. Wrapping not only adds to the appearance and ease of handling, but will in most cases prolong the life of a candy that tends to become dry and hard when exposed to the air, and of one that absorbs moisture and becomes sticky.

G. STORING

The storage life of most homemade candies is relatively short. Proper storage, wrapping in waxed paper and crystallization are means to increase the period over which candies are in good eating condition. A few candies—especially the hard candies—tend to absorb moisture and will eventually become sticky. These should be wrapped in waxed paper and given dry storage. Dry jars or tin cans which have tight covers are useful for storing such candies during periods of high humidity. Others, such as the pan candies, bonbons, creams and other cast and molded types, tend to lose moisture and to become hard and unpalatable.

Pan candies will keep best in the pan with a cover of waxed paper.

The Use of Colors and Flavors

Colors and flavors are used especially in the fondant and stick candies, some kinds of taffies and to a less extent in a few of the pan candies.

The average home candy maker will not wish to crowd her pantry shelves with a large assortment of colors and flavors, nor is it necessary that she do so. A few of each, well chosen and properly used, will meet all ordinary needs.

There are to be found on the market small cartons which contain four or more of the most important colors in liquid form. These are ideal for the kitchen and the small laboratory. Should these not be obtainable, the next best source is the small jars of paste colors which can be found in almost every town and city.

The more commonly used flavors in the form of extracts may be bought in the grocery stores and markets. In fact, most of the flavors used in home candy making are to be found in well equipped kitchens.

The amount of color and flavor to use with a pound of candy must be determined by trial. In the recipes which follow, amounts are given; but these are only suggestive. Tastes differ over a wide range, and the strength of the colors and flavors varies with the different brands. In many cases, such as the fondant candies, the flavor may be added a little at a time and the candy sampled after each addition until the desired flavor is obtained. Most flavors, especially the oils and extracts, are highly volatile and should not, as a rule, be added until the candy has cooled considerably below the finish temperature. Vanilla is less affected by high temperatures.

Color may be added in much the same manner as flavor, except that the proper amount is determined by sight rather than taste. The aim should be to have light shades rather than dark except in those cases where the

light and dark shades of the same color are used to distinguish certain flavors.

The following flavors and colors are suggested for the inexperienced candy maker.

Flavors: lemon, lime, orange, peppermint, spearmint, vanilla and wintergreen.

Colors: green, orange, red and yellow.

SUGGESTIONS FOR COLOR-FLAVOR COMBINATIONS

Color	Flavor
Green—pale	Pistachio
Green—light	Lime
Green—medium	Spearmint
Heliotrope (red and blue)	Heliotrope
Orange	Orange
Pink—light	Wintergeen
Pink—dark	Raspberry, strawberry
Red—light	Clove
Red—dark	Cinnamon
Violet (red and blue)	Violet
White	Almond, peppermint
Yellow—light	Lemon
Yellow—medium	Peach, banana

Chapter IV

CLASSIFICATION OF CONFECTIONS

"Confection" is defined as "a preparation of fruits or roots, etc., with sugar; a sweetmeat." This definition, while somewhat indefinite, includes a rather large field composed of several groups, each having its own distinctive characters.

A classification of confections may not have even a passing interest to the home candy maker, but to the teacher and the student it should be very much worth while as another aid to a more comprehensive understanding of the whole subject of confections; and it is to meet this need that the following classification is offered for whatever of worth it may contain.

I. Medicines

Confections in this group are supposed to have some specified medicinal or therapeutic value. The medicine itself is concealed or masked by materials which readily appeal to the eye or the taste. Their number is legion, but among them are the familiar sugar coated pills, sugar tablets, cough and throat lozenges, and medicated chewing gum.

II. Fruit Confections

Fruits enter to a large extent into the manufacture of confections. They are used in many ways either by

themselves or as accessory materials in combination with others in the production of many varieties of products. Only those in which fruits predominate will be considered here.

A. CANDIED FRUITS

These are entire fruits or relatively large pieces of fruits so highly impregnated with sugar as to be thoroughly preserved. This impregnation of sugar takes place while the fruit is submerged in a sugar syrup whose density is gradually increased until it reaches the point just below saturation. The fruit is then air-dried to a good handling condition. These candied fruits may be eaten out of hand, or they may be utilized in the production of other confections.

B. PASTES

The fruit pastes are made by combining the crushed or finely chopped pulp of the fruit with sugar. The fruit may be fresh, canned or dried. Fresh and canned fruit pastes are cooked to the desired consistency while those made from dried fruits are uncooked. Fruit pastes may be eaten out of hand, or they may be used as accessory materials in making other confections. They are especially acceptable for making centers for dipped candies.

C. LEATHERS

Fruit leathers are made from the crushed or finely divided pulp of fresh or canned fruit. Usually sugar is added in sufficient quantity to make the leather palat-

able. This soft pulpy paste of sugar and fruit pulps is spread in thin sheets on trays and dried or evaporated beyond the point of stickiness. When sufficiently dried the leather is formed into a compact roll. As a general rule they are eaten out of hand.

D. JAMS AND JELLIES

These fruit products find many uses in modern confections. They differ from the ordinary table jellies and jams in that they are much firmer and have more of a gum-like consistency which has been attained through a higher cook or by the addition of some jellifying material, such as starch, gelatin or pectin. Their two principal uses are to form centers for dipped candies and to be eaten out of hand after they have been crystallized or sugar coated.

E. STUFFED FRUITS

The seed cavity of evaporated or dried fruits, such as figs, dates, prunes and raisins, is filled or "stuffed" with nut meats, fondant or a combination of nuts and fondant or with fondant and bits of candied fruits. These are among the choicest of the fruit confections.

III. Candies

Candies belong to that group of confections whose base is sugar—often mixed or blended with some one or more of a large number of accessory materials in order to secure a definite texture, consistency or flavor. Since

candies comprise by far the most important group of confections, they have become almost synonymous with the term "confection."

Various attempts have been made to classify candies; but as yet no very satisfactory classification has been made, nor do the writers seem to agree. There are several bases upon which a classification might be made, but for the general purposes of this discussion an attempt will be made to group them according to their distinguishing characteristics and according to their methods of production.

A. SOFT CANDIES

These candies are, as a rule, finished at a temperature below 250° F.; if a part of the materials is cooked to a higher temperature subsequent treatment will produce a candy that may be readily bitten and easily chewed. They vary in texture: some are soft and creamy, others are wax-like, and still others are light and fluffy. Except those that are given a crystalline coating, they are all free from noticeable size crystals.

The soft candies usually made in the home kitchen and laboratory may be classified as follows:

1. Stirred or Beaten Candies

Stirred candies are characterized by their soft creamy consistency. They include the fondants and fudges. Beaten candies have a porous texture and a soft fluffy or soft wax-like consistency. Marshmallows and nougatines are common representatives.

2. Poured Candies

This is a relatively small group whose texture is jelly-like or waxy. It includes the soft caramels, toffees, fruit jellies and fruit pastes.

3. Molded Candies

Most of these candies depend upon a form to retain their shape until they harden. A few may be shaped or molded in the hands. The most important ones are centers for bonbons and chocolates, gumdrops, fruit jellies, marshmallows, fondant creams and maple sugar. The molds may be of metal, rubber or starch. The latter is most generally used for centers, fruit jellies and gumdrops, while the rubber molds are used for the fondant cast candies, and for maple sugar. (See Casting, in Chapter III.)

4. Dipped or Coated Candies

The candies in this group consist of two parts—the center and the coating. The coating is applied by dipping the center into a liquid material which hardens quickly. Bonbons and chocolates are the more common candies in this class. Soft caramel is used occasionally as a coating medium.

5. Crystallized Candies

Crystallized candies include such of the soft candies as have been subjected to treatment through which each piece is given a covering of fine sugar crystals that

have been deposited upon it from a heavy sugar syrup. (See Chapter V, Crystallization.)

B. HARD CANDIES

Hard candies are those whose finish temperature is above 250° F. They vary in their degree of hardness from the soft creamed after dinner mints and the chewy, wax-like taffies to the hard and brittle lollipop and glacé coating. They are alike in their texture in that they are non-crystalline. They may for all practical purposes be classed in the following groups.

1. Pulled Candies

These candies undergo, in the final stage of their production, a long pulling process in order to develop the characteristic texture and consistency. There are two types under this group.

a. Taffies:

The taffies have the characteristic wax-like consistency which gives them their chewing quality, and which should persist throughout their life.

b. Creamed Candies:

The creamed hard candies are those pulled candies which, because of the small amount of "doctor" added, will undergo a creaming process after a few days in storage. After dinner mints and many of the stick candies comprise this group.

2. The Brittles

The brittles are hard and usually porous. They are poured candies which upon sufficient cooling may be stretched to reduce their thickness and to give them a lace-like appearance. They are named from the material added to the hard-cooked taffy, which gives to each its characteristic appearance. The more important ones are the nut, cocoanut, popcorn and cereal brittles.

3. Poured or Molded Candies

These candies may be cast in molds, poured into pans or dropped onto waxed paper to form discs. The more important ones are butterscotch, nut bars, hoarhound drops and sticks, lollipops and a few others of less importance. (See Casting, in Chapter III.)

4. Dipped Candies

The dipped candies are among the least important of the hard candies. They include the glacé nuts and fruits, apple on a stick and a few others of equal or less importance.

5. Nut Candies

Nut meats afford materials for a great variety of candies and nut confections. These candies so overlie and are so interwoven among the groups already discussed, where they are used for their food value and for flavor and appearance, that to attempt to classify them here would but involve needless repetition.

C. MISCELLANEOUS

This is a sort of "waste basket" in which those candies not readily classified in the foregoing groups may be placed. One important group is the popcorn and cereal confections, all or most of which are high-cooked goods.

Chapter V

CRYSTALLIZATION

An understanding of the general principles of crystal formation as applied to candy making will often guide the home candy maker in many of the processes used. Also, it will aid materially in making clear the "why" of many operations and will offer an explanation for many failures.

Saturated Solution

A saturated sugar solution is one in which the water or other solvent has dissolved all the sugar possible at that temperature. Any increase in the temperature will permit more sugar, if present, to go into solution until the syrup again becomes saturated at this higher temperature. Any reduction of the temperature of a saturated solution produces what is commonly called a supersaturated or an unstable solution. Under ordinary conditions the excess sugar in a syrup of this nature will be precipitated in the form of crystals until the syrup again becomes a saturated solution. Under special conditions the excess sugars will not crystallize out and the solution will remain supersaturated until the conditions are changed. For example: If a syrup is at the point of saturation at a temperature of 120° F., it may

be cooled to room temperature without depositing any crystals provided it is kept perfectly still. The two common methods of disturbing this unnatural condition of a supersaturated solution and thereby causing crystallization are: (1) agitation or movement of the solution; (2) the introduction of mother crystals of sugar.

1. Agitation

Any disturbance which changes a supersaturated syrup from a state of rest, i.e., static condition, to an active or moving condition will cause sugar crystals to form. The size of the crystals will depend upon the rate of formation and the opportunity given for growth of the nuclei crystals, which are the very first to form and which are microscopic in size.

2. Mother Crystals

The introduction of sugar crystals (mother crystals) into a saturated or supersaturated syrup will cause the syrup to deposit some of its sugar in the form of crystals. If the liquid is very near the point of saturation the crystals introduced will function as nuclei crystals upon which large crystals will grow. These, if formed slowly over a period of days or weeks, will be quite large, often an inch or more in length. This type of crystallization is used to produce the familiar rock candy, which is only a mass of sugar crystals deposited upon a string which, previously to its introduction into the syrup, had been "seeded" with sugar crystals.

If the solution is slightly supersaturated the crystals will form quickly—within a few hours—and will be

quite small. This principle is applied in the production of crystallized candies and confections. But if the solution is highly supersaturated the entire body of syrup will quickly become a mass of fine to coarse crystals. This type of crystallization is typically illustrated by the crystalline fudges and fondants which not infrequently owe their character to the introduction of mother crystals.

Prevention of Crystallization

The prevention of noticeable size crystals in stirred, poured and pulled candies is of great importance. Stirred candies should have a smooth creamy texture. Pulled candies should be wax-like. While the consistency of poured candies varies from the soft wax-like caramel to the hard brittle of butterscotch, they are all alike in that they are free from noticeable size crystals. If crystals are formed in any of these candies during the manipulation which follows cooking, the candy will be off-type and may be unfit to serve. There are three principal factors, any or all of which may cause the formation of undesirable size crystals in candies.

1. Mother Crystals

Mother crystals may be introduced into the candy when the hot syrup is poured from the cooking vessel, or if the syrup is cooled and stirred in the vessel in which it was cooked. This latter practice is almost sure to result in an undue amount of crystallization and should never be followed. The introduction of mother crystals during the operation of pouring the hot syrup from the cooking vessel can be eliminated by carefully

wiping off the crystals from the pouring side of the vessel with a damp cloth. The cloth may be held in the hand or wrapped around a spoon or paddle. This should be done immediately after the vessel is removed from the fire at the close of the cooking period.

2. Use of Retarders or Doctors

The introduction into a sugar solution of certain materials known as retarders or doctors has a profound effect upon crystallization, and the candy maker depends upon this well known principle to prevent the formation of crystals in candies that are not of a crystalline character. These materials when present do just what their name implies. They retard or slow down the process, and they envelop the nuclei crystals so that they cannot grow larger; or we might say they doctor the syrup, thereby preventing crystal formation under normal procedures.

If one or more of these retarders are present in sufficient amounts, crystal formation is practically impossible.

The materials commonly used as retarders are corn syrup, honey, dextrose, invert sugars, fats, oils, albumen, gelatin and acids. The relative amounts of these materials to add will differ according to the type of candy and whether used singly or in combination with one or more other retarders.

3. Temperature

The temperature at which the syrup is manipulated after the cooking is determined by the kind of candy being made. Some are handled hot, others must be cooled

to a relatively low temperature. This last group includes fondants, fudges and taffies. And this group requires the least amount of retarders.

Crystals form more freely in a relatively liquid syrup because there is less obstruction to movement of sugar to the nuclei crystals. Since a syrup is thinner when hot than when cold, it naturally follows that a hot syrup, while considerably less supersaturated than a cold one, will crystallize more readily than a cold syrup which is heavy and viscous. Therefore, the importance of cooling most syrups to a relatively low temperature before they are disturbed becomes readily apparent. The best stirring or pulling temperature is 100 to 115° F. A few, like maple cream, must be cooled to an even lower temperature.

Any disturbance of a cooling supersaturated syrup will start crystallization, and once begun it will generally proceed until the action is complete. The introduction of a thermometer into a pan of hot syrup with only slight unnecessary movement will start crystallization at the point of disturbance. Or if the cooling pan is set where a strong breeze passes over the surface, it will later be found covered with a coat of sugar crystals. Stirred candies which are to have a smooth, creamy consistency should be cooled undisturbed to the proper temperature, and once stirring begins it should not cease, more than momentarily, until the operation is completed.

How a Stirred Candy Behaves

All fondants and fudges have a crystalline structure, but the crystals are of microscopic size; and since they

are too small to be noticeable they do not impress the casual observer as being crystalline.

In this group of candies the materials are cooked to a definite degree of sugar concentration. The syrup is then poured into clean pans or onto a slab to cool. Care must be taken not to introduce any mother crystals during the pouring operation. This is prevented by (1) removing the crystals from the pouring side of the cooking vessel with a damp cloth before pouring, and (2) pouring out only the syrup that will flow freely from the vessel. The syrup that adheres to the side and bottom of the cooking vessel must not be scraped into the cooling syrup.

The syrup is allowed to cool undisturbed to a relatively low temperature, 100 to 120° F., before stirring. As soon as stirring begins crystals start to form. These are the nuclei crystals, and they are microscopic in size. If left undisturbed they will grow to large size, but because of the constant movement resulting from stirring, the nuclei crystals are removed from their place of formation and become enveloped with a film of the retarder—syrup, invert sugar, etc.—and as a result their growth ceases. This crystallization process goes on slowly because of the viscous character of the syrup, and therefore some time is required to secure complete crystallization. As a final result the entire mass of sucrose, or cane sugar, is crystallized into microscopic size crystals each with its envelope of retarder, and it is this structure which gives the characteristic texture and consistency to this type of candies.

Candies which are stirred at a high temperature, 150° F. or above, will most likely have a distinct crys-

talline structure. This is probably due to the fact that the syrup is quite liquid at these higher temperatures and the sugar can move rapidly enough through this thin syrup to produce considerable growth of the nuclei crystals before they become enclosed in their protective film of retarder.

Crystallized Candies

Crystallized candies or confections are those which carry an outside covering of sugar crystals which has been deposited there from supersaturated syrup of cane sugar.

The objects of the crystalline coating are: (1) to improve the appearance of certain confections, and (2) to prolong the storage period by improving their keeping quality. The process of crystallizing confections effectively seals the pores in the pieces through which the moisture would otherwise evaporate. This loss of moisture causes many candies, such as bonbons, creams and fruit jellies, to become dry and hard within a few days under ordinary storage conditions. When such candies are crystallized their usefulness is extended over a period of many months.

Procedure

There are two general methods of procedure. They are known as (a) the pan method and (b) the tank method. They give equally satisfactory results.

(a) The Pan Method

The pan method requires the following special equipment: (1) one or more pans preferably 6 to 8 inches

wide by 10 to 12 inches long and at least 2 or 3 inches deep. (2) For each pan there should be at least one and preferably two wire trays of approximately half-inch or quarter-inch mesh. These may be cut from a sheet of cellar window wire and should just fit the pan. Each corner of the wire tray should be bent downward to form a leg about ¼ inch long. This will carry the candies above the bottom of the pan and prevent serious trouble. (3) A piece of good wrapping paper cut to fit the pan at the surface of the syrup. Its function is to reduce evaporation and consequent formation of crystals on the surface of the syrup. The sugar syrup and crystals may be washed from it and it can be used over and over many times.

(b) The Tank Method

If the crystallizing is to be done by this method the following equipment is required: (1) a tank or some vessel which will function as a tank. For ordinary home use a gallon earthenware jar with straight sides will usually give sufficient capacity. (2) A wire basket of size to fit the tank or jar. It may be made from half- or quarter-inch-mesh cellar window wire. (3) A piece of good wrapping paper cut to fit the tank or jar at the surface of the syrup. (4) A cover for the tank or jar.

Crystallizing Syrup

The crystallizing syrup may be made as follows: Mix together sugar and water in the ratio of 3 to 1, i.e., 3 pounds (6 cups) of sugar and 1 pint of water. Stir and heat to solution, then boil at a moderate rate

to a temperature of 8 to 10° F. above the temperature of boiling water as registered on the thermometer being used. Wipe off the crystals from the pouring side of the saucepan, and pour the hot syrup into the crystallizing tank or pans. Place the piece of wrapping paper on the syrup, cover the vessel, and allow to cool undisturbed to room temperature. At no time should this syrup be disturbed more than is absolutely required to carry out the necessary operations. A syrup made as directed above will be approximately 70 to 73 per cent sugar, which is the optimum concentration for good results.

Preparation of the Candy

The work in this line by the home candy maker will most likely be confined to the fondant and maple sugar types of candies. The pieces to be crystallized should be made from stock that is at least a day old. Also the pieces themselves, whether molded, cast or dipped, should stand for one or two days before they are crystallized. The procedure for molding, casting and coating fondant candies is discussed under Uses for Fondant, in Chapter VI.

The Process of Crystallizing

(a) Pan Method

If the pan method is used, proceed as follows: Lay the pieces on the wire tray so that they do not touch one another. Place the second screen or tray over the candies. Remove the paper from the pan of syrup. Rinse it in the sink to remove syrup and any crystals

that may have formed. Lower the tray of candies into the syrup with as little disturbance as possible. If the pieces do not tend to float, the upper tray may be removed. If the syrup is deep enough in the pan, this second tray may be loaded with candies and set over the first tray. Cover the syrup with the paper, restore the cover to the pan, and leave undisturbed until the desired coating of crystals has been deposited. The time required varies according to the density of the syrup, but a period of 6 to 10 hours will as a rule give satisfactory results.

At the end of the crystallizing period, remove the paper cover and wash it free from syrup and crystals, carefully lift out the tray of candies, allow to drain for only a moment and then set it into another pan. Raise one end so that it may have a slanting position. After draining for 2 to 3 hours, remove the candies to a clean wire rack or screen and leave until dry enough to handle.

(b) Tank Method

If the tank method is used, the procedure is practically the same as with the pan method except that the candies are filled into the wire basket to such a height that the top pieces will be at least a half-inch below the surface of the syrup. The crystallizing period is of the same length—6 to 10 hours. When the candies are sufficiently coated, lift out the basket and allow to drain for a few moments, then set it in a pan at an angle for further draining. At frequent intervals, change the position of the basket so that all the pieces may drain uniformly. Allow to drain for 4 to 6 hours, then spread

out on a wire tray until dry enough to handle. The advantage of the tank over the pan method is in the larger volume of candies which may be handled, with less manipulation of syrup.

Conditioning the Syrup

As long as the syrup itself does not crystallize, and as long as it gives satisfactory results, it may be used over and over again. Spent syrup, i.e., one that will no longer work satisfactorily, may be reconditioned by placing it in a saucepan with a little water, 1 cup per 2 quarts of syrup, and boiling it to the original finish temperature of 8 to 10° F. above the temperature of boiling water. In our own laboratories we have seen 10 small batches of candy put through a syrup with only two reconditionings. Naturally, there is a loss of sugar from the syrup, which will reduce the sugar content too low for successful work. There is also a loss in volume of syrup, which must be restored in order to maintain the proper depth in the crystallizer.

Reconditioning the syrup has the general effect of inverting some of the cane sugar through action of heat and possibly some acid which has come from any acid candies. If an appreciable amount of invert sugars is present, the syrup is no longer suitable for crystallizing. It should be used in other candy making, and a fresh syrup made to replace it.

Syrup Dipping

The home candy maker may look upon crystallization as too exacting. But it must be kept in mind that

a crystallized candy not only has had its life prolonged for many months but has been greatly improved in its appearance and eating quality. However, there is a very simple substitute for crystallizing which, while it may not add materially to the appearance of fondant and maple sugar candies, will prolong their period of usefulness. This substitute is syrup dipping. The procedure is as follows. Prepare a syrup as directed for crystallization. Fill the basket with candies and lower it into the syrup, and leave it there for 3 to 5 minutes. Remove and drain until the candies are free from excess syrup. If it is desired to keep the candies for more than 2 or 3 months, give them a second dipping as soon as they have dried from the first. One dipping will prolong the eating quality of cast or molded fondant or maple sugar candies well beyond 2 or 3 months. Two dippings will extend their keeping period beyond 6 months.

Syrup-dipped candies preserve their soft, creamy texture unimpaired with little change in their appearance. This method of extending the period of usefulness is recommended to those who may hesitate to try crystallizing. The final candies are not as "aristocratic-looking" as the crystallized ones; but their keeping quality as well as their eating quality has been greatly improved.

Chapter VI

FONDANT

Fondant may be described as a mass of microscopic crystals, each of which is surrounded by a film of syrup. It is assumed that in the commonly made fondant this syrup envelope is invert sugars.

Consistency

The consistency of fondant is determined primarily by the finish temperature and to some extent by the amount of kneading given at the close of the operation. If the finish temperature is too high the fondant will be dry and crumbly and therefore difficult to work, while if the finish temperature is too low the fondant will be too soft for most uses.

Texture

The texture is controlled by (1) the relative amount of retarding material, i.e., acid or syrup that has been added to the mixture, (2) the introduction of "mother crystals," (3) the temperature at which stirring is begun, (4) dribbling syrup from cooking vessel into the cooling pan.

(1) If insufficient retarder has been used, the fondant will most likely be crystalline unless the cooking

period is abnormally long. If too much retarder is added, it becomes very difficult to stir the syrup into the fondant form. It tends to remain a heavy, creamy syrup.

(2) The pouring side of the cooking vessel should be wiped free of crystals with a damp cloth at the close of the cooking, in order to avoid the introduction of sugar crystals into the cooling syrup. Also the syrup which adheres to side and bottom of cooking vessel must not be scraped into the cooling pan because this is an almost sure method of introducing crystals into the syrup.

(3) Fondants should not be stirred until they have cooled to at least 120° F. More satisfactory results will be had if the temperature is around 110° F. If stirring begins while the temperature of the syrup is 150° F. or above, a crystalline fondant will usually result, while, if the temperature is allowed to fall below 100° F., the fondant will most likely be too soft and creamy.

(4) When the syrup no longer flows in a stream from the cooking vessel into the cooling pan, the pouring should stop. Dribbling the last of the syrup is almost sure to start crystallization at the point where the drops and sheets of syrup fall into the cooling syrup.

Conditioning

A slightly overcooked fondant or one that has become too firm from exposure to air may be brought into good working condition by adding a small amount of a simple syrup (1 part water, 1½ parts sugar, heated to solution) and thoroughly kneading it into the fondant until it is of the desired consistency. If the

fondant is being melted in the double boiler, the syrup is added to the melting fondant and thoroughly stirred in to give the required consistency. A soft fondant may be improved by kneading in small amounts of powdered sugar. Kneading fondant in the hands causes it to become more plastic, from the fact that, because of the heat from the hands and the movement of the fondant, some of the minute crystals go into solution in their unsaturated syrup envelopes. This solution increases the amount of free syrup in the fondant, and it therefore becomes more nearly fluid in character.

The fondants are basic materials. They are used to produce many of our very common candies. The home candy maker should, therefore, become a good fondant maker because with this one product and through proper manipulation many varieties of candies become easily available. A properly made fondant may be kept for many months if stored in a closed vessel.

Kinds of Fondant

There are many kinds of fondant, but only two of them are of real importance to the average home candy maker. These are known as (1) acid fondant, because acid is used in its manufacture, and (2) syrup fondant, because some form of corn syrup is used with the granulated sugar in its production. Any kind of candy in which fondant is used may be successfully made with either of these two kinds. Writers do not agree as to the relative merits of the two fondants for general use, but in the writer's experience in laboratory teaching the acid fondant has proven more satisfactory. It contains,

when finished, not only glucose sugar which is added to the syrup type of fondant but also an equal amount of levulose, or fruit sugar, which adds to the life of fondant candies. It does not give quite the satin-like finish to bonbons that may be had with syrup fondant, but it will compensate for this slight difference in the greater ease in making.

RECIPES

Acid Fondant

This fondant is so named because acid of some kind is used to bring about the necessary inversion of some of the cane sugar to insure proper consistency and texture. Any considerable excess of acid should not be used because if too much inversion takes place fondant can be made only with great difficulty if at all. On the other hand, if not enough acid is added the fondant will grain or crystallize in large size crystals.

Any wholesome acid, such as citric, malic, tartaric, lemon juice, vinegar or cream of tartar, may be used. The last named is the one most generally recommended. It is flavorless, easy to measure, keeps well, and is generally available.

Acid fondants undergo a slight secondary inversion a day or two after they are made, so that fondant of this type will be softer and will generally handle better after it has ripened for a few days.

Materials:

2 pounds (4 cups) granulated sugar
1½ cups water
¼ teaspoon cream of tartar

Procedure:

Mix all materials and boil moderately to 26 to 27° F. above the temperature of boiling water as registered on the thermometer being used, or to a soft ball by the water test. Wipe off the crystals from the pouring side of the saucepan with a damp cloth, and pour the hot syrup into a shallow agate pan. Allow it to cool undisturbed to a temperature of 110° F. Stir the syrup with a heavy spoon or paddle until it is thoroughly creamed and of a cheese-like consistency. Take the mass into the hands and knead until it is quite soft and plastic. If to be stored for a few hours or for some days, place in a tightly covered vessel.

Syrup Fondant

This fondant is made by adding a small amount of "retarder" in the form of corn syrup. As a general rule it requires more stirring to secure perfect creaming than is required for acid fondant. It is preferred by professional candy makers for some candies, particularly bonbons, because of its glossy satin-like finish. Unlike acid fondant it does not undergo a secondary inversion after it is made. And, lacking the levulose, it tends to dry out more quickly.

Materials:

2 pounds (4 cups) granulated sugar
3 ounces (¼ cup) corn syrup
1 cup water

Procedure:

Place all materials in a saucepan, stir and heat to mix and boil moderately to 26–28° F. above the temperature of boiling water as registered on the thermometer being used, or to a soft ball by the water test. Wipe off the crystals from the

pouring side of the vessel, and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to 110° F. Stir thoroughly with a heavy spoon or paddle until the material forms a cheese-like mass. Take this mass into the hands or onto the molding board and knead until it is soft and plastic. Store in a covered vessel if to be kept for any length of time.

Coffee-Flavored Fondant

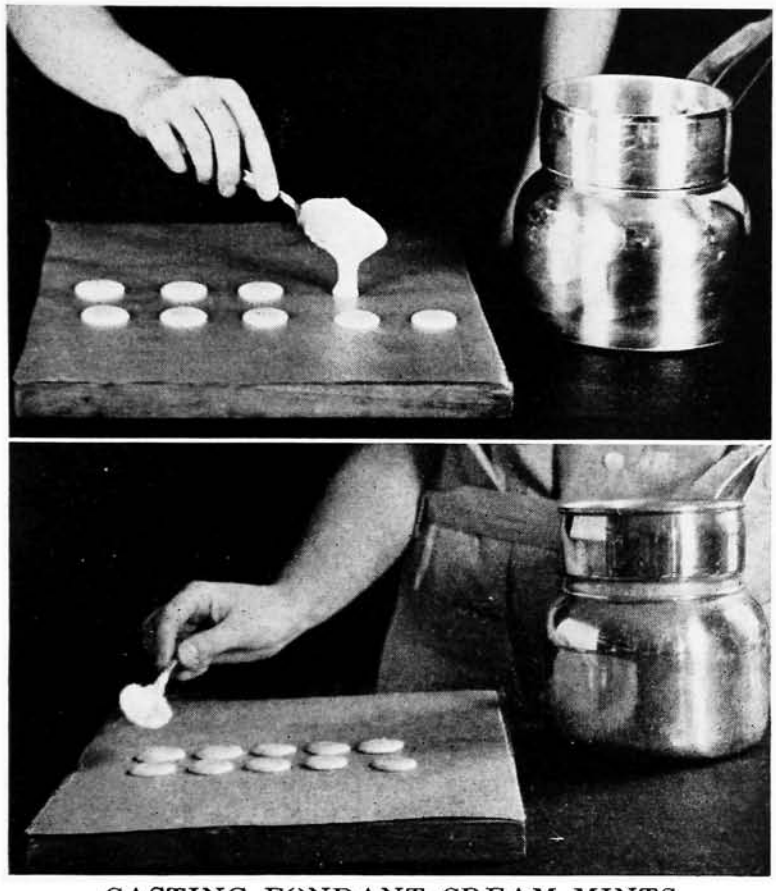
A coffee-flavored fondant may be made by substituting a cup of moderately strong coffee for the cup of water given in either of the foregoing recipes. This fondant will be especially appreciated when used for the centers for bonbons and chocolates.

Uses for Fondant

The confectioner finds many uses for fondant. It is the main constituent of all cream mints, is used for coating all bonbons as well as for centers of many of them. It is made into many kinds of centers for chocolates and is also used to enrobe all moist centers which are later to be chocolate coated. It is the main ingredient for stuffing dates, prunes and other fruits and is found in combination in many other candies, such as nut roll, fig bars, and dried fruit pastes.

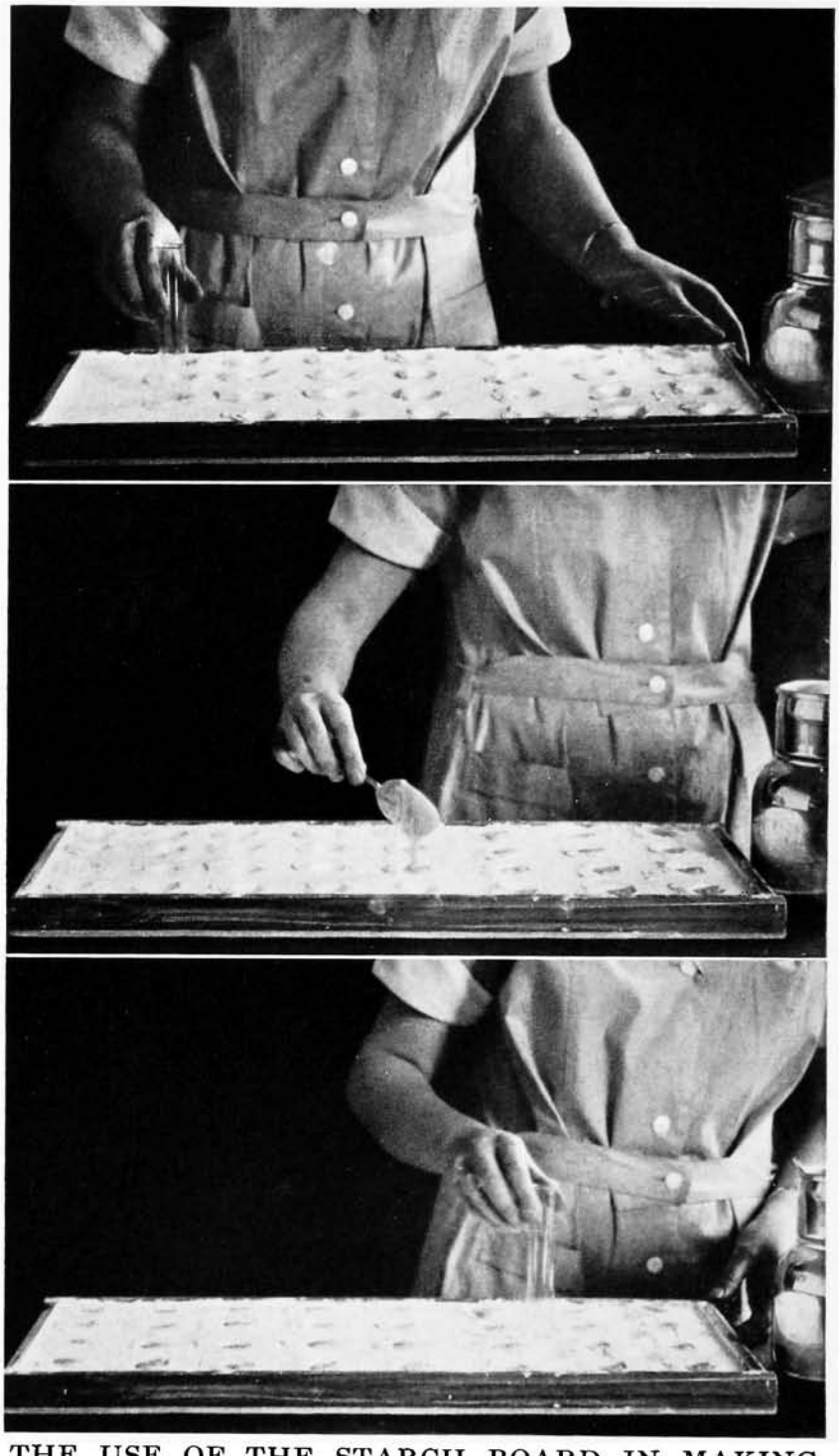
Centers

Centers for bonbons and chocolates may be made by casting them in starch or rubber molds. They may also be shaped or molded in the hands. By the proper use of colors and flavors an almost endless assortment of centers may be had.



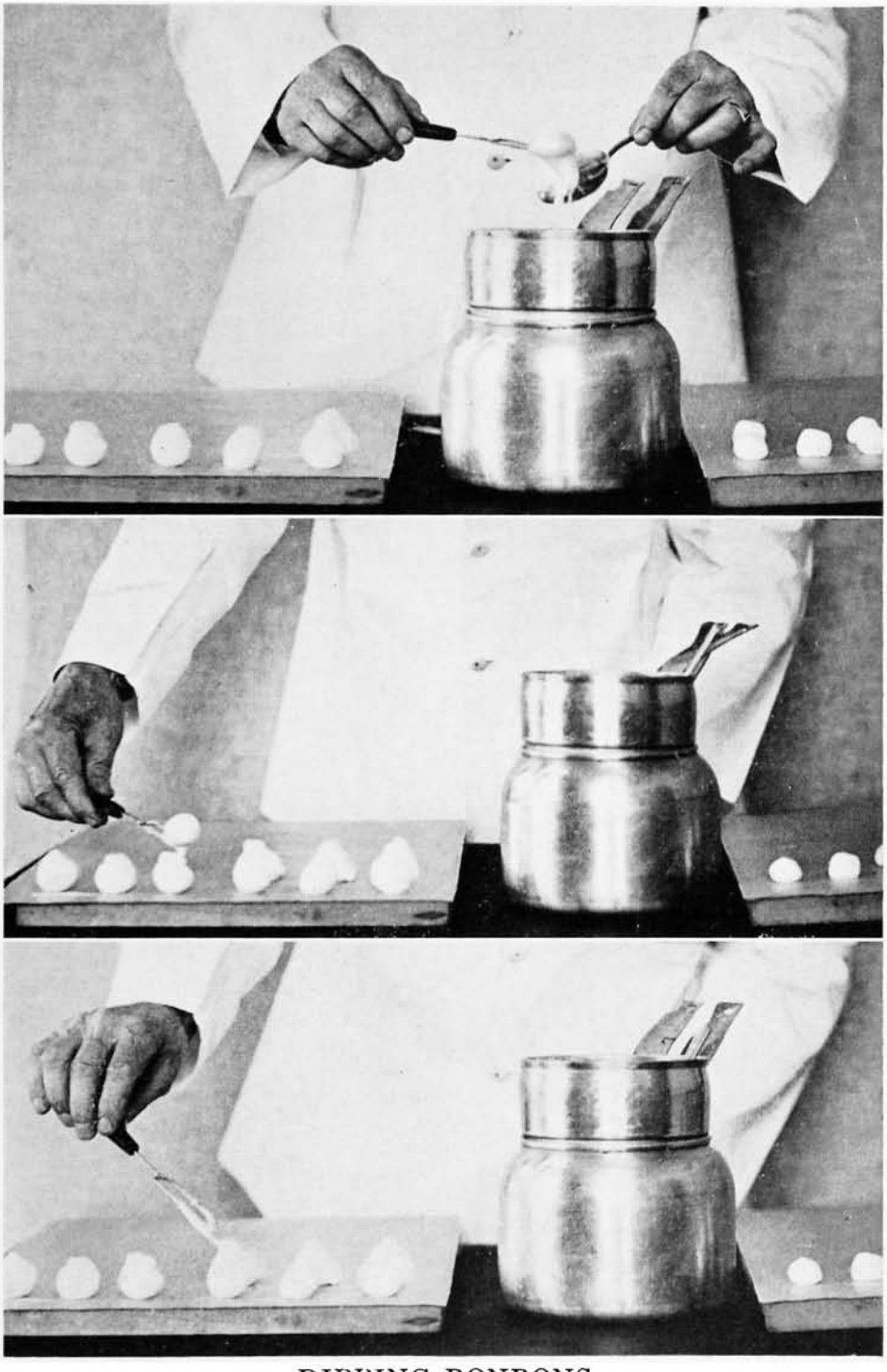
CASTING FONDANT CREAM MINTS
Pour fondant from side of spoon. Turn spoon bottom down to stop the flow.

Casting fondant cream candies with a dropping funnel.



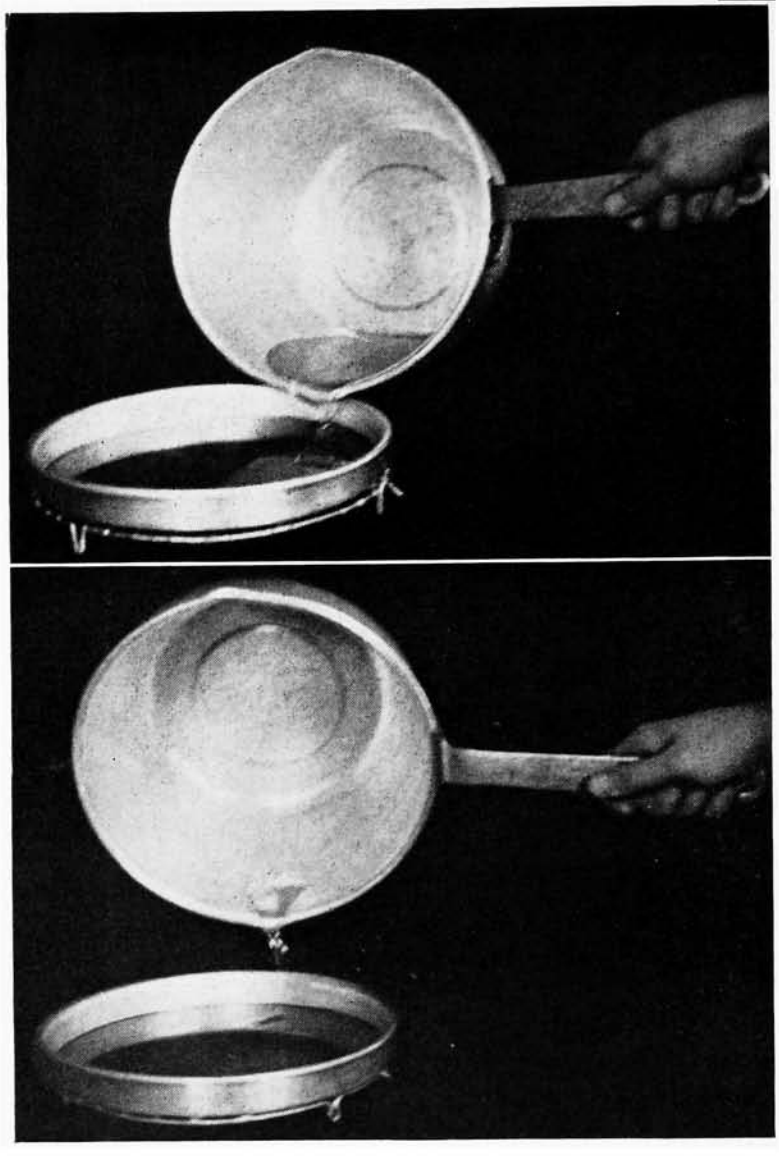
THE USE OF THE STARCH BOARD IN MAKING MOLDED CENTERS

Top, making the impressions or molds in the starch; *center,* filling the molds with melted fondant; *bottom,* using the spaces between the rows of cooled centers for additional molds.



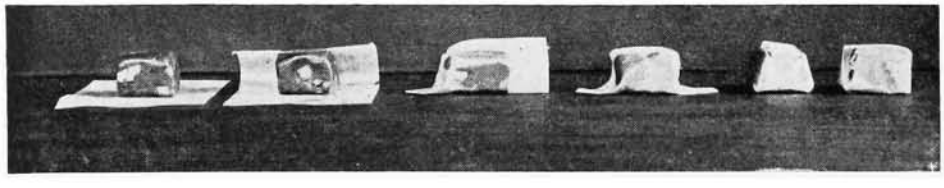
DIPPING BONBONS

Top, remove excess melted fondant; *center,* bonbon in position to deposit on waxed paper; *bottom,* apply the finish with string from the fork.



POURING THE FINISHED CANDY INTO THE COOLING PAN

Top, proper procedure; *bottom,* wrong procedure, "dribbling."



THE METHOD OF WRAPPING CARAMELS

Cast Centers:

The home candy maker will not, as a rule, want to invest in rubber molds, and for that reason the method of using starch molds will be discussed. This type of mold may be available in any home kitchen.

Preparing the Starch Molds:

Fill a shallow pan 1 to 2 inches deep with finely sifted cornstarch, and level off the surface with a piece of wood used as a scraper—a foot rule will do. Pass the scraper from end to end of the pan until the starch surface is quite smooth. Some tool is now necessary for making the impressions. A round knife handle, a test tube or similar cylindrical object of desired size—½ to ¾ inch in diameter—will serve the purpose.

Carefully force this "tool" into the starch bed to a depth of ½ to ¾ inch. Then, with a slight rotary movement of the tool between thumb and fingers, lift it vertically from the impression in the starch bed, being very careful not to disturb the starch on the side of the impression. A little practice will enable anyone with a steady hand to make these impressions rapidly and perfectly. The second impression should be made at a distance of two inches from the first in order to avoid injury to the one already made. Proceed in this manner until the available space is used. It is best to make the impressions in rows across the starch bed about evenly spaced because, when the first set has been filled, a second set may be made by using the spaces between the centers already cast.

Preparation of the Fondant:

To prepare the fondant for casting, proceed as follows: Fill the outer boiler to maximum with water. Place the required amount of fondant in the inner vessel, set the inner vessel in position, and gently push it down to expel any excess water. Set the boiler over the fire and heat the water to a maximum of 170 to 180° F. Remove the vessel from the fire. Keep the fondant well stirred during the melting process. Scraping the side and bottom of an aluminum vessel with a

metal spoon while stirring will discolor the fondant. When it has become liquid enough to pour from a spoon, add color and flavor a little at a time to suit taste. Stir thoroughly after each addition to insure uniform distribution.

Casting the Centers:

Set the double boiler alongside the starch mold, and with a tablespoon remove enough of the liquid fondant to fill one of the impressions. Allow the fondant to flow from the side of the spoon, since by a quick rotation of the spoon in the hand the flow may be stopped at will.

If the fondant becomes too stiff to handle, set the boiler with inner vessel in place over the fire and reheat the water. Keep the fondant well stirred, and when again fluid enough to pour continue with the casting.

Cleaning the Centers:

After standing for an hour or more the centers may be removed from the molds. Pick out the centers and place them in a sieve. When all are in, gently shake the sieve to remove excess of starch. Then place the centers in a cheesecloth, grasp the two corners in each hand in such a way as to form a sort of hammock. Roll the centers back and forth in the hammock by alternately raising and lowering the hands. The centers will come out with scarcely a trace of starch on them. It is most essential that the centers be free from starch in order to have uniform coating.

Cast centers may be used for bonbons immediately after cooling; if for chocolates, they should be stored in a closed cupboard or box for 24 hours before they are coated or dipped.

Molded Centers:

If only a small lot of centers is needed, and if one wishes to avoid all the "mussiness" of starch casting, centers may easily be molded by hand. The process is as follows. Take the required amount of fondant, add color and flavor as desired, and knead thoroughly to distribute them evenly. Dust a mold-

ing board with powdered sugar. Take a small piece of the prepared fondant—2 or 3 ounces—lay it on the board, and lightly roll it beneath the palms of the hands into a cylinder about ½ inch in diameter. Cut the cylinder into suitable lengths—½ to ¾ inch—such that the pieces when formed into centers shall be the size desired. Take each piece into the hands and lightly roll it between the palms to form a small sphere. Place the formed centers on a dry tray or piece of waxed paper to harden.

If spherical centers are not desired, they may be changed into discs by pressing them firmly down on the waxed paper. Or the sphere may be shaped into a cone by pinching its upper portion between the thumb and fingers. However, the sphere and the disc give less trouble in the coating process.

It may be necessary to use a small amount of powdered sugar to maintain the proper consistency and to prevent undue sticking to the hands.

These centers should dry for at least an hour or two before dipping into fondant for making bonbons, and if to be chocolate coated they should be allowed to ripen for a day before coating or dipping. When freshly made fondant centers are coated with chocolate a very large per cent of the finished candies will develop leaks within a few hours after dipping; while if the centers are allowed to ripen for a day after casting or molding, the number of leaky chocolates is practically negligible, provided, of course, one has done a thoroughly good job of chocolate dipping.

Fondant Cream Candies

Most of these candies are generally classed as assorted mints; but since such a wide range of flavors other than the mints is available, the name seems rather misleading. These cream candies are very easily made and are the most inexpensive of the homemade sweets. They offer such a variety of colors and flavors that the preference of everyone may be gratified. They may be

cast into rubber molds to form all sorts of animals, fruits, etc., if one cares to invest in this type of equipment. Or they may be cast on waxed paper to form thin, wafer-like discs. These require no special equipment, and their manufacture will, therefore, be described.

Procedure:

Place the desired amount of fondant in the double boiler and carefully melt to the consistency of heavy cream. (See cast centers for method of melting fondant.) Add the desired amount of color and flavor, and stir to mix thoroughly. Have near at hand some oilcloth or several sheets of waxed paper—bread wrappers will do—on tray or molding board. Use a tablespoon to remove the melted fondant from the boiler to the oilcloth or waxed paper. Allow the fondant to flow from the side of the spoon. When the piece is of size wanted, quickly turn the spoon in the hand to stop the flow of fondant and to prevent dribbling it all over the place. The flow of the fondant can be accelerated and thicker fondant may be handled if the spoon is held horizontal to the paper at the height of about 1 to 2 inches and by giving the spoon short, quick up-and-down jerks—through a distance of an inch or two. This will greatly accelerate the flow and will give more uniformity to the size and shape of the pieces. A little practice will enable one to judge the amount to take in the spoon to form any given size piece. The flow from the spoon to the paper must be in approximately the same spot if perfect discs are to be produced. The thickness of the discs will be determined by the thinness of the fondant and to some extent by the temperature of the room. Stir the melted fondant at frequent intervals to avoid surface crust.

Do not try to store these candies for more than a few days as they dry out quickly when exposed to the air. If it is desired to hold candies such as these for some weeks or months, they should be crystallized or syrup-dipped. (See Chapter V, Crystallization.)

Bonbons

Bonbons are fondant coated candies. The centers may be of fondant, candied fruits, fruit pastes, fudges or other soft candies. The fondant and fudge centers are prepared as directed earlier in this chapter under Centers. Candied fruits and fruit pastes are cut into suitable size and shape. The fondant may be plain, unflavored, or it may be colored and flavored or scented to suit individual preference. (For adding color and flavor see Chapter III.)

Procedure:

Prepare the centers an hour or two in advance, especially those made from fondant or fudge. This will allow them to dry out sufficiently to facilitate manipulation.

Place the necessary amount of fondant (approximately one-half as much as the weight of centers) in the inner vessel of the double boiler. Fill the outer vessel with the maximum amount of water. Set the inner vessel in place, and heat the water only just enough to melt the fondant, which should be stirred frequently. When the fondant has the consistency of very heavy cream, it is ready for use.

Drop the center into the melted fondant, submerge it with the stirring spoon. Quickly lift it out on the dipping fork, drain momentarily, scrape off excess drainings by drawing the dipping fork lightly across the edge of the spoon, then quickly transfer the coated candy to the waxed paper. Hold the fork just above the paper, and by a quick rotary movement turn it upside down; the piece will then slip onto the waxed paper. There should be enough liquid fondant adhering to the fork to give the characteristic finish to the upper surface of the bonbon. Each of the several movements described above should be performed in sequence and as speedily as possible. The less the time required to enrobe a center and transfer it to the waxed paper, the better the results.

If the coating is too thin, the liquid fondant is too hot. Cool it down until it is considerably thicker. If the coating is too thick, the liquid fondant is not hot enough. Heat the water 10–12 degrees higher; and if this does not give desired results, add a spoonful—or the necessary amount—of simple syrup to give the consistency desired.

The appearance of bonbons depends quite largely upon the technique of the operator. A little experience will enable one to produce creditable-looking candies.

The bonbons, like the creams, are short-lived. If to be kept beyond a few days after making, they should be crystallized or syrup-dipped. (See Chapter V, Crystallization.)

Cocoanut Patties

Place in the inner vessel of the double boiler the desired amount of fondant. Heat the water in the outer vessel just enough to melt the fondant. Add shredded cocoanut at the ratio of 2 ounces—2/3 cup—to 1 pound of fondant. Stir to mix thoroughly. By means of spoon and fork, transfer by spoonfuls to waxed paper. Pour to form oblong masses. If the fondant tends to spread much, it is too hot. Cool it to a temperature such that the pieces may be heaped to give thickness and to leave a rather rough surface. When firm, store in covered vessel or serve.

A pleasing effect may be produced by dipping one end of the oblong pieces into melted chocolate. Usually only about one-third of the piece is chocolate coated.

Chapter VII

FUDGES

General Discussion

A FUDGE may be defined as a soft candy whose structure is a mass of microscopic crystals, each of which is surrounded by an envelope of fat or syrup. The fudges resemble the fondants—both in general structure and in method of manufacture. Some of the so-called fudges do not belong in this group; but in order to avoid confusion they will be included among the recipes.

Fat in the form of milk, cream, butter or cocoa butter is a constituent of all true fudges. It functions as a retarder of crystallization and adds to the quality and richness of the candy. The amounts given in the following recipes are medium and may be increased to suit individual taste. In most cases there should not be any considerable reduction of the amount stated. Evaporated milk may be substituted for whole milk, using approximately one-half as much as given in the recipe. If to be substituted for cream, use the same amount as given and add 1 or 2 tablespoons of butter.

There are a few fundamental principles which should guide the beginner and will be of assistance to those who have frequent failures. Once the principles are understood and firmly fixed in the mind, fudge making becomes a sure and pleasant recreation.

As stated above, most fudges contain butter fat in some form. When milk or cream is used it is added at the beginning of the cooking, but if butter is used it should not be added until near the close of cooking. Most fudges because of the materials used are viscous. They tend to boil up in the kettle, and they also scorch very easily. They will require considerable stirring, and especially during the last stage of cooking they should be stirred constantly. At this point, too, the fire should be reduced so as to give slow boiling, which is one of the safeguards against overcooking.

At the close of the cooking, the crystals should be wiped away from the pouring side of the saucepan to avoid the possibility of carrying mother crystals into the cooling pan. The hot syrup is then poured into a clean dry pan—preferably a wide shallow enameled or agate pan—to cool. During the cooling time the pan must not be disturbed. When the material has cooled to 110 to 115° F. it should be stirred with a heavy spoon or paddle. Once the stirring has begun, it should proceed uninterrupted until the finish point is reached.

The finish point of a fudge is determined by the method of getting it into the pan ready for cutting. There are two methods of procedure: (1) pouring, (2) kneading.

(1) Pouring: If this method is to be used the cooled material is stirred until the creaming process is well started, and while still somewhat fluid it is poured into a lightly buttered pan to cool and to complete the creaming process. Since the crystallization has only well begun and is completed after pouring, the fudge is firm with a glistening hard finish on the exposed sur-

face. The possibility of noticeable size crystals is much greater than in kneaded fudge because the last stage of crystal forming takes place in the static condition. This procedure requires greater experience, because the time to pour is limited to a very few seconds and the ideal condition it should have cannot very well be described. If the fudge is poured too hot it will become a mass of granules, while if the pouring is delayed beyond the proper time it becomes too thick to flow into the pan to form a smooth sheet of uniform thickness.

Skill in handling fudges by this procedure can be acquired only through long and painful experience.

(2) Kneading: If this method is employed the cooled materials are stirred without interruption until the creaming or crystallizing process is completed. When this stage is reached in the creaming process the fudge will set into a soft cheese-like mass, which is then taken into the hands or onto a molding board and is thoroughly kneaded until it is quite soft and plastic. (See Kneading, in Chapter III.) Prolonged kneading is not desirable since the fudge will become too soft.

The plastic mass is placed in a lightly buttered pan or, better, in a waxed-paper-lined pan and is pressed out into a sheet of uniform thickness. The surface may be made quite smooth by gently patting it with the fingers. A waxed paper smoothed down over the top will prevent the formation of a crust and will greatly prolong the storage life of the fudge.

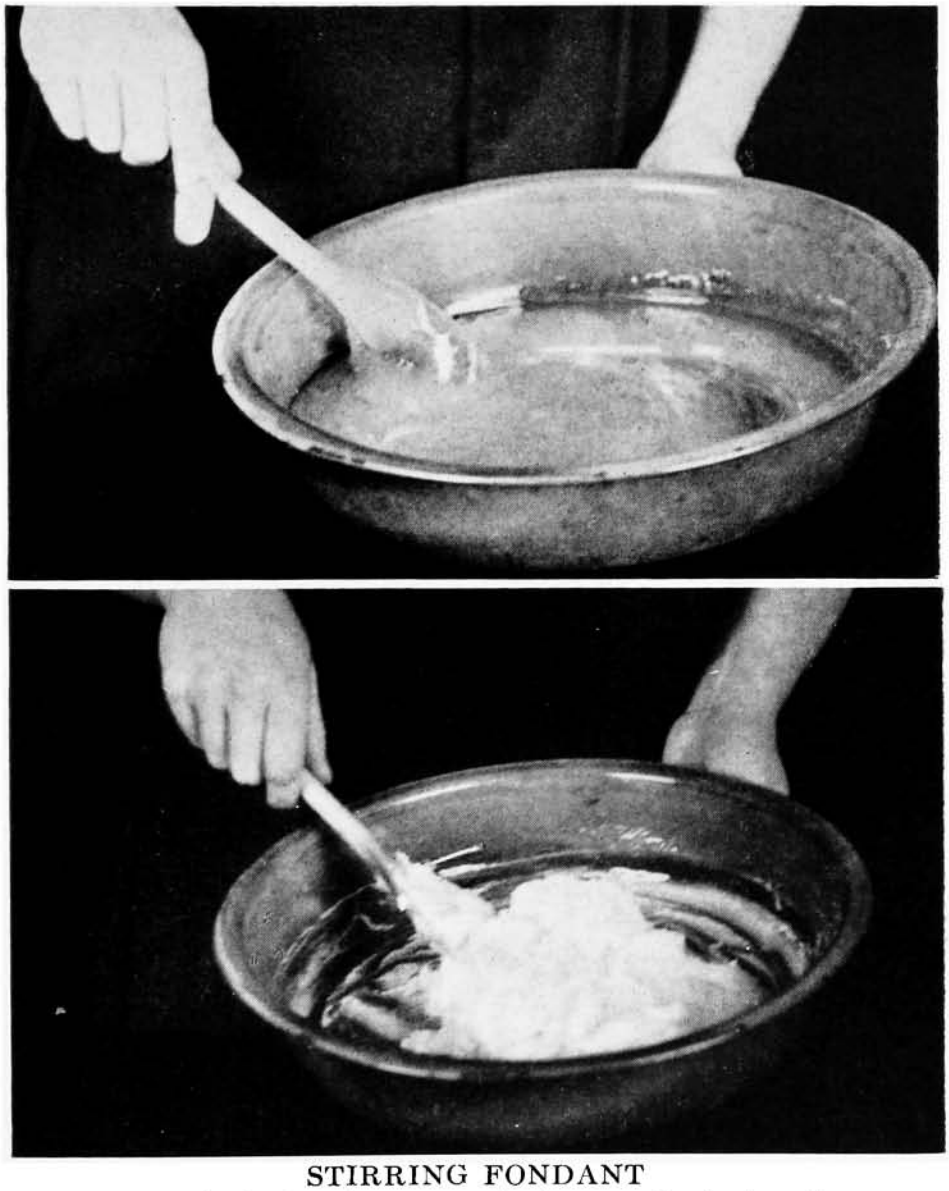
This procedure eliminates the critical finish point and may be used successfully by anyone. The finished candy is of finer texture, has a more creamy consistency and will keep better than when made by pour-

ing the partially crystallized material into the pan. If the granular or crystalline type of fudge is preferred, it may be made by beginning the stirring while it is at a temperature of 150 to 160° F.

The addition of corn syrup—1½ tablespoons per pound of granulated sugar—will give a fudge of more wax-like consistency and will add several days to its storage life. The corn syrup will, however, very greatly increase the length of stirring. The corn syrup will be omitted from most of the recipes, but the operator may add it without other changes if it is desired. The amount recommended for the recipes given is two ounces, or 2½ tablespoons.

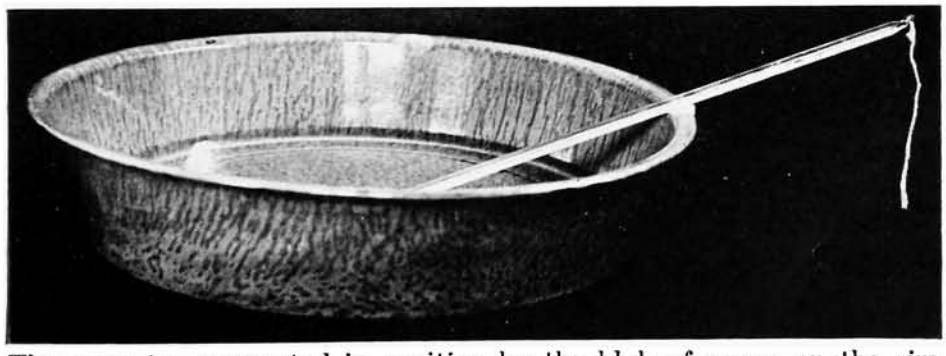
Keeping Quality

Fudges as a class are relatively short-lived candies. They readily give up moisture, and under many conditions may become dry and unpalatable within a few days. As has been said, the addition of corn syrup will prolong their keeping period. However, the method of handling has probably the greatest influence. (1) Kneaded fudges will keep better than poured fudges. (2) Fudges left in the pan with waxed paper covers will keep under ordinary conditions for several weeks. But if cut into pieces suitable for serving, their period of usefulness will extend over only a few days. If fudge is to be stored in boxes or if to be shipped, the pieces should be cut as large as convenient and then wrapped with waxed paper. Handled in this manner, a well made fudge may be depended upon to keep in good condition for weeks.

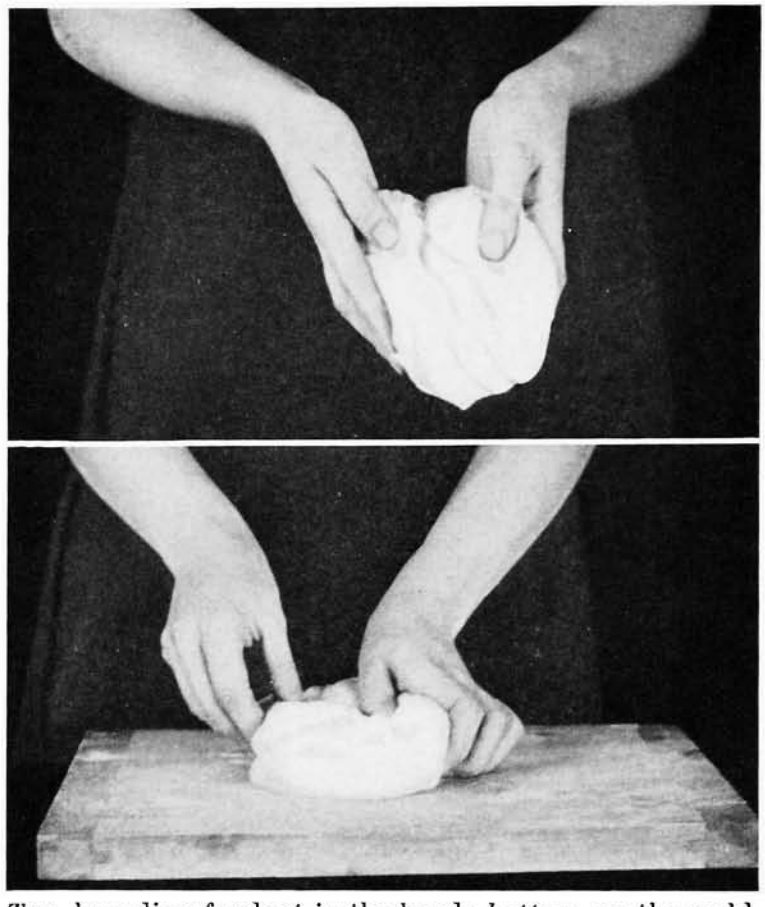


STIRRING FONDANT

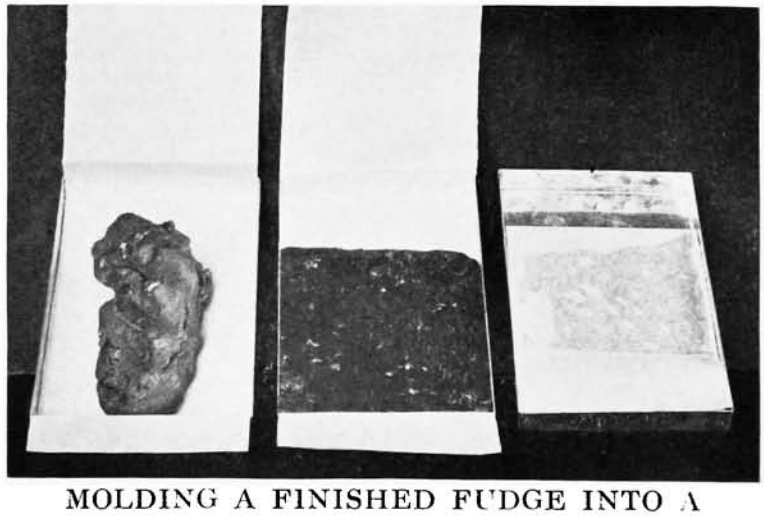
Top, beginning to cream; *bottom,* ready to knead.



Thermometer supported in position by the blob of syrup on the rim of the cooling pan.



Top, kneading fondant in the hand; *bottom,* on the molding board.



MOLDING A FINISHED FUDGE INTO A WAXED-PAPER-LINED PAN

Left, the mass of kneaded fudge; *center,* pressed into a uniform sheet; *right,* covered with waxed paper for storing.

RECIPES

Chocolate Fudge

Materials:

1 pound (2½ cups) light brown sugar
1 pound (2 cups) granulated sugar
3 ounces (3 squares) (½ cup) finely cut bitter chocolate
1 ounce (¼ cup) finely cut nut meats (optional)
2 ounces (2½ tablespoons) corn syrup
⅓ cup cream
¾ cup water
⅛ teaspoon salt
1 teaspoon vanilla

Procedure:

Mix all materials except nut meats and vanilla and boil moderately until near the close of cooking; then boil slowly to 22–23° F. above the temperature of boiling water as registered on the thermometer being used, or to a very soft ball by the water test. Keep materials well stirred during the later stage of boiling. Wipe away the crystals from the pouring side of the saucepan and pour the hot materials into a shallow agate pan. Allow to cool undisturbed to 110–115° F. Stir with heavy spoon or paddle until well creamed. Add the vanilla and nut meats and stir until the candy forms a cheese-like mass. Knead this mass in the hands or on the molding board until it is soft and plastic. Mold it into a lightly buttered pan or into a waxed-paper-lined pan. Press down to form a sheet of uniform thickness. Smooth over the top by gently patting it with the fingers. Cover with a waxed paper and set aside to become firm. It may be cut and served after 5 to 10 minutes.

This recipe will make 2 pounds.

Coffee Fudge

Materials:

1½ pounds (3 cups) granulated sugar
1 ounce (¼ cup) nut meats
1 ounce (2 tablespoons) butter
½ cup cream
1 cup strong coffee

Procedure:

Mix the sugar, cream and coffee in the saucepan and bring to boiling. When the temperature reaches 230° F., add the butter and continue to boil moderately, then slowly toward the finish to a temperature of 22–23° F. above the temperature of boiling water as registered on the thermometer being used, or to a very soft ball by the water test. Wipe off crystals from the pouring side of the saucepan, and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to a temperature of 110–115° F. Stir until creamy, add the finely cut nut meats and continue to stir until the candy becomes a cheese-like mass. Knead until soft and creamy, then mold into a lightly buttered pan or into a waxed-paper-lined pan. Press down with the fingers to form a sheet of uniform thickness, and pat the surface with the hands to make it smooth and moist. Cover with a waxed paper. Set aside. It will be ready to cut and serve after standing 5 to 10 minutes.

This recipe will make 1¾ pounds.

Cocoanut Fudge

Materials:

1 pound (2 cups) granulated sugar
2 ounces (⅓ cup) finely cut sweet chocolate
3 ounces (¾ cup) shredded cocoanut
⅓ cup cream
½ cup water
1 teaspoon vanilla
⅛ teaspoon salt

Procedure:

Mix the sugar, cream, salt, water and chocolate in a saucepan and boil moderately until near close of cooking. Then boil slowly to 26° F. above the temperature of boiling water as registered on the thermometer being used, or to a soft ball by the water test.

Wipe away the crystals from the pouring side of the saucepan and pour the hot syrup into a shallow agate pan. Allow it to cool undisturbed to 110–115° F.

Stir with heavy spoon or paddle until materials are well creamed. Add the cocoanut and vanilla and continue to stir until the candy forms a cheese-like mass. Knead this mass in the hands or on the molding board until it is soft and plastic. Mold it into a lightly buttered pan or into a waxed-paper-lined pan. Press down to make a sheet of uniform thickness and smooth off the top by gently patting it with the fingers. Cover with a waxed paper and set aside to become firm. After 5 to 10 minutes it may be cut and served.

This recipe will make 1¼ pounds.

Divinity

Materials:

1¼ pounds (2½ cups) granulated sugar
6 ounces (½ cup) corn syrup
1 ounce (¼ cup) finely cut nut meats
¾ cup water
1 egg white (large) beaten stiff
⅛ teaspoon salt
½ teaspoon vanilla
6–10 drops orange extract

Procedure:

Place the sugar, salt, syrup and water in a saucepan. Heat and stir to solution. Boil moderately until near close of cooking, then slowly to 28° F. above the temperature of boiling

water as registered on the thermometer being used, or to a soft ball by the water test. Wipe off the crystals from the pouring side of the saucepan and allow the syrup to cool undisturbed for 5 minutes.

Pour the syrup very slowly into the beaten egg white, stirring or whipping constantly. Avoid adding the hot syrup at such a rapid rate that the egg white is cooked into noticeable size pieces. When half the syrup has been carefully beaten into the egg white, the remaining syrup may be added more rapidly. Do not scrape the sides and bottom of the saucepan to secure the last few drops of syrup. Continue to whip or beat until the mass takes on a heavy cream consistency. Add the flavor and nut meats and continue to whip until the material will no longer flow from the spoon in a continuous ribbon but rather in broken pieces. Quickly transfer to a lightly buttered pan or to a waxed-paper-lined pan to form a sheet one-half inch thick. When cooled remove to cutting board and cut into suitable size pieces. If these pieces are wrapped in waxed paper caramel-style, the candy will remain in good condition for two weeks or more. If preferred, the material may be dropped by spoonfuls onto waxed paper to form irregular shape and size pieces.

This recipe makes approximately 1⅛ pounds.

Maple Fudge

Materials:

1½ pounds (3 cups) granulated sugar
2 ounces (½ cup) finely cut nut meats
1 cup maple syrup (6 ounces maple sugar)
½ cup cream
½ cup water

Procedure:

Mix all materials except the nut meats in a saucepan, and boil moderately until near close of cooking, then boil slowly to 24–25° F. above the temperature of boiling water as

registered on the thermometer being used, or to a medium soft ball by the water test. Wipe away the crystals from the pouring side of the saucepan and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to 110–115° F. Stir with a heavy spoon or paddle until it has creamed, then add the nut meats and stir until the candy becomes a cheese-like mass. Knead this mass in the hands or on the molding board until it is soft and plastic. Mold it into a lightly buttered pan or into a waxed-paper-lined pan. Press down to form a sheet of uniform thickness and smooth off the top by gently patting it with the fingers. Cover with a waxed paper and set aside to become firm. It may be cut and served after 5 to 10 minutes.

This recipe will make 2¼ pounds.

Marshmallow Cream Fudge

Materials:

- 1½ pounds (3 cups) granulated sugar
- 2 ounces (2 squares) (⅓ cup) finely cut bitter chocolate
- ½ cup cream
- 1 cup water
- 4 tablespoons marshmallow cream
- ¼ teaspoon salt
- 1 teaspoon vanilla

Procedure:

Mix in a saucepan all the materials except the vanilla and marshmallow. Boil moderately until near the close of cooking, then slowly to 25–26° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium soft ball by the water test. Wipe away the crystals from the pouring side of the saucepan and pour the hot syrup into a shallow agate pan in which the marshmallow has previously been placed. Allow to cool undisturbed to 110–115° F. Stir with heavy spoon or paddle until well creamed. Add the vanilla and continue to stir until the candy becomes cheese-

like. Knead the mass in the hands or on the molding board until quite soft and plastic. Mold it into a lightly buttered pan or into a waxed-paper-lined pan. Press it down to form a sheet of uniform thickness, and smooth the surface by gently patting with the fingers. Cover with a waxed paper and set aside to become firm. It may be cut and served after 5 to 10 minutes.

This recipe makes 2 pounds.

Orange-Cocoanut Fudge

Materials:

1 pound (2 cups) granulated sugar
2 ounces (½ cup) shredded cocoanut
½ cup cream
½ cup water
1 tablespoon finely grated orange rind
⅛ teaspoon water

Procedure:

Mix the sugar, cream, salt and water and bring quickly to boiling. Boil moderately, then slowly toward the close, to a temperature of 24–26° F. above the temperature of boiling water as recorded on the thermometer being used, or to a medium soft ball by the water test. Wipe off the crystals from the pouring side of the saucepan and pour the hot materials into a shallow agate pan. Leave undisturbed until cooled to 110–115° F. Stir with spoon or paddle until quite creamy. Add the grated orange peel and the cocoanut, and stir until the candy becomes cheese-like. Knead the mass in the hands or on the molding board until it is soft and plastic. Mold into a lightly buttered pan or into a waxed-paper-lined pan. Press down to form a sheet of even thickness, and smooth off the top by gently patting it with the hands. Cover with a waxed paper and set aside to become firm. May be cut and served within 5 to 10 minutes.

This recipe will make 1¼ pounds.

Peanut Butter Fudge

Materials:

- 1½ pounds (3 cups) granulated sugar
- 1 ounce (¼ cup) finely cut nut meats
- ½ cup cream
- ½ cup water
- 2 tablespoons peanut butter
- ⅛ teaspoon salt

Procedure:

Mix sugar, cream, salt and water and boil moderately to approximately 230° F. Add the peanut butter and boil slowly to 24–25° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium soft ball by the water test. Wipe away the crystals from the pouring side of the saucepan, and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to 110–115° F. Stir with heavy spoon or paddle until well creamed. Add the finely cut nut meats and stir until the candy becomes cheese-like. Knead the mass in the hands or on a molding board until it is soft and plastic. Mold it into a lightly buttered pan or into a waxed-paper-lined pan. Press down to form a piece of uniform thickness and smooth off the top by lightly patting it with the fingers. Cover with waxed paper and set aside to become firm. It may be cut and served after 5 to 10 minutes.

This recipe makes 1¾ pounds.

Fruit Fudge

Materials:

- 1½ pounds (3 cups) granulated sugar
- 2 ounces (¼ cup) chopped figs
- 2 ounces (¼ cup) chopped raisins
- 1 ounce (¼ cup) chopped nut meats
- ½ cup cream
- ½ cup water
- 1 tablespoon grated orange rind
- ⅛ teaspoon salt

Procedure:

Mix sugar, cream, salt and water, and boil moderately, then slowly near the close, to a temperature of 24–26° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium soft ball by the water test. Wipe off the crystals from the pouring side and pour the hot syrup into a shallow agate pan. When it has cooled to 110–115° F., stir with heavy spoon or paddle until quite creamy. Add the chopped fruits and nut meats and continue to stir until the candy becomes cheese-like. Knead the mass until it becomes soft and plastic. Mold into a lightly buttered pan or into a waxed-paper-lined pan. Press down to form a sheet of uniform thickness and smooth off the top by gently patting it with the fingers. Cover with a waxed paper. It may be cut and served after standing 5 to 10 minutes.

This recipe will make 1¾ pounds.

Sea Foam

Materials:

1 pound (2 cups) granulated sugar
1 ounce (¼ cup) nut meats (optional)
1 egg white (large) beaten stiff
¾ cup water
2 teaspoons vinegar
½ teaspoon vanilla or 6 to 8 drops any desired flavor
⅛ teaspoon salt

Procedure:

Place in the saucepan the sugar, salt, water and vinegar. Heat and stir to solution. Bring to boiling and boil moderately to 27–28° F. above the temperature of boiling water as registered on the thermometer being used, or to a soft ball by the water test. Remove the crystals from pouring side of saucepan with a damp cloth. Allow the hot syrup to cool for 5 minutes.

Pour the hot syrup very slowly into the beaten egg white,

stirring or whipping the mixture constantly. Avoid cooking the egg white into large flaky pieces by pouring the syrup in too rapidly or by careless stirring. When the syrup is all in, beat or whip until of a heavy consistency. Quickly add the finely cut nut meats and flavor, and continue to stir until the candy is sufficiently thick to hold its shape.

Transfer by spoonfuls to a sheet of waxed paper to make individual pieces, and allow to stand for a few minutes to harden. Or mold into a lightly buttered pan or waxed-paper-lined pan with as little pressing of the candy as possible. Smooth off the surface by gently patting out the rough places with the fingers. Cover with a waxed paper. The candy may be removed and cut for serving after 5–10 minutes. Since this is fluffy, porous candy, it dries out rapidly and should not be stored for more than a few days.

This recipe will make approximately 1⅛ pounds.

Panocha (Penuchi; Brown Sugar Fudge)

Materials:

1 pound (2½ cups) light brown sugar
¼ pound (½ cup) granulated sugar
2 ounces (½ cup) chopped figs, raisins or dates
1 ounce (¼ cup) nut meats
1 ounce (2 tablespoons) butter
1 cup milk
1 teaspoon vanilla
⅛ teaspoon salt

Procedure:

Mix the sugars, salt and milk, and heat to boiling. When the temperature is approximately 230° F., add the butter and boil slowly with almost constant stirring to a temperature of 23–24° F. above the temperature of boiling water as registered on the thermometer being used, or to a very soft ball by the water test. Remove the saucepan from the heat. Wipe off the crystals from the pouring side of the sauce-

pan with a damp cloth, and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to 110–115° F. Stir with a heavy spoon or a paddle until creamy. Add the finely cut nut meats and the vanilla, and continue to stir until the candy is cheese-like. Knead the mass in the hands or on a molding board until it is quite soft and plastic. Mold into a lightly buttered pan or into a waxed-paper-lined pan, using the fingers to press it out into a uniform sheet and to smooth the surface. Cover with a waxed paper and set aside to harden. The candy, if desired, may be removed after 5 to 10 minutes and cut for serving, or it may be left in the pan for subsequent use.

This recipe will make 1½ pounds.

Vanilla Fudge

Materials:

- 1½ pounds (3 cups) granulated sugar
- 2 ounces (2½ tablespoons) corn syrup
- ½ cup cream
- ½ cup water
- 1 teaspoon vanilla
- ⅛ teaspoon salt

Procedure:

Mix all the materials except the vanilla in a saucepan, and boil moderately until near close of cooking, then boil slowly to 26–28° F. above the temperature of boiling water on the thermometer being used, or to a soft ball by the water test. Wipe away the crystals from the pouring side of the saucepan, and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to 110–120° F.

Stir with heavy spoon or paddle until well creamed. Add the vanilla, and continue to stir until the candy becomes a cheese-like mass. Knead this mass in the hands or on the molding board until it is soft and plastic. Mold into a lightly buttered pan or into a waxed-paper-lined pan. Press down to

form a sheet of uniform thickness, and smooth off the top by gently patting it with the fingers. Cover with a waxed paper. It will be ready to cut and serve after 5 to 10 minutes.

This recipe will make 1½ pounds.

This is a basic recipe and may be used with many variations. The vanilla may be omitted, and any desired flavor added in its stead. Also the candy may be colored or augmented by adding finely cut, dried fruits, nuts or brown sugar.

Chapter VIII

CARAMELS

General Discussion

Caramels belong with the wax-like candies. They differ from the nougatines in that they are not beaten nor do they contain egg albumen. And unlike the taffies they are not pulled. They are strictly a pan candy since the hot material is poured into a cooling pan and is allowed to cool and harden without further manipulation. For very best results the cooling pans should be square or rectangular with vertical sides. This permits of cutting the entire sheet into uniform pieces.

The cooling pans should be only lightly buttered. Any excess of butter will form on the surface of the candy and not only give it an unsightly appearance but also make it greasy and more difficult to handle.

Consistency

The consistency of the caramel is determined by (1) the finish temperature and (2) the relative amount of fats used. The higher the finish temperature above that normally required to form an ideal caramel, the tougher and more chewy it becomes. Often the sole reason for hard caramels is too high finish temperature. The home candy maker will necessarily rely upon milk products

to supply the fats so necessary to the proper consistency. As the fat content is increased, the caramel becomes less taffy-like. Butter and cream have a shortening effect in much the same manner as when used in making cakes.

The amounts of butter and cream given in the recipes are based upon an economical use of these materials without undue sacrifice of quality. They may be increased to give greater tenderness or decreased to produce a more waxy, chewy candy.

Crystallization

One of the greatest troubles likely to bother the inexperienced is crystallization. A part of the candy or even the entire sheet may be filled with crystals before or shortly after cooling, or the caramel may be in fair eating condition for a day or two after making; then crystallization sets in, beginning at the surface, and gradually permeates the entire piece. The crystallization may be due to one or more of the following causes:

(1) Insufficient amount of invert sugars present, that is, not enough corn syrup used. This will cause crystallization of the entire batch, generally beginning a few days after making.

(2) Stirring too much after the cooking period. Caramels should be stirred after cooking only just enough to distribute thoroughly such materials as are added after cooking.

(3) Scraping the syrup from the cooking vessel into the candy pan. This violates one of the fundamental principles of candy making, and when practiced by the

inexperienced is sure to bring trouble. When caramels have been cooled to permit the stirring in of nuts, fruits, etc., it is permissible to gently scrape some of the heavy syrup from the bottom of the saucepan and also from the side, provided the spoon does not touch the sides above the syrup level. The mother crystals which do the damage are on the side of the saucepan above the syrup level, and since they have been wiped off from the pouring side it is possible to scrape out some of the heavy syrup. However, there is an element of danger in this practice, and the beginner is advised to place the scraped syrup in a separate pan.

(4) Dribbling the syrup from the saucepan into the candy pan. Pouring should cease at the point when the syrup no longer flows in a stream. The syrup should be poured into one corner of the pan and allowed to flow at will to form a sheet of uniform thickness. Then if crystallization comes as a result of pouring the injury is confined to one small area which may be easily cut out and discarded.

Addition of Solids

When the cooking caramel has reached the finish temperature, it should be removed from the heat, and the crystals should be wiped from the pouring side of the vessel with a damp cloth. If solids such as nut meats and dried or candied fruits are to be incorporated into the caramel, they should be stirred in at the close of the cooking period. When the mixture has cooled to approximately 150° F., the materials are stirred just enough to mix thoroughly and are then poured into

the cooling pan. This procedure will give a uniform distribution throughout the candy.

Commercial caramels are cut into three-fourths-inch cubes and wrapped in waxed paper, cut to size 2½ by 4 inches. The home candy makers may imitate the commercial man, or they may wrap their caramels kiss-fashion; if to be served at once, they may be lightly dusted with powdered sugar. For detailed discussion of cutting and wrapping, see Chapter III.

Sometimes the caramel will stick fast to the bottom of the pan at the place where the hot syrup was poured in. To remove the sheet of candy, warm the pan at this point just enough to loosen, then turn the candy onto the cutting board. Allow it to cool for a few minutes before cutting.

RECIPES

Vanilla Caramels

Materials:

- 1¼ pounds (2½ cups) granulated sugar
- ¾ pound (1 cup) corn syrup
- ½ cup light cream
- ½ cup water
- 1 ounce (2 tablespoons) butter
- 2 ounces (⅓ cup) finely cut nut meats (optional)
- 1½ teaspoons vanilla
- ⅛ teaspoon salt

Procedure:

Place all materials except the butter, vanilla and nut meats in a saucepan, and thoroughly mix. Heat and stir to solution, bring to boiling and boil moderately to approximately 230° F.

Add the butter and boil slowly to 35–36° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium hard ball by the water test.

Remove from the fire and quickly stir in the vanilla and nut meats. Leave the thermometer in the hot syrup; when the materials have cooled to 150–160° F., stir just enough to distribute the nut meats thoroughly, and pour at once into a lightly buttered pan to form a sheet three-fourths of an inch thick. If the nut meats are omitted, the hot syrup should be poured after cooling only about one minute.

When the candy has cooled to room temperature and has become firm, it may be removed from the pan to the cutting board and cut into suitable size pieces and wrapped in waxed paper. (See Cutting, Wrapping, in Chapter III.)

This recipe will make 2 pounds.

Plain Caramels

Materials:

½ pound (1 cup) granulated sugar caramelized
¾ pound (1½ cups) granulated sugar
¾ pound (1 cup) corn syrup
½ cup light cream
2 ounces (4 tablespoons) butter
¼ teaspoon vanilla
⅛ teaspoon salt

Procedure:

(a) To caramelize the sugar: Place the ½ pound of granulated sugar, 1 tablespoon corn syrup and one-half cup of water in a small saucepan. Heat and stir to solution. Boil moderately until the syrup becomes quite thick and viscous. Then boil slowly until the syrup changes to a light yellow. Remove from the fire and stir. Usually the color will change to a reddish brown. If the color fails to darken, return the saucepan to the fire and heat very slowly until the color changes to a light reddish brown. Any degree of carameliza-

tion may be had by further heating. Remove the saucepan from the fire, and add hot water, a little at a time with thorough stirring after each addition of water until a cup of water has been added. Return the saucepan to the fire, and heat to boiling to dissolve any syrup which solidified upon the addition of the water. This is caramel syrup.

(b) To make the caramel: Place the sugar, corn syrup, caramel syrup, salt, and cream in the saucepan and boil moderately to 230–235° F. Add the butter and boil slowly to 36° F. above the temperature of boiling water as registered on your thermometer, or to a medium hard ball by the water test. Remove from fire, allow to cool until the bubbles subside, add the vanilla, and stir just enough to distribute thoroughly. Pour the hot syrup into a lightly buttered pan. Allow to cool undisturbed. When cold, remove to cutting board. Cut into cubes, and wrap each in waxed paper. This recipe will make 1¾ pounds.

Brown Sugar Caramels

Materials:

¾ pound (1⅓ cups) light brown sugar
½ pound (1 cup) granulated sugar
¾ pound (1 cup) corn syrup
½ cup light cream
½ cup water
1 ounce (2 tablespoons) butter
2 ounces (½ cup) finely cut nut meats (optional)
½ teaspoon vanilla

Procedure:

Place all materials except the butter, nut meats and vanilla in the saucepan, stir and heat to solution. Boil moderately to approximately 230° F. Add the butter and boil slowly to 35–36° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium hard ball by the water test. Remove the saucepan from the fire, stir in the

vanilla, and allow the bubbles to subside for about one minute. (If nut meats are used, add with the vanilla. Allow to cool to 150–160° F. Then stir just enough to distribute the nut meats thoroughly.) Pour the hot materials into a very lightly buttered pan to a depth of ¾ inch. Allow to cool undisturbed until cold. When firm, remove from the pan to the cutting board. Cut into ¾-inch cubes, and wrap them in waxed paper. (See Cutting, Wrapping, in Chapter III.)

The relative amounts of granulated and light brown sugar may be varied to suit the taste.

This recipe will make 2 pounds.

Chocolate Caramels

Materials:

1 pound (2 cups) granulated sugar
¾ pound (1 cup) corn syrup
4 ounces (4 squares—¾ cup) finely cut bitter chocolate
1 ounce (2 tablespoons) butter
½ cup cream
½ cup water
1 teaspoon vanilla } optional
2 ounces finely cut nut meats }
⅛ teaspoon salt

Procedure:

Place all materials except butter, vanilla and nut meats in a saucepan, mix, heat and stir to solution, and boil moderately to approximately 230° F. Add the butter and boil slowly to 33–34° F. above the temperature of boiling water as registered on the thermometer being used, or to a firm ball by the water test.

Remove from the fire and quickly stir in the vanilla. Allow the bubbles to subside for about 1 minute. (If nut meats are used, add with the vanilla. Allow to cool to 150–160° F., then stir just enough to distribute the nut meats thoroughly.) Pour the hot materials into a lightly buttered candy pan to a

depth of ¾ inch. Allow to cool. When cold and firm the sheet may be removed to the cutting board and cut into suitable size pieces which, if not to be served at once, should be wrapped in waxed paper. (See Cutting, Wrapping, in Chapter III.)

This recipe will make 2 pounds.

Caramel Pecan Roll

Materials:

½ pound (1¼ cups) light brown sugar
¼ pound (½ cup) granulated sugar
1 pound (1⅓ cups) corn syrup
1 cup light cream
3 ounces (6 tablespoons) butter
½ teaspoon vanilla
⅛ teaspoon salt
4 ounces (1 cup) pecan meats (halves)

Procedure:

Mix all the materials except the butter, vanilla and nut meats. Boil moderately to 240–245° F. Add the butter and boil to 37–38° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium hard ball by the water test.

Remove the crystals from the pouring side of the saucepan with a damp cloth, stir in the vanilla, and pour the hot material into a lightly buttered pan to form a sheet ¼ inch thick. Allow to cool until firm enough to remove from the pan.

Spread the nut meats flat side up on a platter to cover an area equal to that of the candy sheet. Remove the candy from the pan, place it bottom side down to cover the nut meats, and press it down firmly. Take up the edge along one side, turn it up over the sheet, and roll it into a compact cylinder. As the nut meats come up during the rolling process, keep them pressed into the candy piece. When the roll is completed, wrap it in heavy waxed paper. Cut into thin rings for serving.

Should the caramel sheet become cold before it is removed from the pan, pass the pan across a flame or other hot surface until it is quite warm and rather soft on the bottom. Then remove and place it over the nut meats.

Nut Log

The nut log is made up of two distinct candies, viz., a cream or panocha center and a caramel coating. It is one of the richest and most nutritious of the homemade candies.

1. The Center

Materials:

1 pound (2 cups) granulated sugar
½ pound (1¼ cups) light brown sugar
6 ounces (½ cup) corn syrup
½ cup light cream
½ cup water
1 ounce (2 tablespoons) butter
1 teaspoon vanilla
¼ teaspoon salt

Procedure:

Mix all the materials except the butter and vanilla, and boil moderately to 230° F. Add the butter and boil slowly to 28–30° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium firm ball by the water test.

Wipe away the crystals from the pouring side of the saucepan, and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to 110–115° F. Stir with heavy spoon or paddle until well creamed, add the vanilla, and continue to stir until of a heavy consistency. Knead in the hands or on the molding board only just enough to prevent the candy from forming into a hard lump.

2. The Coating

Materials:

½ pound (1⅓ cups) brown sugar
¼ pound (½ cup) granulated sugar
1 pound (1⅓ cups) corn syrup
1 cup light cream
3 ounces (6 tablespoons) butter
4 ounces (1 cup) nut meats
½ teaspoon vanilla

Procedure:

Mix all the materials except the nut meats, butter and vanilla, and boil moderately to 235–240° F. Add the butter and boil slowly to a finish temperature of 37–38° F. above the temperature of boiling water as recorded by the thermometer being used, or to a medium hard ball by the water test.

Wipe away the crystals from the pouring side of the saucepan, stir in the vanilla, and pour the hot syrup into a lightly buttered shallow pan to form a sheet ¼ inch thick. Allow to cool until firm enough to handle. This material will form a sheet approximately 12 by 18 inches. If a pan of this size is not available, two or more pans may be used. This would mean, however, that more than one log would need be made, since the coating in each of the smaller pans would be worked separately.

3. Forming the Log

a. Preparing the Center

Take the center onto the molding board, and with as little handling as possible form into a roll the length of the coating. Should the center feel dry or too firm, knead just enough to make it slightly soft and plastic. Overkneading will cause the center to become too soft and creamy.

b. Preparing the Coating

Distribute the nut meats—flat side up—on a platter or molding board to cover an area equal to the size of the coating. Their nearness to each other will depend upon how much money you wish to spend. If the coating is still warm but firm enough to handle, remove it from the pan and place it bottom side down on the nut meats. If the coating is cool, heat it by passing the pan over a heated surface several times, then remove it from the pan. Press firmly down so that the nut meats become imbedded in the coating.

c. Completing the Log

Place the center in the middle of the coating. It should lie lengthwise, and its ends should come just to the edge of the coating. The width of the coating should be just enough to completely enclose the center; any excess may be cut off with scissors. Lift the side of the coating next to you, and press it gently but closely against the center; then roll it over until the two edges of the coating meet. Pinch these together and smooth them out with the fingers to form a perfect seam. Any nut meats that are displaced during the rolling process may be readily stuck back in place. When the roll is completed, wrap it in waxed paper to retain its form and to prevent excessive drying out.

When wanted for serving, unwrap and with a sharp butcher knife cut into quarter-inch slices. These may be served on a small square of waxed paper. If to be kept for some days after cutting, the pieces should be wrapped in waxed paper.

Variations in Caramels

An almost endless variation in flavor, consistency and texture may be had by making some slight changes in the foregoing recipes. Only a few of the more important ones are given here.

Maple Caramels

A caramel of very good maple flavor may be made with the following variations from the recipe for plain or vanilla caramels: Omit 6 ounces (¾ cup) of the granulated sugar and the vanilla flavor. Add 1 cup of good-flavored maple syrup or ½ pound dry maple sugar. No other change is necessary.

Nut or Fruit Caramels

Finely cut nut meats or dried fruits or candied fruits may be used in practically all caramels. These materials are stirred into the syrup at the close of the cooking, and the materials are then allowed to cool to approximately 150° F. before they are poured into the lightly buttered pan. Just before pouring, stir only enough to distribute these added materials thoroughly. The amount of nut meats or dried fruits to add will vary with the taste and to some extent with the cost. As a general rule 2 ounces (½ cup) of nut meats or an equal amount of chopped raisins, figs, dates or candied fruits will be sufficient.

Cocoanut Caramels

The shredded cocoanut may be added in the same manner as the nuts or dried fruits in the preceding recipe. The amount will depend upon other materials added, but for the "plain caramel" 2 ounces or ¾ cup is suggested as about the proper amount for the average taste. Some candy makers prefer to heat the cocoanut in the oven to a very light brown before stirring it into the candy.

Coffee Caramels

For this caramel, substitute strong coffee for the water and omit the vanilla as given in the recipe for Plain Caramels.

Chapter IX

CHOCOLATE COATED CANDIES

General Discussion

Chocolate dipping is an exacting process. Close attention must be given to minute details to insure success. A few trials, however, will give the painstaking candy maker confidence that, if the essential principles are not violated, chocolate dipping is a sure and simple operation. The outstanding conditions which must be observed and met are (I) the melting of the chocolate, (II) the temperature of the melted chocolate at the time of dipping, and (III) the temperature and moisture conditions of the room in which the work is done.

I. MELTING THE CHOCOLATE

The melting point of chocolate is quite low. It solidifies from the liquid state below 80° F., but for perfect liquefaction it should be heated to approximately 100° F. Temperature much higher than 100° F. may cause separation of the cocoa butter and subsequent troubles in dipping. The home candy maker should melt the chocolate in the double boiler. The water in the boiler should be 115 to 120° F. at the beginning and should not be allowed to cool much below 110° F. during the process of melting. The chocolate should be stirred

constantly during the melting process. If the chocolate is in a fine state of division it will melt more quickly and more satisfactorily. Water must not be permitted to come into contact with chocolate because it will then become cheese-like in consistency and therefore unfit for dipping purposes.

II. TEMPERATURE OF CHOCOLATE

The temperature of the melted chocolate when ready for dipping may vary a degree or two depending upon the brand of chocolate and the temperature of the room. A reasonably safe range is 82 to 86° F. If the chocolate is too hot it will require such a long period to harden on the dipped pieces that the cocoa butter will separate and give the candies a mottled or striped appearance. Also the coating will be very thin, and the pieces of candy will form a broad, thin foot or base where they rest upon the waxed paper.

III. ROOM TEMPERATURE

The temperature of the room in which chocolate dipping is done should be around 65° F. for best results. Satisfactory work may be done if the temperature runs as high as 70° F., provided the temperature of the dipping chocolate is maintained at about its lowest working temperature. If it is not possible to secure the necessary low room temperature, the following makeshift has worked satisfactorily in our laboratories even with a room temperature of 85° F.

Two trays or platters are used, one somewhat smaller than the other. The larger is filled with cold water—ice water is best—the smaller is set into the

larger with its bottom in contact with the cold water. A sheet of waxed paper is placed in the smaller tray. The dipped chocolates, when placed on the waxed paper, chill at once on the bottom, and this hardening of the coating quickly spreads over the pieces. This quick cooling will give a very fine and natural gloss, free from defects caused by high room temperature. Handle carefully to keep water from coming in contact with the waxed paper or the finished chocolates. The refrigerator may be used; but this requires a hasty dipping of a few pieces, then a trip to the refrigerator to prevent spotting of the candies. As a rule, chocolate coated candies that are cooled in the refrigerator lack luster and finish even though they are free from streaks and spots. The dull appearance is due to the high moisture content of the air in the refrigerator. Similar results will be had if the air in the room is damp. The ideal conditions are low temperature, around 65° F., and a relatively dry atmosphere. At least there should be no boiling kettles in the room to add their steam to the natural moisture content.

PROCEDURE

Chocolate dipping can best be done if a pound or more of chocolate is handled at a time. The larger volume retains the proper temperature for working a much longer time and since this working temperature is confined to a range of 2 to 4 degrees, the volume becomes of first importance.

The essential steps in chocolate dipping may be discussed best under the following divisions: (1) prepar-

ing the chocolate, (2) melting, (3) conditioning, and (4) dipping.

1. Preparing the Chocolate

A good grade of dipping chocolate should be used. Commercial chocolate comes in ten-pound cakes. It may be purchased from the candy makers' supply houses or the manufacturers. The grocery stores and markets carry dipping chocolate in half-pound cakes.

Chocolate will melt more readily if it is finely divided. The cake should be stood on edge on a cutting board and the amount needed cut into fine shavings with a sharp, heavy knife. The smaller and more uniform the pieces, the more satisfactorily it will handle.

2. Melting the Chocolate

To melt the chocolate, proceed as follows: Place the finely cut chocolate in the inner vessel of the double boiler. Almost fill the outer vessel with water, heat it to a temperature of 115 to 120° F. Set the inner vessel in place, and very gently press it down to expel the excess of warm water. When the inner vessel rests upon the shoulder against the boiler, lift it out and remove a fourth cup of water to avoid splashing. Return the inner vessel to its former position and begin to stir the chocolate and keep it constantly stirred as long as the water is above 100° F. From this point on, stirring may be done occasionally, but time will be saved if it is stirred throughout the time required to thoroughly melt it. If the amount of chocolate does not exceed a pound it will not be necessary to reheat the water.

3. Conditioning the Chocolate

This means adjusting the chocolate to dipping temperature. When there are no longer any pieces or lumps of unmelted chocolate, remove the inner boiler and stir and cool the chocolate to approximate dipping temperature. Adjust the tem-

perature of the water in the boiler to 86 to 88° F. Return the inner vessel to position, and stir the chocolate until the temperature has dropped to 85 or 86° F. In using a thermometer in the chocolate, be sure it is dry and is not heavily coated with chocolate from previous tests. Should the chocolate cool too much during the dipping process, heat the water to approximately 100–110° F. and stir the chocolate until it is again fluid enough to handle. Adjust to proper temperature as stated above.

4. Dipping or Coating

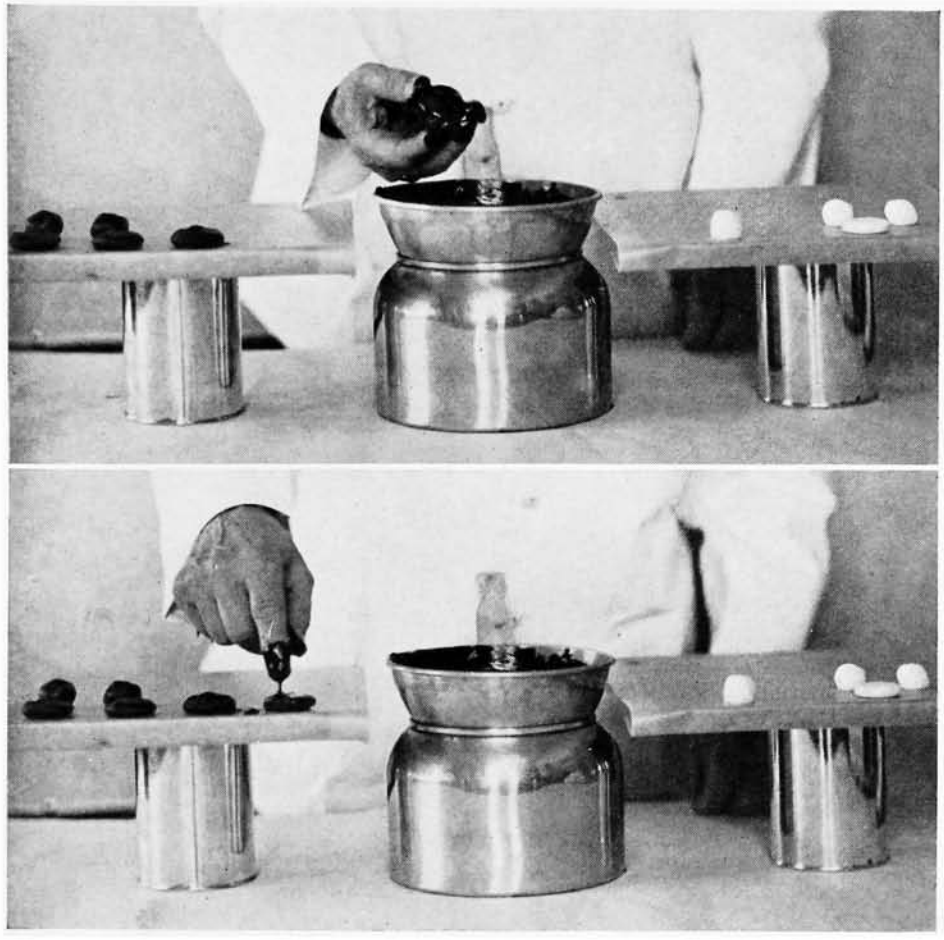
There are two commonly used methods of dipping used in the laboratory and kitchen. They are (*a*) the fork method and (*b*) the hand method. The fork method is recommended for the beginner and for practically all dipping if only a few pounds of candy are made at a time.

a. Fork Dipping

A two-tined fork or a dipping fork is necessary if this method is to be used. An improvised dipping fork is easily made from a piece of stiff wire. Make a narrow oval loop about 1½ inches long and about ½ inch wide between the wires. Fasten the free end of the loop to the main wire by soldering it or by twisting the two together. Cut the main wire off 4 or 5 inches beyond the loop, and force the wire into a piece of soft pine, cut to form a handle. If the outer end of the loop is bent slightly up ½ inch from the end, it will retain the pieces better.

The centers should be prepared in advance. Place them on a tray or board on the left side of the chocolate pot, and on the right side place a tray or board on which rests a sheet of waxed paper. For a person who is left-handed the two trays would be placed in reverse positions. Have a tablespoon in the melted chocolate for stirring. Also have ready the dipping fork.

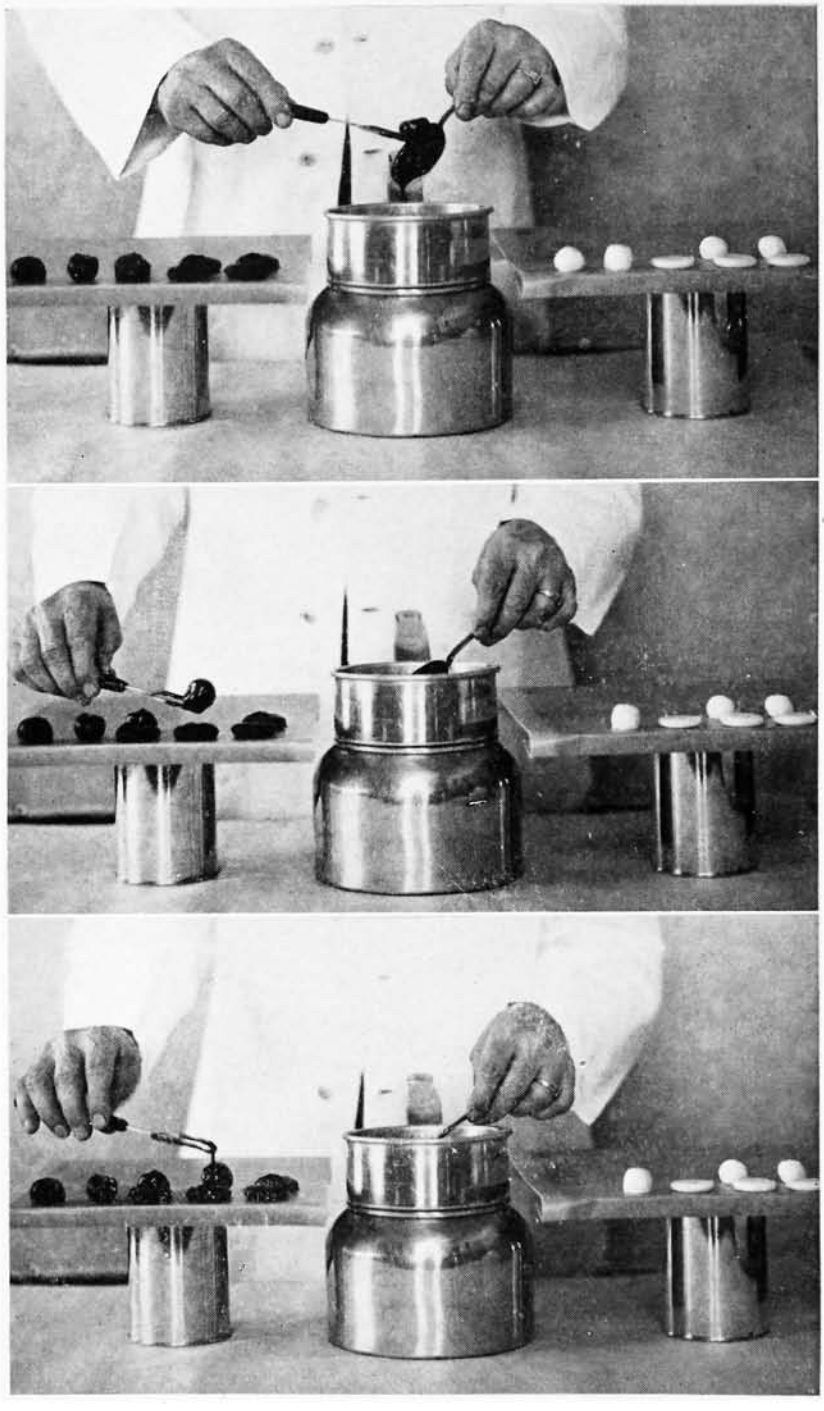
Put the centers one at a time into the melted chocolate with the left hand. As the center leaves the fingers it should be bot-



HAND-DIPPING CHOCOLATES

Top, the coated center in position to transfer to the waxed paper; *bottom,* the finish line applied with string from the finger.

Molding candies by rolling them between the palms.



DIPPING CHOCOLATES WITH A FORK

Top, remove excess chocolate from the fork; *center,* the chocolate in position to deposit on waxed paper; *bottom,* apply finish line with string from the fork.

tom side up—that is, if one surface is designed for the top. With the spoon in the left hand submerge it by pushing it down into the liquid chocolate. Insert the fork into the chocolate beneath the submerged center, and lift it free from the chocolate; allow to drain for just a moment, remove excess chocolate from underside of fork by drawing it across the edge of the spoon. Quickly lift out the piece and carry it to the waxed paper on the right. The piece is still upside down; with the fork an inch above the paper, give it a quick half-turn to deposit the piece right side up upon the waxed paper. As the fork is removed, a small amount of liquid chocolate will adhere to it which may be made to flow from the tip of the dipping fork to form a line or finish across the top of the piece. A little practice will enable one to dip rapidly and to deposit the pieces evenly and accurately on the waxed paper, each having its proper finish. Too much emphasis cannot be placed upon doing the dipping speedily. The chocolate cools rapidly and will remain in proper condition only a very short time. When the coating on the centers becomes too thick, the chocolate must be reconditioned by heating the water in the boiler. (See Conditioning the Chocolate, above.)

The fork and spoon should not be left out of the chocolate any longer than necessary, as they will become thickly coated with the hardened chocolate. It is a good plan to remove this excess chocolate from the tools before it hardens. Good work cannot be expected if the dipping tools are not kept free from the accumulated hardened chocolate.

b. Hand Dipping

Dipping by hand is the professional way except where machine dippers are used. It requires much practice to qualify as an expert. Hand dipping by the amateur is best carried out in the following manner.

Melt the chocolate as described above. Transfer a small amount of the liquid chocolate to a small bowl, such as a cereal dish. This dish should be set over a suitable vessel which can be kept filled with water at a temperature of 85 to 88° F.

The water should surround the bottom of the bowl in order to keep the chocolate in suitable condition throughout the process of dipping.

The chocolate should be 1 or 2 inches deep in the bowl. Drop the centers into the dipping bowl one at a time from the left hand, using the fingers of the right hand to submerge them and to transfer them to the waxed paper. Lift the candy from the chocolate with the thumb and first and second fingers. Allow excess chocolate to drain off for a moment, then with a quick movement turn the hand palm up. Still holding the piece, move the hand to the point where it is to be deposited. Now turn the hand palm down, release the hold and allow the piece to rest on the waxed paper. The excess chocolate on the fingers is used to place the finishing line or mark across the top of the piece. If the centers have a well defined top and bottom, they should go into the melted chocolate bottom side down, so that they need not be turned during transfer to the waxed paper.

Only the thumb and fingers of the one hand should become covered with the chocolate. Persons whose hands are cold will encounter difficulties. If the hands are warm (above 85° F.) little or no trouble will be had from the chocolate hardening on the fingers. If, however, the temperature of the hands runs below 82° F., the chocolate will harden on the fingers and they will require constant cleaning by scraping off the chocolate, which envelops the fingers and will impede the work if not removed. If the hands tend to be moist from perspiration, hand dipping becomes almost impossible.

Centers

There is almost an endless number of different kinds of centers which the home candy maker can prepare for chocolate dipping. Only a few will be discussed here. The taste and ingenuity of the operator will suggest many others.

The one important thing to remember is that any center which has free moisture on its surface is unsuitable for chocolate dipping.

1. Fondant Coated Centers

Many centers, such as maraschino cherries, all fruit preserves and all others which are at all moist, must first be dipped in fondant. This is performed in the manner described for bonbons. (See Chapter VI.) The only difference is that the fondant may be at a little higher temperature in order to secure a rather thin covering. Acid fruits, such as cherries and cranberries, will cause a partial liquefaction of the fondant if the candy is stored. This softening or liquefying of the enveloping fondant produces a soft cream or a semi-fluid. In the latter case the center is said to have been cordialed.

2. Candied Fruits

Many fleshy fruits, such as pears, peaches, pineapple and apricots, are easily candied. (See Candied Fruits, in Chapter X.) These candied fruits make excellent centers. If properly candied, the moisture content is so low that they may be dipped into chocolate without first coating them with fondant. However, in some cases one might prefer to coat first with fondant.

When candied fruits are to be dipped directly into chocolate, they should be cut into the desired shape and size and left on a waxed paper for an hour or two before dipping. If they are first coated with fondant this standing time after cutting is not necessary.

3. Dried Fruit Pastes

The dried fruit pastes (see Chapter X) make very desirable centers. They may be made of the pure fruit paste or of equal parts of paste and fondant kneaded together. These centers are best formed by rolling even-sized pieces between the palms to form balls of ½ to ¾ inch diameter. They

should be placed on waxed paper to dry for an hour or two before they go into the chocolate.

4. Candied Fruit Peel

The candied peel of grapefruit and orange (see Chapter X) may be cut into suitable sized pieces and used for centers. They may be dipped directly into chocolate or may first be given a thin coating of fondant.

5. Candy Centers

Many of the candies make excellent centers. Among those commonly used are fudges, creams, nougatines, butterscotch, caramels and marshmallows. These are cut to the size and shape desired and are then dipped directly into chocolate. If the fudges and creams appear moist when cut, the pieces should stand on the waxed paper for an hour before dipping.

6. Fondant Centers

The methods for making fondant centers are given under Uses for Fondant, in Chapter VI.

It may not be out of place here to emphasize again the general principle that freshly made fondant centers when chocolate dipped will give a relatively large number of "leakers." This trouble will be reduced to a minimum if the centers are not dipped until the day after they are made.

Chapter X

FRUIT CONFECTIONS

Many of the fruits may be made into excellent confections and candies, which may be eaten out of hand, utilized as centers, or added to fudges or nougatines as a pleasing variation from the ordinary.

The very acid fruits, such as the cranberry, currant and sour plum, offer difficulties too great for the average home candy maker. The less acid fruits, such as apples, grapes, peaches, apricots and the berries, can with sufficient patience and technique be made into fondants, taffies, pastes and nougatines.

RECIPES

Fruit Fondants

Fruit fondants are a little more difficult to make than the plain fondants. This is largely due to the introduction of unknown amounts of acids which are in the fruits and which interfere with the inversion necessary to make a good creamy fondant. Also the fruits carry invert sugars, pectin and mineral compounds in variable amounts, and these affect the finish temperature. However, they are well worth the extra work required, and a few trials will set one on the road that leads to successful accomplishment.

The less acid fruits, such as apples, peaches, pears, quinces and raspberries, are least difficult and will give products worthy of even greater effort.

Two procedures are open to the experimenter. (1) The fruit is cooked to tenderness in water, ½ cup per pound of fruit. The juice and pulp are put through a fine sieve, and this mixture is cooked with the sugar. (2) The fruit is cooked with 1 pint of water per pound of fruit until the fruit is broken in pieces or is quite soft. The juice is strained through a cheesecloth and the pulps are discarded. The strained juice is concentrated by rapid boiling to one pint per pound of fruit, and this concentrated juice may be cooked with the sugar.

Materials:

1½ pounds (3 cups) granulated sugar
1 cup fruit juice or juice and pulp

Procedure:

Place the materials in the saucepan and boil moderately, with frequent stirring if the pulp has been used, to 32–33° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium firm ball by the water test. Wipe off the crystals from the pouring side of the saucepan, and pour the hot materials into a shallow agate pan. Allow to cool undisturbed to 110–115° F. Stir with spoon or wood paddle until the mass becomes cheese-like. Take the fondant into the hands and knead it until it is soft and plastic. Store in covered vessel until ready to use.

If, after 20 to 25 minutes' stirring, the material is still a heavy creamy mass, it is suggested that it be left in the covered pan for an hour or two. As a rule the cream will be found to have solidified into a fine creamy fondant. This may

be removed from the pan for immediate use or stored in a covered vessel until needed.

Fruit Taffy

The highly acid fruits, such as currant and cranberry, are more difficult to handle than the less acid ones, such as apple, grape and raspberry.

Materials:

1 pound (2 cups) granulated sugar
6 ounces (½ cup) corn syrup
1 pint fruit juice (jelly stock)

Procedure:

Place the fruit juice in the saucepan and concentrate by rapid boiling to one cup. Add the sugar and corn syrup, and boil moderately to 48–50° F. above the temperature of boiling water, or to a very hard ball by the water test. Remove materials from the heat. Wipe off the crystals from the pouring side of the saucepan and pour the hot syrup into a lightly buttered pan. Allow to cool until the sheet of cooled material may be handled comfortably. Knead and work the piece into condition to pull. Then pull until it becomes quite elastic. Pull out into a ½-inch cylinder, cut into 1½-inch lengths with scissors. For immediate consumption dust the pieces with powdered sugar. If to be stored for a few days or longer, wrap in waxed paper.

Fruit Jam Fudge

Materials:

1½ pounds (3 cups) granulated sugar
½ cup cream
½ cup jam
⅓ cup water
1 ounce (2 tablespoons) butter

Procedure:

Mix sugar, cream and water in a saucepan and boil moderately to 230° F. Add the jam and the butter, and boil to 24–26° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium soft ball by the water test. Remove the materials from the heat, wipe off the crystals from the pouring side of the saucepan, and pour the hot materials into a shallow agate pan. Allow to cool undisturbed to 110–115° F. Stir with spoon or wood paddle until the material becomes cheese-like. Take into the hands and knead until soft and plastic. Mold into a waxed-paper-lined pan, smooth the surface by patting with the hands, cover with a waxed paper, and set aside to harden. After 10 minutes the candy may be removed to the cutting board and cut into suitable size pieces for serving or packing. Pack in a waxed-paper-lined box or a covered container. This recipe will make 2 pounds.

Pure Fruit Jelly

These confections are not really jellies since they contain the pulp as well as the juice of the fruit. The fruit is prepared—if raw—by putting it through a food chopper, using the fine cutter. If canned fruit is used, it should be put through a colander or fine sieve. Apricot is ideally adapted to this type of confection; peach is lacking in acid, and a quarter-teaspoon of cream of tartar should be added to the recipe if peaches are used.

Materials:

10 ounces (1¼ cups) pulped apricots
½ pound (1 cup) granulated sugar
6 ounces (½ cup) corn syrup

Procedure:

Mix all materials in a saucepan, and boil moderately with constant stirring until a small amount dropped into water will

solidify and hold its shape when removed with the fingers. Wipe off the pouring side of the saucepan with a damp cloth, and pour the hot materials into a lightly buttered pan to form a sheet a half-inch or more thick. Allow to cool until well set. Remove the sheet to the cutting board, which has been lightly dusted with powdered sugar. Cut into convenient size pieces for serving or packing. The cut pieces may be dusted with powdered sugar, or they may be rolled in granulated sugar. If to be used for chocolate centers, do not use granulated sugar, and only a minimum of powdered sugar. Allow the pieces to lie on a tray until dried beyond the sticky stage before dipping them.

If preferred, the hot material may be cast into starch molds to form centers or for candies to eat out of hand. (See Cast Centers, in Chapter VI.)

Apple Nougatine

Materials:

1 pound (2 cups) granulated sugar
3 ounces (4 tablespoons) corn syrup
½ cup water
1 ounce (2 tablespoons) butter
½ pound (1½ cups) chopped apples
1 ounce (¼ cup) chopped nut meats (optional)

Procedure:

Place the sugar, corn syrup and water in a saucepan. Boil moderately to 275–285° F. Add the apples, which have been peeled, cored and run through the fine cutter of the food chopper. Boil slowly with almost constant stirring to 230° F. Add the butter and continue to boil slowly to 38–40° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard ball by the water test.

Wipe off the crystals from the pouring side of the saucepan, and allow the materials to cool 2–3 minutes. Pour into a lightly buttered candy pan and allow to cool undisturbed. If

the nut meats are to be added, cool the hot materials for 8 to 10 minutes, stir in the nut meats, and pour into buttered pan. When the candy is cold, remove from pan to cutting board, which has been dusted with powdered sugar. Cut into suitable size pieces and wrap in waxed paper, or if for immediate consumption dust the pieces with powdered sugar.

Other fruits may be made into this confection in the above manner. Mildly acid fruits may show a tendency to crystallize within a few days. This may be overcome by adding a quarter-teaspoonful of cream of tartar to the sugar, corn syrup and water mixture at the beginning of the cooking operation.

Stuffed Fruits

A few of the fruits because of their structure are easily made into some of our most delicious confections by filling the seed cavity with fondant or a mixture of fondant and finely chopped nut meats. Sometimes they are stuffed by inserting a full half of pecan or a quarter of English walnut with just enough fondant added to give the fruit shape and to hold the nut filling in place. The commonly stuffed fruits are the date, the fig, the prune and the large varieties of raisin. Only two of these will be described. The others are quite similar.

STUFFED DATES

Dates may be had on the market either seeded or with the seeds in. In the former case, locate the cut through which the pit was removed. Then open the date to expose the seed cavity. If the dates have the seeds in, make an incision from end to end, cutting down to the seed. With the point of the knife remove the pit, and place the pitted date on the tray to await the second operation. Proceed in this manner until all the dates are prepared. You should have on hand enough fondant

to stuff the prepared dates. Knead it until it is soft and plastic. Take small bits of fondant, and proceed to fill the seed cavity and to stretch the fruit somewhat beyond its present size. Be careful not to overstuff. Smooth down the exposed fondant along the cut through the fruit, and press the cut edges into the fondant to make a neat-looking piece. When all the dates have been stuffed, place a small amount of granulated sugar in a bowl or pan, and roll the stuffed fruits in it to give them a crystalline covering. This will not only add to the appearance of the candy but make it less sticky to handle. Store in a covered container. If preferred, any ratio of finely cut nut meats may be kneaded into the fondant, and this mixture may be used to stuff the dates.

STUFFED PRUNES

If a choice can be had, select small size prunes rather than the large ones. Place the washed prunes in a steamer, or improvise a steamer by placing the prunes in a colander or sieve and suspending this over the top of a 6- to 8-quart saucepan in which you have placed a quart of water. Place a cover over the vessel to confine the maximum amount of steam. Bring the water to boiling, and steam the prunes until they become somewhat soft—usually 6 to 10 minutes is sufficient. Spread the prunes on a tray to cool. When cold make a cut with a sharp knife from tip to stem end of the fruit along the suture line. With very little cutting along each side of this cut the pit can be quickly and easily removed. Lay the pitted prune on the tray to await the next operation. Proceed in this manner until all the prunes are pitted. You should have on hand sufficient unflavored fondant to stuff the prepared prunes. If plain fondant is to be used, knead it until it is soft and plastic; then take small pieces and proceed to fill the cavity in each prune. Do not overstuff, but pack in just enough to make the prune plump and somewhat firm. Smooth the edges of the cut down against the fondant, and lay the stuffed fruit aside. When all the prunes have been stuffed, take a small amount

of granulated sugar in a pan and roll the prunes in the sugar. This will give them a crystalline covering which will add much to their appearance and to the ease and comfort in handling them. If not to be served at once, store in a covered vessel.

If it is preferred, any ratio of finely cut nut meats desired may be kneaded into the fondant, and this mixture may be used instead of plain fondant.

Stuffed prunes are among our most satisfying candies, and they should be more widely used because they are less rich in sugars than most candies and are delicious in both taste and flavor.

Fruit Leather

While the pulps of many fruits, such as apricot, strawberry, raspberry and grape, may be made into an acceptable leather, the peach is the fruit most commonly used. Its flavor is good, and the color, far more attractive than that of the darker fruits. Raspberries and blackberries should be crushed, and the pulps put through a fine sieve to eliminate the seeds. Grapes are cooked at 180° F. until soft and then put through a fine sieve. The remainder of the process is the same as for peach leather.

PEACH LEATHER

The peaches should be soft-ripe. Remove the pits and put the pulps through the colander; if the fruit is too firm for this, remove the peel with knife or by blanching in hot water, and put the fruit through the fine cutter of the food chopper. To each pint of pulp add ½ cup of sugar, and stir to insure solution and uniform distribution. Pour onto a lightly buttered tray to form a layer about ¼ inch thick. Set the tray in

a barely warm oven (120–130° F.) with the door about half open. When dried below the pulpy stage, remove the sheet and roll into a tight cylinder. Wrap in waxed paper. If the air is dry, the tray may be set out of doors and sun-dried.

If left too long in the oven or in the sunshine the leather will become brittle. To correct this, pass the tray upside down over a vessel of boiling water a few times. Set the tray on the table, and cover. The leather should be soft and flexible enough to form into a roll within an hour or two. Cut across the cylinder to form thin slices for serving.

Dried Fruit Paste

Excellent confections to eat out of hand or to use as centers for bonbons or chocolates may be made by mixing a number of dried fruits. Most of us would choose those fruits which appeal to our taste, and because that is so, a large variation of flavor is possible. The following combination is given as a working model.

Materials:

3 ounces each of figs, raisins, dried peaches and prunes
2 ounces dried apricots
½ cup powdered sugar
½ pound fondant

Procedure:

Put all the fruits through a food chopper, using the fine cutter. Knead the powdered sugar into the chopped fruits. Knead thoroughly to secure uniform blending of the fruits. This may be used as a pure fruit paste. However, it is more economical to knead into the fruit paste at least a half-pound of good fondant. The fondant will extend the more expensive paste, will sweeten it and help to develop the flavor.

This paste may be made into hand-molded centers for

dipped candies as directed for fondant centers. (See Uses for Fondant, in Chapter VI.)

Grapefruit Peel Candy

This product should not be confused with candied grapefruit peel. The latter requires the treatment prescribed for candied fruits, and the resulting product has good keeping quality, while the grapefruit peel candy requires only a very short time to make and has a storage life of only a few days at best unless very tightly sealed.

Materials:

1 grapefruit peel = ½ pound
8 ounces sugar
3 tablespoons corn syrup
1 pint water

Procedure:

Prepare the grapefruit peel by removing all the membranes (rag), leaving the skin and white peel intact. If the peel is in halves, cut them into two equal parts. Lay each quarter on the cutting board and cut it into half-inch strips. Place the prepared peel in a saucepan, add 1 quart of water and 1 tablespoon of salt. Bring to boiling, and boil for ten minutes. Drain off the salt water and add 1 quart of clear water, cover the vessel, and boil for 10 minutes. Drain off the hot water and recook for 10 minutes in another quart of clear water. Drain, and if the peel is tender and is not too strongly flavored, it is ready to be placed in the syrup. If, however, there is too much flavor left, another cooking should be given.

Prepare the syrup by placing the sugar, syrup and water in a saucepan. When the solution is hot, add the peel and boil moderately to the finish point. The peel is finished when the temperature of the small bit of syrup has reached a tempera-

ture of 15–17° F. above the temperature of boiling water; or boil the peel very slowly until there is less than a half-cup of syrup left. Careful stirring and slow cooking are necessary during the last few minutes.

Pour the hot peel into a colander to drain. After a minute or two, lift out the pieces with a fork and lay them skin side down on a platter or cookie sheet. When cool enough to handle with the fingers, transfer each piece to another platter, the bottom of which has been sprinkled over with granulated sugar. Pick up the pieces of peel and lay them on the sugared platter pulp side down. After cooling and drying for 5–10 minutes, roll the pieces in granulated sugar.

This confection should be firm and only slightly chewy. If soft and watery, it did not have enough sugar in the syrup or was not cooked long enough. If tough, the peel was not precooked long enough. This recipe will make approximately ¾ pound.

If this confection is to be chocolate dipped, it should first be given a thin fondant coating. (See Bonbons, in Chapter VI.)

Orange peel may be made into a confection by this same procedure.

Candied Fruits

Candied fruits are confections of fruits which through proper processing have become so thoroughly impregnated with sugars that when removed from the syrup in which they have been processed and dried beyond the sticky state, they will remain in good condition for many months.

USE OF INVERT SUGARS

Some invert sugars are necessary to the proper processing of candied fruits. With the more acid fruits

there will be considerable inversion during the various boiling periods. (See Sucrose, in Chapter I.) But in order to insure at least a minimum amount, it is best to add some invert sugar. This is accomplished by using corn syrup, which contains a relatively large amount of dextrose.

If there is not a sufficient amount of invert sugars present, the candied fruits will become hard and heavily crusted with sugar. The invert sugars tend to prevent the hardening of the fruit and the formation of sugar crystals.

TIME REQUIRED

The time required to properly process candied fruits varies from 6 to 10 days. If the process is hurried too much the fruits may shrivel. If there is too long a period between concentrations of the syrup during the earlier stage the syrup will ferment. It requires only a very little fermentation to render the fruit worthless for further processing.

KINDS OF FRUITS

Fruits that have firm flesh are most suitable. Those commonly used are the apricot, citron, citron melon, cherry, cranberry, grapefruit peel, orange peel, peach, pear, pineapple and quince. The fruits may be fresh or canned. If fresh fruits are used they should be firm-ripe. Mellow-ripe and soft fruits tend to break down into a pulpy mass during processing.

PREPARATION

The preparation of fresh fruits, especially those that are normally canned, is the same as for canning.

Apricots, peaches, large pears and the quince are peeled and halved. Small pears are peeled and left whole.

Cherries are pitted. Care must be used in removing the pits to leave the cherries as nearly whole as possible.

Citron melon is peeled to remove the thin outer green layer. The soft pulp is cut out and the remaining firm white rind is cut into strips or cubes. The prepared melon should be parboiled in two or more changes of water until it is tender. It is then ready to be placed in the processing syrup.

The peel of the grapefruit and orange may be left in halves or cut into strips. The pulp and heavy membranes are removed. The remaining portion, which consists of the outer skin and the inner pulpy peel, has a very bitter taste, and the oil of the skin is irritating to the sensitive membranes of the mouth. A part or all of these undesirable characters must be removed in order to give acceptable taste and flavor. This is accomplished by parboiling the prepared materials in three or more changes of clear water. Each boiling period should be approximately 10 to 15 minutes. If the peel is not tender at the close of the third boiling, the cooking should be prolonged until the peel is quite tender. The peel is now ready to be placed in the processing syrup.

Pineapple is peeled and cut into half-inch slices. If the core is not removed before processing, the slices will be less likely to break down. If desired the core can be easily removed after the fruit has been removed from the processing syrup.

The cranberry is in a class by itself and must be given special treatment. The following procedure has given satisfactory results in class laboratory exercises. A quart of cranberries is placed in a shallow pan. A syrup is made by dissolving 1¼ pounds of sugar in 1½ cups of water. This syrup is heated to boiling and poured over the cranberries. The pan of fruit and syrup is then set into a steamer and steamed for 45 minutes. After removing from the steamer, the fruit is allowed to cool before stirring. Set the pan in a warm, dry room for 3 or 4 days. Occasional stirring will hasten the process. When the syrup has become jelly-like, the fruits are removed to waxed paper. (See below, Subsequent Treatment.)

METHODS USED

The commercial manufacturer of candied fruits follows a scientific procedure and keeps a close check upon every operation. But in order to apply these rules certain equipment is necessary which is not found in the home nor in many laboratories. Therefore, the following empirical recipe or formula which has been developed through a long period of laboratory practice is offered as a substitute with the confidence that, if carefully applied, it will give highly satisfactory results.

Empirical Formula

Materials:

2 pounds prepared raw or canned fruit
½–2 pounds (3–4 cups) granulated sugar (smaller amount with canned fruits)
1¼ pounds (1½ cups) corn syrup
1 quart water

Procedure:

Make a syrup of the water, sugar and ½ cup of corn syrup. If the fruit is fresh, add it to the hot syrup and boil very slowly in a covered vessel for 10 minutes. If canned fruit is used, boil in an open vessel for 5 minutes. At the close of the cooking, set the vessel aside, cover and allow to stand for one day.

Second day: Drain off the syrup and concentrate by rapid boiling in open vessel to 1 quart. Add the fruit, and boil for 2 to 3 minutes.

Third day: Drain the syrup from the fruit, add the remaining cup of syrup, and bring the syrup to boiling. Add the fruit, and boil in an open vessel for 2 or 3 minutes. The temperature of the syrup should be approximately 6° F. above the temperature of boiling water.

Fourth day: Drain the syrup and bring it to boiling. Add the fruit and boil for 3 to 5 minutes. The temperature of the syrup should be approximately 10° F. above the temperature of boiling water.

Sixth day: Place the syrup and fruit over the fire, bring to boiling, and boil slowly for 3 to 5 minutes. The temperature of the syrup should be 12 to 14° F. above the temperature of boiling water. Set the fruit aside for one day.

Seventh day: Heat the fruit and syrup to the boiling temperature. Pour the hot materials into a large colander and allow the syrup to drain from the fruit. After it has thoroughly drained, place the fruit on waxed paper and leave in a warm dry room. When dried below the sticky stage wrap each

piece in waxed paper and store in a covered vessel or waxed-paper-wrapped box.

Subsequent Treatment

When the fruits have become sufficiently impregnated with sugars they are drained to remove all free syrup. The pieces are then placed on waxed paper and left for a day or two in a warm, dry room. The pieces should then be turned to insure uniform drying. The halves of fruits like peaches, pears and apricots should be placed on the waxed paper, cup down. This will prevent spreading and breaking of the pieces.

When the fruit can be handled freely, it is in condition to store. Large pieces may be wrapped in waxed paper and stored in a closed container. Smaller pieces may be filled into containers that have a tightly fitting cover.

Use of Excess Syrup

Any syrup that remains over after the fruits have been thoroughly processed may be made into taffy. Place the syrup in a saucepan and boil moderately to 44–46° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard ball by the water test. Pour the hot syrup into a lightly buttered pan and allow it to cool undisturbed until it may be taken into the hands for pulling. (See Chapter XIV, Taffies, for further procedure.)

Chapter XI

MAPLE CONFECTIONS

General Discussion

Those who have experienced the delights of a "sugar-eat" in a woodsy sugar camp, and who have gorged themselves on maple wax, maple sugar, sour pickles and doughnuts, never forget the delicious, incomparable aroma and flavor which Mother Nature distills for this choicest of her sweets. So distinctive is the flavor and so concentrated that it may be spread over a considerable volume and still retain its charm and superiority.

Maple products for use in the home manufacture of candies may be either maple syrup or maple sugar. The former is by far the more common, and it will be found that in most uses it is also the more desirable form.

The basic material for candies and for many confections is sugar. It is, therefore, a very simple matter to combine maple sugar or maple syrup with the granulated cane sugar in such ratios as will give a delicious flavor and at the same time keep down the cost of maple flavored candies. Maple sugar usually costs four to six times as much as cane sugar, and for this reason many of us will need to be satisfied with maple flavored

candies rather than the much more expensive, pure maple candies.

While maple syrup and maple sugar may be used in candies and confections in much the same manner as cane sugar, there are many products in which it would be most unwise to substitute maple sugar for a part or all the cane sugar because of the presence of other materials which would mask the maple flavor. It should be used only in such confections as will give the desired maple flavor.

Sometimes the tub maple sugar becomes infested with mold in the package or after the package has been opened and a part of the contents is removed. This infestation is very likely to result in so much inversion of the sucrose sugar, due to enzymes produced by the mold, that the sugar is unfit for making some products as fondant and wafer or cake sugar. (See Sucrose, in Chapter I.) If the sugar is not too highly flavored with the mold it may be used in creams, fudges and in small amounts in many other confections.

MAPLE SYRUP

Maple syrup is approximately one-third water and two-thirds sugar. It contains a trace of acids, some minerals and the substances which give to it its characteristic color, flavor and aroma.

Intense color is due to long, slow boiling of the sap from which the syrup is made or to some bacterial action in the sap previous to boiling. Either of these factors which materially deepen the color will also most likely produce an "off-flavor."

Maple syrup should boil at 7° F. above the temperature of boiling water. It should test 65 to 66 on a Brix or Balling saccharometer and 35.5° on the Baume hydrometer, and a gallon should weigh 11 pounds. A pint of syrup, therefore, weighs 22 ounces and has the value of about 1 pound of maple sugar.

RECIPES

Maple Sugar

There are four kinds of maple sugar known to manufacturers and handlers of maple products. Only one of these is used as a confection. It is called cake or wafer sugar.

There are two distinct types of wafer sugar as determined by their texture: one is creamy, while the other is crystalline. The color of maple sugar is closely related to the size of the crystals. The larger the crystals, the darker the sugar. As a rule, therefore, the creamy sugar is light while the crystalline is dark.

The size of the crystals and therefore the color are influenced by the temperature at which the stirring begins and by the manner of subsequent manipulation. If the stirring begins when the syrup is at a temperature of 160° F. or higher, the crystals are almost certain to be a large and the color a light or dark brown. If the stirring takes place between 125 and 150° F. the crystals will normally be very small and the sugar will have a light yellow color, while if the stirring is at a temperature between 110 and 120° F. the crystals will be of microscopic size, the texture will be that of a good fondant, and the color a light cream.

There are two methods by which the sugar may be converted into cakes. (1) The cooled syrup is stirred until it has reached the correct stage of creaminess or crystallization, and is then immediately poured into the molds. The inexperienced will have considerable difficulty with this method. The correct time to pour can be learned only by observation or through experience. If done too soon, the crystallization will not be completed, and many of the crystals will be quite large; while if delayed too long the sugar becomes too stiff to flow into the molds. (2) The cooled syrup is stirred until the creaming or crystallization is completed. This sugar is then placed in a double boiler and gently heated over water just enough to melt it to the consistency of very heavy cream. It is then transferred to the molds.

The finished cakes often have white spots on the surface that was uppermost in the mold. These usually result from pouring the melted sugar into the molds while it is too hot. Overheating the sugar in the double boiler to secure liquid condition is possibly a contributing factor. The heating in the double boiler should be done very carefully. The water should be kept at a temperature which will just liquefy the sugar sufficiently to pour into the molds. The temperature of the water will vary with the character of the sugar. The firmer the sugar, the higher the temperature required. Most sugars may be handled if the water is heated to 160–180° F., and in all cases the lowest possible temperature should be used. During the process of melting, the sugar must be stirred at very frequent

intervals to prevent overheating near the sides of the container.

Procedure:

Place the desired amount of maple syrup in a saucepan and boil moderately to a temperature of 20 to 22° F. above the boiling point of water as registered on the thermometer being used, or to a very soft ball by the water test. Wipe away the crystals from the pouring side of the vessel with a damp cloth, and pour the hot syrup into a shallow agate pan and cool undisturbed to approximately 150° F. for crystalline sugar or to 120° F. for creamy sugar. Stir the cooled syrup with a heavy spoon or paddle until crystallization is completed. Transfer the warm sugar to the double boiler, heat the water just enough to liquefy the sugar, keep well stirred while melting. Transfer from the double boiler to the molds. If the molds are large, pour the sugar; if the molds are small, transfer it with a spoon as when making fondant cast candies. If regular sugar molds are not available, the gem baking pans may be used. They should be filled only about one-third full—or the sugar may be placed by spoonfuls on waxed paper to form discs as when making fondant cream candies. (See Chapter VI.)

Wafer sugar loses water quite readily and should be stored in a closed container, or it may be crystallized or syrup-dipped. (See Chapter V, Crystallization.)

Maple Wax

This most delicious of the maple confections is not stable. It must be consumed almost immediately after it is made.

Procedure:

Place in the saucepan the desired amount of maple syrup, and boil it moderately to a temperature of 20–22° F. above

the temperature of boiling water as registered on the thermometer being used, or to a very soft ball by the water test.

Begin at once by placing this hot syrup by spoonfuls upon snow or finely crushed ice. It will harden at once into a soft chewy wax of exceptionally good flavor. This wax must be consumed at once upon removal from the ice or snow.

Any excess syrup not wanted for wax may be stirred to form sugar.

Maple Cream

Maple cream is seldom used as a confection except in combination with other materials to which it imparts its flavor. In the pure state its most common use is icing for cakes and cookies. Its color is white or creamy yellow. The consistency is soft, cheese-like and free from noticeable crystals.

Procedure:

Place in a saucepan the desired amount of maple syrup and boil to 17 to 18° F. above the temperature of boiling water as registered on the thermometer being used, or to the gelatinous stage by the water test. Wipe off the crystals from the pouring side of the saucepan, and pour the hot syrup into a shallow agate pan and allow to cool undisturbed to 90° F. Stir the cooled syrup until it is thoroughly creamed. Pour into jelly glasses and seal at once.

If the finished cream is too stiff to flow from the stirring pan the finish temperature was too high, or the stirring was begun before it had sufficiently cooled.

Maple cream often tends to revert in part to syrup, that is, a small amount of syrup will form on top of the mold, in the jelly glass or in cavities throughout the cream. Before

using, this syrup should be stirred into the cream to give it its original character.

Maple Flavored Fondant

Materials:

1 cup maple syrup
1¼ pounds (2½ cups) granulated sugar
½ cup water
⅛ teaspoon cream of tartar

Procedure:

Mix all materials and boil moderately to approximately 230° F. then slowly to 22–24° F. above the temperature of boiling water, or to a very soft ball by the water test. Wipe off the crystals from the pouring side of the saucepan, and pour the hot syrup into a shallow agate pan. Allow it to cool undisturbed to 110° F., stir with a heavy spoon or paddle until it is thoroughly creamed and the whole mass becomes cheese-like. Knead until soft and plastic. Store in a covered vessel. It may be made into the various candies discussed under Uses for Fondant, in Chapter VI.

Pure Maple Fondant

Pure maple fondant may be made as follows: Boil maple syrup to 20–22° F. above the temperature of boiling water as registered on the thermometer being used, or to a very soft ball by the water test. Wipe the crystals from the pouring side of the saucepan, and pour the hot syrup into a shallow agate pan. Allow to cool undisturbed to 105–110° F. Stir until cheese-like, then knead until soft and plastic. Store in a covered vessel. This fondant may be used in the manner given under Uses for Fondant, in Chapter VI.

Maple Cream Candy

Materials:

1 pound (2 cups) granulated sugar
1 ounce (2 tablespoons) butter
1 ounce (¼ cup) finely cut nut meats (optional)
1 cup maple syrup
½ cup light cream
½ cup water

Procedure:

Mix all the materials except the butter and nut meats. Boil moderately to approximately 230° F. Add the butter and boil slowly to 24–25° F. above temperature of boiling water as registered on the thermometer being used, or to a soft ball by the water test. Wipe away the crystals from the pouring side of the saucepan with a damp cloth, and pour the hot syrup into a shallow agate pan and allow to cool undisturbed to 110–115° F. Stir the cooled syrup with a heavy spoon or paddle until well creamed, add the nut meats and continue to stir until the material has a soft dough-like consistency. Knead this in the hands or on a molding board until it is soft and plastic. Mold it into a lightly buttered pan or into a waxed-paper-lined pan. Press down to form a sheet of uniform thickness, and smooth off the top by gently patting it with the fingers. Cover with a waxed paper.

After standing a few minutes it may be removed from the pan to the cutting board and cut into pieces suitable for serving. Like most creams and fudges, this candy is short-lived when cut in pieces and exposed to the air, but if left in the pan with waxed paper cover, it may be kept for a few weeks in good condition.

Maple Sugar Candy

This candy is a substitute for maple sugar. And to many of us it offers a low-priced confection with suffi-

cient maple characteristics to satisfy the desire for the richer product.

Materials:

1½ pounds (3 cups) granulated sugar
1 cup maple syrup
½ cup water

Procedure:

Mix all materials and boil moderately to 23–24° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium soft ball by the water test. Wipe away the crystals from the pouring side of the saucepan with a damp cloth. Pour the hot syrup into a shallow agate pan and allow to cool undisturbed to 150–160° F. for crystalline sugar and 120–130° F. for creamy sugar. Stir with a heavy spoon or paddle until the materials form a cheese-like mass. Place in a double boiler and heat until fluid enough to pour. Fill into molds or transfer by spoonfuls to waxed paper to form disc-shaped candies.

Chapter XII

HONEY CANDIES

General Discussion

Honey contains approximately 77 per cent sugars, of which about 2 per cent is sucrose or cane sugar. The remainder is dextrose, 35 per cent, and levulose, 40 per cent. In addition to its sugar content honey is valued because of its flavor and aroma. Both the flavor and the aroma have a very wide variation, depending upon the kind of flowers from which the bees gather nectar. For example, honey in which the nectar from orange blossoms predominates has a very pleasing aroma and a delightful flavor, while buckwheat honey is very heavy-flavored, with a pronounced aroma.

Since there is a wide range in both flavor and aroma in the different kinds of honey, it naturally follows that when honey is introduced into any food product for the purpose of modifying or controlling its flavor, the amount will have to be varied, depending upon the kind of honey used and the flavor desired in the finished product.

Honey is used in confections for (*a*) its flavor and (*b*) the effects produced by its sugar content. Dextrose and levulose are invert sugars (Chapter I), and their

presence in a confection tends to retard or prevent the formation of sugar crystals. Furthermore, levulose is a deliquescent substance—i.e., it will absorb moisture from the air—and its presence in certain types of candies prevents their becoming hard and dry; in fact, in moist weather too much water may be absorbed and result in soft or sticky candies.

There is a limit to the amount of honey that may be added to a confection. Excess of invert sugars causes great difficulty in securing the texture desired, especially in stirred or beaten candies.

In using honey in home candy making one must bear in mind: (1) that in order to secure the desired flavor the amount of honey should vary according to its flavor; (2) that the finish temperature of a candy containing honey is always a little higher than of one containing corn syrup and cane sugar; (3) that an excess of honey will result in soft syrupy candies; (4) that, if the honey content is increased in order to secure a more pronounced flavor, then an equal amount of corn syrup should be omitted when corn syrup is one of the materials; (5) that any increase in the ratio of honey will require a slightly higher finish temperature; (6) that all stirred or beaten candies containing honey require longer and more persistent stirring; (7) that all recipes, unless otherwise noted, call for strained or extracted honey. However, the comb honey may be used instead. The wax in the comb tends to produce a more waxy consistency in some of the stirred candies. That is not objectionable, but on the contrary is in most cases highly desirable.

RECIPES

Honey-Chocolate Caramels

Materials:

1 pound (2 cups) granulated sugar
½ pound (⅔ cup) corn syrup
¼ pound (⅓ cup) honey
3 ounces (¾ cup) bitter chocolate finely cut
1 ounce (2 tablespoons) butter
½ cup light cream
½ cup water
⅛ teaspoon salt
½ teaspoon vanilla

Procedure:

Mix all the materials except the butter and vanilla, and cook by moderate to rapid boiling to approximately 230° F., at which time add the butter and boil slowly to 35–36° F. above the temperature of boiling water on the thermometer being used, or to a medium hard ball by the water test.

Remove from the fire, and when the bubbles have subsided stir in the vanilla and pour into a very lightly buttered pan. When cool remove from pan to cutting board, cut into suitable size pieces and wrap in waxed paper.

The use of honey in this caramel is more for the keeping quality rather than for its effect upon the flavor.

Honey Caramels

Materials:

¾ pound (¾ cup) brown sugar
½ pound (1 cup) granulated sugar
½ pound (⅔ cup) corn syrup
¼ pound (⅓ cup) honey
1 ounce (2 tablespoons) butter

½ cup light cream
½ cup water
½ teaspoon vanilla
⅛ teaspoon salt

Procedure:

Mix all the materials except the butter and vanilla, and proceed as for chocolate caramels except to finish at 36–37° F. above the temperature of boiling water as recorded on thermometer used, or to a medium hard ball by the water test.

This will give a caramel with a honey flavor and will have good keeping quality.

Honey-Chocolate Fudge

Materials:

1 pound (2 cups) granulated sugar
2 ounces (½ cup) bitter chocolate, finely cut
2 ounces (2½ tablespoons) honey
1 ounce (2 tablespoons) butter
⅓ cup light cream
¾ cup water
½ teaspoon vanilla

Procedure:

Mix all the materials except the butter and vanilla, and cook to approximately 230° F. Add the butter and boil slowly to a finish temperature of 27–28° F. above the temperature of boiling water as recorded on the thermometer being used, or to a soft to medium firm ball by the water test. Wipe the crystals from the pouring side of the cooking vessel with a damp cloth, and quickly transfer to a shallow pan. Allow to stand undisturbed until the syrup has cooled to 120° F. Stir with a heavy spoon until creamy. Mold into a lightly buttered pan or into a waxed-paper-lined pan. Pat the surface lightly with hands until smooth and glossy. Press a piece of waxed

paper firmly over the exposed surface and leave for 10 minutes or longer to harden. Remove from the pan to cutting board and cut into pieces suitable for serving.

This fudge if left in the pan—covered with waxed paper—should keep for a few weeks.

Honey Divinity

Materials:

- 1¼ pounds (2½ cups) granulated sugar
- 2 ounces (2½ tablespoons) honey
- 4 ounces (⅓ cup) corn syrup
- ¾ cup water
- 1 egg white beaten stiff
- ⅛ teaspoon salt

Procedure:

Mix the sugar, water, syrup and honey and cook to a finish temperature of 32–33° F. above the temperature of boiling water as recorded on the thermometer being used, or to medium firm ball by the water test. Remove the crystals from the pouring side of the saucepan with a damp cloth, and allow to cool for 6 to 8 minutes. Pour the syrup slowly into the beaten egg white, whipping or stirring the mixture constantly. When the syrup has all been added, continue to beat until the mass becomes cheese-like. Mold into a lightly buttered pan or a waxed-paper-lined pan and set aside to harden. Remove from the pan to cutting board and cut into suitable size pieces. (See Divinity, in Chapter VII.)

Honey Fondant

Materials:

- 2 pounds (4 cups) granulated sugar
- 3 ounces (3½ tablespoons) honey
- 1 cup water

Procedure:

Mix all the materials, and boil to a finish temperature of 30–31° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium firm ball by the water test. Wipe the crystals from the pouring side of the saucepan with a damp cloth, and pour the hot syrup into a shallow pan to cool. Allow to cool undisturbed to a temperature of 110° F. Stir or beat until thoroughly creamed and of a dough-like consistency. Knead in the hands until soft and plastic. Store in a covered vessel until needed. It will keep for months if not allowed to dry out through exposure to air. It may be used in the manner discussed under Uses for Fondant, in Chapter VI.

Honey Marshmallow

Materials:

1 pound (2 cups) granulated sugar
½ pound (⅔ cup) corn syrup
¼ pound (⅓ cup) honey
¾ cup water

1 ounce (3 tablespoons) granulated gelatin
1 cup water

Procedure:

Mix the cup of water and gelatin and allow to stand for at least 5 to 10 minutes.

Mix the sugar, corn syrup, honey and ¾ cup of water, and boil moderately to a temperature of 15–16° F. above the temperature of boiling water as registered on the thermometer being used. Wipe the crystals from the pouring side of the saucepan with a damp cloth. Pour the hot syrup slowly into the dissolved gelatin, beating or whipping constantly. When the syrup is all in, continue to whip until the material is light and fluffy. (See Marshmallow, in Chapter XVII.)

Lightly dust a platter with a mixture of cornstarch and powdered sugar (half and half). Pour the candy into the pan to form a sheet ¾ inch in thickness, smooth it with a spatula, and dust the surface with the cornstarch and sugar. Within a few hours the marshmallow may be removed from the platter and cut into squares and dusted with powdered sugar.

Honey Nougatines

Materials:

¾ pound (1½ cups) granulated sugar
4 ounces (⅓ cup) corn syrup
4 ounces (⅓ cup) honey
½ cup water
⅛ teaspoon salt
1 large egg white, beaten stiff

Procedure:

Mix all the materials except the egg white, and boil to 68° F. above the temperature of boiling water as registered on the thermometer being used, or to medium crack by the water test. Wipe the crystals from the saucepan with a damp cloth. Allow the syrup to cool for 6–8 minutes. Pour the cooled syrup slowly into the beaten egg white, whipping or stirring the mixture constantly. Continue to beat until the material loses its glossy appearance and becomes satin-like and is quite thick, i.e. will just flow. Pour into a lightly buttered pan, and set aside to cool. When firm, remove from the pan to the cutting board. Cut into convenient size pieces and wrap in waxed paper. (See Cutting, Wrapping, in Chapter III.)

Honey Panocha

Materials:

1 pound (2¼ cups) light brown sugar
¼ pound (½ cup) granulated sugar

2 ounces (2½ tablespoons) honey
1 ounce (2 tablespoons) butter
1 cup milk

Procedure:

Mix all the materials except the butter, and cook to approximately 230° F. Add the butter and cook to 30–32° F. above the temperature of boiling water on the thermometer being used, or to a medium-firm ball by the water test. Remove the crystals from the pouring side of the saucepan with a damp cloth. Pour the hot syrup into a shallow pan and allow to cool undisturbed to 110–115° F. Stir or beat constantly until thoroughly creamed and of cheese-like consistency. Mold into a lightly buttered pan, cover with a waxed paper, and set aside for a few minutes to harden. Remove to cutting board and cut into suitable size pieces.

Honey Taffy

Materials:

½ pound (1 cup) granulated sugar
½ pound (⅔ cup) honey
1 ounce (2 tablespoons) butter
½ cup water

Procedure:

Mix the sugar, honey and water, and boil to a temperature of 230° F. Add the butter, and cook to 54° F. above the temperature of boiling water as registered on the thermometer being used, or to medium crack by the water test. Remove the crystals from the pouring side of the saucepan, and quickly transfer the hot syrup to a shallow, well buttered pan. When cool enough to handle, take into the hands and pull or stretch until it becomes quite elastic. Pull into a half-inch cylinder, and cut with scissors into convenient lengths. If the candy

is sticky, dust with powdered sugar. Wrap in waxed paper. (See Chapter XIV, Taffies.)

Note

These recipes were devised and tested by Pearl R. Haddock, a graduate student in the Department of Horticultural Manufactures at the Massachusetts State College.

Chapter XIII

POPCORN CONFECTIONS

General Discussion

Some authorities claim that caramels and popcorn are the two best friends of the dentist. There may be some truth in this, but for all that most of us will continue to make and eat these delightful confections.

Popcorn and apples or sweet cider have long been a combination to delight the palates of the young, especially. But when popcorn is made into balls, brittle, crackerjack or crispettes, provision has been made for an entire evening of pleasure.

There are many varieties of popcorn. Some are tender and of delicious flavor; others are of coarse texture with mediocre flavor. Since tastes differ, you are advised to select the sort which appeals to personal taste.

There are two general methods of popping the corn: (1) in the corn popper, and (2) in fat such as lard, or lard substitutes.

(1) Since the corn-popper method is quite universal it would be a waste of time to describe it. Corn popped by this method is dry, and for those who like it melted butter is poured over the finished corn to give the common confection, "buttered popcorn." The addition of salt will aid materially to bring out the flavor.

(2) The method of popping corn in fat is not so

well known and will, therefore, be described. The procedure is as follows: Place 2 or 3 tablespoons of lard or lard substitute in a 4- to 6-quart saucepan. Set the pan over the heat, and when the fat has come to boiling add ¾ cup of popcorn and ¼ teaspoon of salt. Stir constantly with a spoon to secure even cooking. When the corn begins to pop, lay aside the spoon, cover the vessel, and shake it vigorously to and fro across the heat until the popping subsides. Lift the saucepan slightly above the heated surface, still shaking it vigorously. When the popping ceases, pour the popped corn into a pan. Continue until the amount necessary has been popped. If the corn pops well, the above batch should give at least 4 quarts of good corn.

There will always be a small amount of unpopped corn. These kernels are usually very hard and should be separated from the good corn. To do this, place the popped corn in a suitable size pan and shake it vigorously. The unpopped grains will go to the bottom of the pan. It then becomes a simple matter to scrape out the good corn with a spoon or to lift it out in the hands. If one were doing this on a sufficiently large scale, a screen made of quarter-inch-mesh wire would be an effective and speedy method of removing all unpopped kernels.

Popcorn confections other than plain or buttered popcorn are usually associated with a taffy. The taffy may be of sugar and syrup, in which case it is colorless and unflavored. This gives opportunity to color and flavor to taste and offers a large variety of combinations. The taffy may contain molasses, in which case

it will have the characteristic color and flavor of the kind and amount of molasses used.

Taffy for Popcorn Confections

I. MOLASSES TAFFY

Materials:

10 ounces (1 scant cup) molasses
8 ounces (1 cup) granulated sugar
⅓ cup water
1 teaspoon vinegar
¼ teaspoon baking soda

Procedure:

Mix all the materials except the soda, and boil moderately to 60–65° F. above the temperature of boiling water as registered by the thermometer being used, or to a medium crack by the water test. Remove the saucepan from the fire, quickly wipe off the crystals from the pouring side of the vessel, add the soda by sifting through a sieve or tea strainer. Stir just enough to mix thoroughly—overstirring will granulate the taffy. Pour the hot syrup over the popped corn.

II. CORN SYRUP TAFFY

Materials:

½ pound (¾ cup) corn syrup
½ pound (1 cup) granulated sugar
½ cup water
2 tablespoons butter
(Color and flavor if desired)

Procedure:

Mix all the materials except color, flavor and butter, and boil moderately to 260–270° F. Add the butter and boil

slowly to 60–65° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium crack by the water test. Remove the saucepan from the fire, wipe off the crystals from the pouring side with a damp cloth. Pour the hot syrup over the popped corn. Color and flavor, if used, should be added just before pouring the syrup over the corn. Stir only just enough to mix.

RECIPES

Popcorn Balls

Place about six quarts of popped corn that has been cleaned from unpopped kernels in a kettle or pan of such size that it only half fills the vessel. Pour over it the batch of taffy, and stir and mix until the taffy is thoroughly distributed over the corn. While it is still hot, take into the hand enough taffy coated corn to form a ball 2 to 3 inches in diameter. Compress it lightly in the hands to secure a fairly smooth but not too firm ball. Lay the balls aside to cool. If to be kept for some days wrap each one in a sheet of waxed paper to prevent absorption of moisture, which will make the balls sticky.

Crackerjack

Place 3 or 4 quarts of popped corn free from hard kernels in a vessel of 6 to 8 quarts capacity. Pour over it the batch of taffy, and stir to coat each kernel thoroughly. Keep the corn stirred until it begins to cool; then pour onto the table or a large tray, and keep the kernels separated until the taffy has hardened. If to be kept for some days, store in a covered container or place in waxed paper bags.

Crispettes

For making crispettes the following equipment is required. Take a No. 2 tin can, and with a can opener or file cut off the bottom a quarter- or half-inch up the side of the can. Place

the can over a pint glass bottle, and with a small piece of wood as a hammer gently tap the cut end to smooth out all rough indentations. If the top of the can is not smooth and cannot be hammered down, then cut off a half-inch of the upper part of the can and smooth it in the same manner as the bottom. This makes a perfect cylinder with a diameter of 3½ inches. If smaller crispettes are desired, use a No. 1 tin can. This can has a diameter of 2½ inches. The other part of the equipment is a packer or plunger, which may be made of wood; or a flat-bottom pint grape-juice bottle may be used with the No. 2 tin can. The half-pint grape-juice bottle fits the No. 1 tin can.

Procedure:

Place 5 or 6 quarts of cleaned popped corn in a vessel of about double that capacity. Pour over it the batch of taffy, and stir to cover the corn uniformly with the taffy. To form the crispettes, place a handful or two of the taffy-coated corn in the tin-can mold; press it lightly with the bottle or plunger. When sufficiently compacted, lift the mold from the table and push the crispettes through with the bottle or plunger. Continue to operate in this manner as rapidly as possible until all the corn has been used.

If the crispettes are to be kept for a few days, wrap them singly in waxed paper, or place several together to form a cylinder and wrap this in waxed paper.

Crystallized Popcorn

Materials:

½ pound (1 cup) granulated sugar
½ cup water
1–2 drops color (optional)
4–6 quarts popped corn

Procedure:

Place the sugar and water in a saucepan, heat and stir to mix. Bring to boiling and boil moderately to 230° F. Add the

coloring and boil slowly to 24–26° F. above the temperature of boiling water as registered on the thermometer being used, or to a very soft ball by the water test. Remove from the fire, wipe away the crystals from the pouring side of the saucepan. Have the popped corn in a large vessel to permit stirring. Pour the hot syrup over the corn, stirring constantly. Continue to stir (3–5 minutes) until the syrup is sugared.

If this gives a too heavy coat of sugar, reduce the amount added or increase the amount of corn. The color is a matter of preference. It may be pink, red, green, etc., or it may be omitted altogether.

Popcorn Cake

Put 4 to 5 quarts of popped corn through the food chopper, using the coarse or medium coarse cutter. Place this chopped corn in a vessel of suitable size, and pour over it the hot batch of taffy. Stir to mix thoroughly. Pack into shallow, rectangular pans to form a sheet one-half to three-fourths inch thick. Pack firmly so as to form a rather compact cake. When the taffy has cooled enough, remove the cake to the cutting board, and with a sharp knife cut into pieces suitable for serving.

Chocolate Coated Popcorn

Materials:

½ pound (1 cup) granulated sugar
½ cup water
4 ounces (⅓ cup) corn syrup
1 ounce (3 tablespoons) butter
3 ounces (= 3 squares = ½ cup) finely cut chocolate
4 to 6 quarts popped corn

Procedure:

Mix the sugar, syrup and water in a saucepan and boil moderately to 250–260° F. Add the butter, and as soon as it is melted add the chocolate. Boil slowly with frequent stir-

ring to 55–60° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium crack by the water test. Remove from heat, wipe off the crystals from the pouring side of saucepan with a damp cloth. Slowly pour the hot syrup over the corn while stirring the mixture. Continue to stir until the syrup sugars. This gives a sweetened popcorn with a chocolate covering.

Popcorn Brittle

See Chapter XVI, Brittles and Other Hard Candies.

Note

The puffed cereals may be substituted for popped corn to form balls and crispettes. Their flavor and crispness add much to their desirability.

Chapter XIV

TAFFIES

General Discussion

In any rational classification of candies the taffies would naturally be placed among the "pulled" candies. They are wax-like in their consistency and are characterized by their chewy quality. Whether they are soft or hard is largely determined by their finish temperature. Naturally, the higher they are cooked, the more firm and more difficult they are to chew. The addition of butter or other fats tends to shorten and therefore reduce the wax-like character and especially to reduce the tendency to stick to the teeth when chewing. A taffy should be free from crystals and should retain its wax-like consistency throughout its life.

Taffies require a larger ratio of corn syrup or invert sugar than do most of the stirred candies. This is necessary to prevent crystallization from their high sugar concentration and is also essential to give them their characteristic wax-like structure.

The general procedure in making taffies includes the following operations: cooking, cooling, pulling, cutting and wrapping.

Cooking

Place the materials as given in the recipe in a suitable size saucepan. Thoroughly mix and boil moderately to within a few degrees of the given finish temperature. Reduce the heat and boil slowly to the given finish point. This slow cooking over the last few degrees is to avoid overrunning the finish point. When a boiling sugar syrup has gone beyond the temperature of 230 to 235° F., the concentration proceeds very rapidly if the boiling is carried on at a moderate or fast rate, under which conditions the ordinary thermometer will lag several degrees behind the actual temperature. A very few degrees' difference in the finish temperature determines whether the taffy will be soft or hard. In the higher-cooked candies, such as brittle or butterscotch, a difference of 3 to 5° F. or even more is of relatively small importance.

The amount of stirring that should be given a cooking taffy will depend upon the character of the materials. If the boiling mass is heavy and viscous, it will require almost constant stirring. Whatever its character, as it nears the finish point frequent to almost constant stirring is necessary to secure correct temperature readings.

Cooling

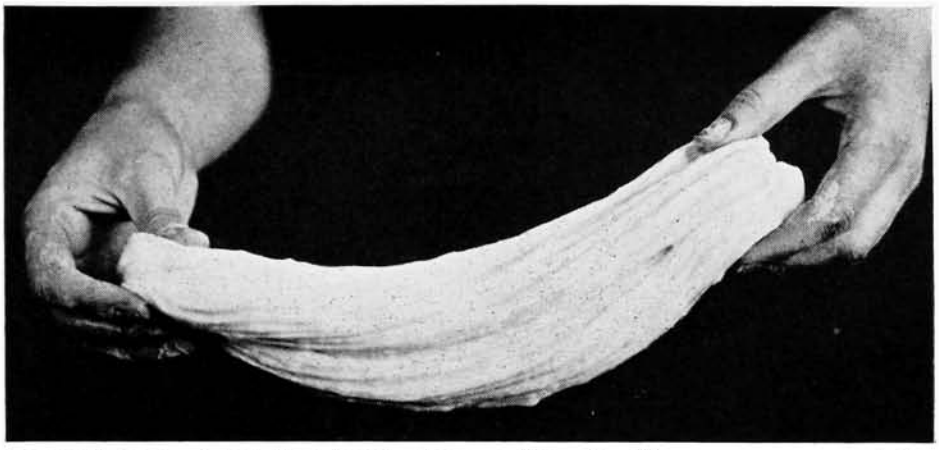
When the materials have reached the finish temperature, remove the vessel from the fire, and wipe off the crystals from the pouring side. Pour the hot syrup into a lightly buttered, shallow pan to a depth of ½

inch or less. Do not dribble the last of the syrup, but stop pouring when the syrup no longer flows in a stream. Do not scrape the syrup from the side or bottom of the cooking vessel into the cooling pan. In pouring the syrup the vessel should be not more than an inch or so above the cooling pan. All these precautions are just so much insurance against having crystals form in the cooling pan. Allow the hot syrup to cool undisturbed until the wax-like mass may be comfortably held in the hands.

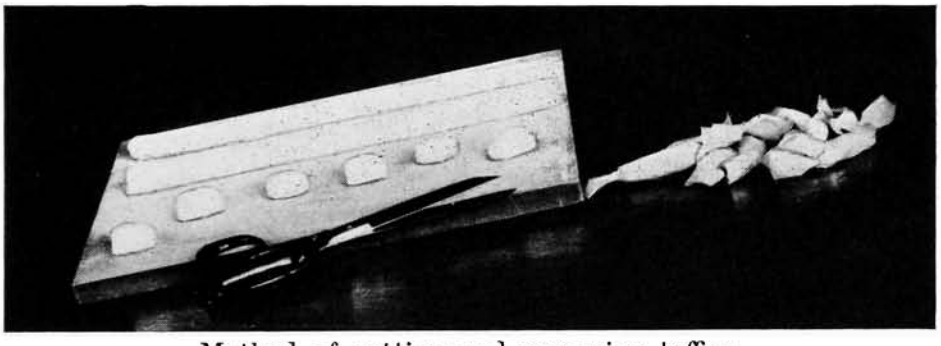
Pulling

Take the sheet of cooled syrup into the hands, and by handling and kneading get it into condition for pulling. This will require but a few seconds. If the candy has been properly made, it will not stick to the hands, nor will it become too hard before it is sufficiently pulled. Accidents do happen, and if the taffy should be sticky, dust the hands with powdered sugar and work slowly until it has cooled some more. If the taffy becomes too hard to pull easily, hold it over or near a heated surface, such as a gas flame or an electric plate.

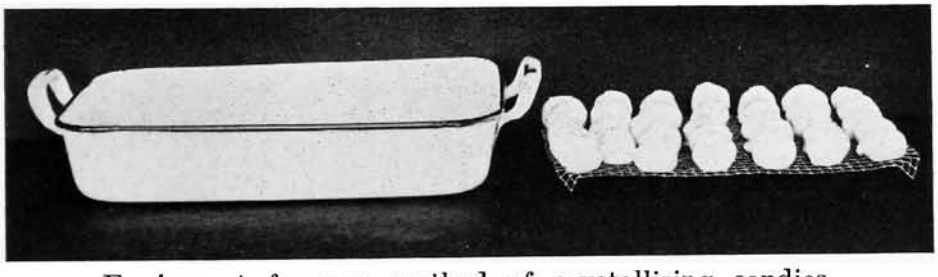
When the wax-like sheet has been worked into pulling condition, press it into a rough cylinder several inches in length, grasp each end of this cylinder with thumb and fingers, and stretch the piece to a length of 1½ to 2 feet. Bring the hands together, and take both ends into the left hand while with the right you grasp the free end. Twist the two strings which form the loop, and again stretch the piece to convenient



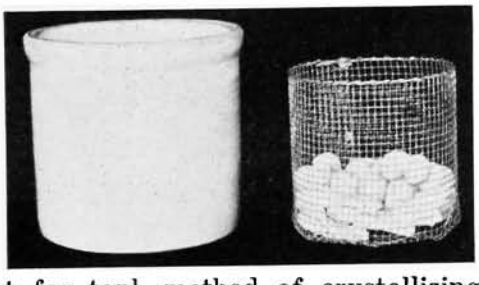
Correct way of holding taffy when pulling it. The appearance of the piece indicates it is near the finish.



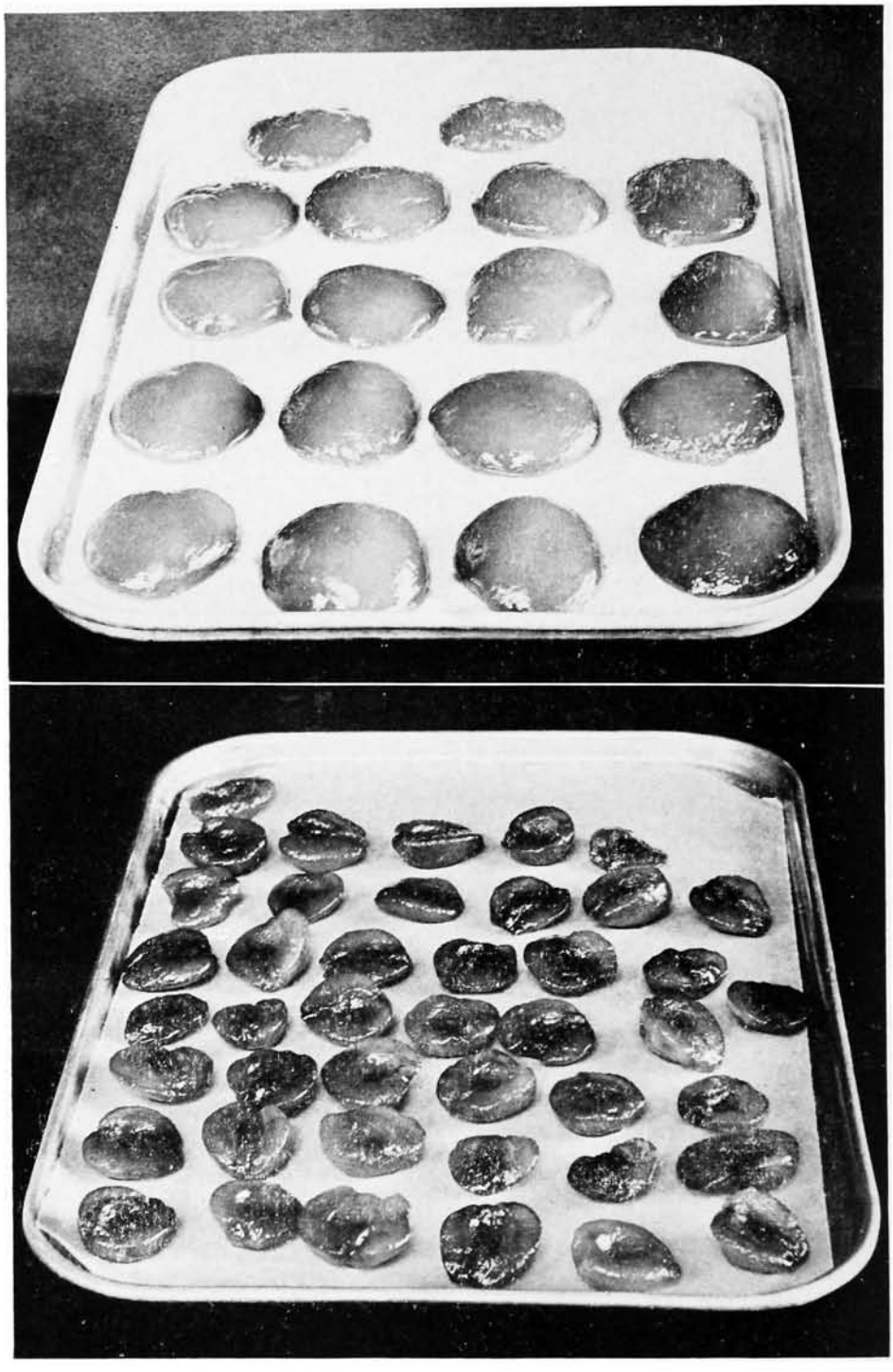
Method of cutting and wrapping taffies.



Equipment for pan method of crystallizing candies.



Equipment for tank method of crystallizing candies.



CANDIED FRUITS

Top, peaches in first stage out of syrup; *bottom,* pears ready to be packed.

length. Repeat this process over and over. As a rule, the more it is pulled, the better taffy it will be. There is, of course, a possibility of overdoing a good thing, in which event the taffy becomes too short. If when stretched to arm's length the piece tends to break, this is an indication of too much pulling. However, the danger lies in underpulling rather than overpulling.

As the candy is being pulled certain changes may be noted: (1) There is a change in color. Pulling tends to lighten the color. This is largely due to the air which is being incorporated into it. (2) The taffy becomes more elastic when stretched out and will tend to spring back to its original size. (3) The surface is no longer smooth, but is composed of parallel ridges and grooves and has a satin-like finish except that the surface appears to have small pimples all over it. These pimples are the tiny pockets of air and are essential to the proper structure of a good taffy.

It is impossible to say just how long a taffy should be pulled. This will depend upon the finish temperature, the temperature of the room, the size of the batch and the speed of the operator. It is safe to say, however, that when the taffy has developed the characters noted above under (2) and (3) it has been pulled long enough.

If color and flavor are to be incorporated into taffies after the cooking, they are best added as soon as the candy has been worked into good pulling condition. This will allow ample opportunity for thorough and uniform distribution.

Cutting and wrapping. (See Chapter III.)

RECIPES

Salt Water Taffy

Materials:

½ pound (1 cup) granulated sugar
½ pound (¾ cup) corn syrup
1 ounce (2 tablespoons) butter
1 tablespoon cornstarch
½ teaspoon salt
½ cup water
Color and flavor to suit

Procedure:

Mix all the materials except color, flavor and butter. Cook at moderate boiling to 235–240° F. Add the butter, and boil slowly to 42–44° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard ball by the water test. Remove the vessel from the fire, wipe away the crystals from the pouring side of the saucepan, and pour the hot syrup into a lightly buttered pan and allow to cool undisturbed until it can be taken into the hands for pulling. As soon as the material is in good pulling condition, add color and flavor to suit the taste. Since the color will lighten somewhat during pulling, use an excess amount of coloring material. When the candy takes on a satin-like finish and is quite elastic, pull into a half-inch cylinder, cut with scissors into inch lengths, and wrap in waxed paper. (See Cutting, Wrapping, in Chapter III.) This recipe will make one pound.

Molasses Taffy

Materials:

¾ pound (1 cup) molasses
½ pound (1 cup) granulated sugar
1 ounce (2 tablespoons) butter

1 teaspoon vinegar
¼ cup water

Procedure:

Mix all the materials except the butter, and boil moderately to 240–245° F. Add the butter, and boil slowly to 46–48° F. above the temperature of boiling water as registered on the thermometer being used, or to a very hard ball by the water test. Pour the hot syrup into a lightly buttered, shallow pan and allow to cool undisturbed until the cooled sheet may be taken into the hands. Pull the piece until it has a satin-like finish and is quite elastic. Pull out into a half-inch cylinder, cut into inch lengths with heavy scissors, and wrap in waxed paper. (See Cutting, Wrapping, in Chapter III.) This recipe will make 1–1¼ pounds.

Vanilla Taffy

Materials:

1¼ pounds (2½ cups) granulated sugar
½ pound (¾ cup) corn syrup
1 ounce (2 tablespoons) butter
½ cup water
½ teaspoon vanilla

Procedure:

Place all the materials except the butter and vanilla in a saucepan, and boil moderately to 235–240° F. Add the butter, and boil slowly to 42–44° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard ball by the water test. Remove the vessel from the fire, and wipe off the crystals from the pouring side of the saucepan. Add the vanilla, and stir just enough to mix. Pour the hot syrup into a lightly buttered pan to form a sheet a half-inch or less in thickness, and allow it to cool undisturbed until it can be taken into the hands for pulling. Pull the candy until it acquires a satin finish and is quite elastic. (See Cutting, Wrapping, in Chapter III.) This recipe makes 1½ pounds.

Other flavors may be substituted for the vanilla if preferred. Extracts and colors should be added during the very early stage of pulling. The flavors, such as the mints, wintergreen, and lemon, are volatile, and if added to the hot syrup at the close of cooking, much if not all of the flavor would be lost.

Vinegar Taffy

Materials:

1 pound (2 cups) granulated sugar
½ cup water
¼ cup vinegar
1 ounce (2 tablespoons) butter

Procedure:

Mix all the materials except the butter. Boil moderately to 240–245° F. Add the butter, and boil slowly to 44–46° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard ball by the water test. Remove the saucepan from the fire, wipe off the crystals from the pouring side, and pour the hot syrup into a lightly buttered pan. Allow to cool undisturbed until the sheet can be taken into the hands. Pull the candy until it has a satin-like finish and is quite elastic. Pull the piece into a half-inch cylinder. Cut into inch pieces and wrap in waxed paper. (See Cutting, Wrapping, in Chapter III.) This recipe makes approximately ¾ pound.

Chapter XV

BUTTERSCOTCH AND TOFFEE

Butterscotch and toffee are very closely related to the caramel group in so far as materials are concerned. They differ in their consistency because of their higher finish temperature. Toffee stands about halfway between the caramel and butterscotch. In fact, some candy makers refer to it as a soft chewy butterscotch. Toffee is strictly a pan candy, while butterscotch may be handled as a pan candy or, because of its hardness, may be cast or molded. When properly made it should be very brittle and should not stick to the teeth.

RECIPES

Butterscotch

Materials:

¾ pound (1½ cups) granulated sugar
6 ounces (½ cup) corn syrup
½ cup water
1 to 2 tablespoons of molasses
2 to 3 ounces (4–6 tablespoons) butter
⅛ teaspoon salt

Procedure:

Mix all the materials except the molasses and butter, and boil moderately to 275–280° F. Add the molasses and butter, and boil slowly to 75–85° F. above the temperature of boiling

water as registered on the thermometer being used, or to a hard crack by the water test. Remove from the fire and wipe the crystals from the pouring side of the saucepan with a damp cloth. Pour the hot syrup into a lightly buttered pan to form a sheet about ¼ inch thick. As soon as the surface has cooled enough to hold a knife, crease, mark off the piece in ½ or ¾ inch squares. (See Cutting, Wrapping, in Chapter III.) When the candy has cooled and is hard, remove the sheet from the pan and break it along the creases.

An alternate method of handling is to pour about half or two-thirds of the hot syrup into the cooling pan as above and to drop the remainder by small spoonfuls onto the bottom of an inverted tin or aluminum tray. With a little practice one can become quite expert in pouring these discs. Naturally, because of the constant agitation of the syrup, the discs formed toward the last will have a tendency to crystallize.

In pouring the syrup to form the discs, take just enough syrup in the spoon to form the size disc desired. Pour the syrup from the side of the spoon into the exact center of the disc being formed. When enough syrup has escaped from the spoon, quickly turn it bottom down to shut off the flow. (See Casting, in Chapter III.)

The final temperature and the relative amount of butter determine the character of the candy. A high finish temperature will reduce the taffy-like chewiness. An increase of butter reduces the tendency to stick to the teeth.

This recipe will make approximately 1¼ pounds.

English Toffee

Materials:

¾ pound (1½ cups) granulated sugar
¾ pound (1 cup) corn syrup
½ cup cream
2 ounces (4 tablespoons) butter
⅛ teaspoon salt
½ teaspoon vanilla
¼ teaspoon orange extract

Procedure:

Mix all the materials except the butter and flavoring materials, and boil moderately to 245° F. Add the butter, and boil slowly to 38–40° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard ball by the water test. Wipe away the crystals from the pouring side of the saucepan with a damp cloth. Add the flavor, and stir only enough to mix thoroughly. Pour the hot syrup into a lightly buttered pan to a depth of approximately ¼ inch. When cool enough to hold a knife crease, mark off into pieces approximately 1 by 2 inches. When the candy has cooled and hardened, remove from the pan and cut along the creases, using a pair of heavy scissors. Wrap the pieces in waxed paper. This recipe will make 1½ pounds.

Chocolate Nut Toffee

Materials:

¾ pound (1½ cups) granulated sugar
¾ pound (1 cup) corn syrup
2 ounces (4 tablespoons) butter
3 ounces (¾ cup) finely cut sweet chocolate
2 ounces (½ cup) finely cut nut meats
½ cup cream
½ cup water
⅛ teaspoon salt

Procedure:

Mix in a saucepan the sugar, corn syrup, cream, salt and water. Bring to boiling, and cook moderately to 240–245° F. Add the butter, then the chocolate, and boil slowly to 38–40° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard ball by the water test. Just before removing from the heat, stir in the nut meats. Remove from the heat, wipe off the pouring side of the saucepan, and allow the materials to cool for 10 minutes, or to 160° F. Stir just enough to distribute the nut meats thor-

oughly, and pour into a lightly buttered pan to form a sheet about ¼ inch thick. This candy has a soft wax-like consistency and may be readily cut with heavy scissors. Cut into pieces about 1 inch wide by 2 or 3 inches long. Wrap each piece in waxed paper. This candy has good keeping quality. If a hard toffee is preferred, raise the finish temperature 4–6° F. above that given.

Nut Toffee

Nut toffee is made the same way as English toffee except that at the close of the cooking period 1 or 2 ounces of finely cut nut meats are stirred into the hot syrup. The materials are allowed to cool 10 minutes, or to 160° F. The materials should then be stirred just enough to mix thoroughly before they are poured into a lightly buttered pan. It is then handled in the same manner as English toffee.

Scotch Kisses

Materials:

½ pound (1 cup) granulated sugar
4 ounces (⅔ cup) brown sugar
3 ounces (6 tablespoons) butter
¾ cup water
1 teaspoon vanilla
½ teaspoon lemon extract

Procedure:

Mix the sugars and water in a small saucepan, and boil moderately to 280° F. Add the butter, and boil slowly to 75–80° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard crack by the water test. Remove the vessel from the fire, add the flavoring materials, and stir just enough to mix thoroughly. Pour the hot

syrup from a tablespoon onto the bottom of an inverted metal tray to form discs the size of a twenty-five-cent piece. (See Casting, in Chapter III.) When the pieces have cooled, pack them into a waxed-paper-lined box. This recipe will make about 10 ounces.

Chapter XVI

BRITTLES AND OTHER HARD CANDIES

General Discussion

These are the high-cooked goods. Their finish temperatures range from 290–310° F. They are alike in that they all are hard because of their high finish temperature. They vary in texture from vitreous to very highly porous structures. The brittles are easily chewed, while others, as the lollipops, are rarely chewed, and because of the manner in which they are consumed they have been given the name "all-day sucker."

Sufficient stirring should be given to prevent burning and to secure accurate temperature readings. When the cooking is stopped, any unnecessary stirring will tend to cause crystallization.

The Brittles

These are generally made in thin sheets, which may or may not be stretched to reduce their thickness and to make them more brittle. Nut meats and cocoanut are the two most commonly used materials in combination with the taffy. Popcorn and the puffed cereals make most acceptable brittles and give a greater variety to these really delicious confections. Peanuts are used more extensively than any of the other nuts. They may

be roasted or raw. If the latter, they should be added earlier to the cooking taffy in order to be well done. A discussion of general procedure here will eliminate much repetition later.

COOKING

The materials which comprise the syrup or taffy are cooked to a relatively high temperature before the butter and solids are added. After these are in, stirring must be almost constant in order to prevent burning. If a porous brittle is desired, the cream of tartar—about ¼ teaspoon per pound of sugar—should be added at the beginning of the cooking; and at the close of the cooking, after the pouring side of the vessel has been wiped free from crystals, the soda—½ teaspoon per ¼ teaspoon of cream of tartar—is added by sifting it over the top of the hot materials. Just enough stirring to mix thoroughly should be given, and the bubbling, frothy-looking materials are quickly poured out.

POURING

The finished brittle should be poured to form a thin sheet. If a slab is not available, use a large inverted tray—lightly buttered.

Begin to pour in the center of the tray, and continue in a circle in such manner as to form a continuous sheet about ⅛ inch to ¼ inch in thickness. Allow to cool undisturbed until the cooler edges can be held momentarily in the fingers. Beginning at this point, there are two methods of procedure.

STRETCHING AND CUTTING

The common method recommended is to stretch the entire sheet to make it thin and lace-like. When the brittle is cold, it is broken into irregular shaped pieces for serving or packing. The other method is to lift the cooler edge at one end of the sheet as soon as possible—a glove on the hand will help. A cut is then made with scissors across the sheet, giving a piece 2 to 3 inches wide. This is quickly transferred to another tray or cutting board where, if desired, it may be quickly stretched and cut into strips, or it may be cut into pieces without stretching. A similar cut is made along the remaining three sides of the sheet, and finally the central portion, when cold enough, is treated in the same way. This method will work equally well with all brittles. It is doubtful, however, if those made from popcorn and the cereals will be improved by stretching. The advantages of the cutting method over the old method of breaking are a more even thickness of the brittle, reasonably uniform size and shape of pieces for both serving and packing, and greater ease and comfort in eating. Cut pieces are easily wrapped in waxed paper, which will prolong their period of usefulness.

The brittles are a decidedly cool, dry-season confection. During the humid season they should not be made except for immediate consumption. If carefully wrapped in waxed paper, they may be stored for a few days even during very damp weather.

PEANUT BRITTLE

Materials:

1 pound (2 cups) granulated sugar
½ pound (¾ cup) corn syrup
½ pound (1½ cups) shelled peanuts
3 ounces (4 tablespoons) molasses
1 ounce (2 tablespoons) butter
¼ teaspoon cream of tartar
½ teaspoon baking soda
½ cup water

Procedure:

Place all the materials except the butter, nuts and soda in a saucepan. Thoroughly mix, and boil moderately to 250 or 260° F. Add the butter and the peanuts, and boil slowly with constant stirring to 80–84° F. above the boiling temperature of water as registered on the thermometer being used, or to a hard crack by the water test. Remove from the fire, wipe off all crystals from the pouring side of the cooking vessel. Sift in the soda, and mix quickly with as little stirring as possible. Pour onto a large inverted tray—lightly buttered—to form a thin sheet. Subsequent treatment is described in detail under Stretching, and Cutting. This recipe will make 1¾ pounds.

Other nut meats may be substituted for the peanuts if preferred. The peanuts may be roasted or raw. If the latter, they should be added to the boiling syrup at 240–250° F. instead of the temperature given in the recipe, which presupposes roasted peanuts.

COCOANUT BRITTLE

Materials:

1½ pounds (3 cups) granulated sugar
4 ounces (⅓ cup) corn syrup
3 ounces (1 cup) shredded cocoanut

1½ ounces (3 tablespoons) butter
½ cup water
¼ teaspoon salt
¼ teaspoon cream of tartar
½ teaspoon baking soda

Procedure:

Mix the sugar, syrup, water, cream of tartar and salt in the saucepan, and boil moderately to 280–285° F. Add the butter, and boil again to 285–290° F. Add the cocoanut, and boil slowly with constant stirring to 85–90° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard crack by the water test. Remove from the heat, wipe off the crystals from the pouring side of the saucepan. Sift in the soda, and stir just enough to mix thoroughly. Pour the hot bubbling materials onto a large inverted tray—lightly buttered—to form a thin sheet. Subsequent treatment is described in detail under Stretching, and Cutting.

POPCORN BRITTLE

Materials:

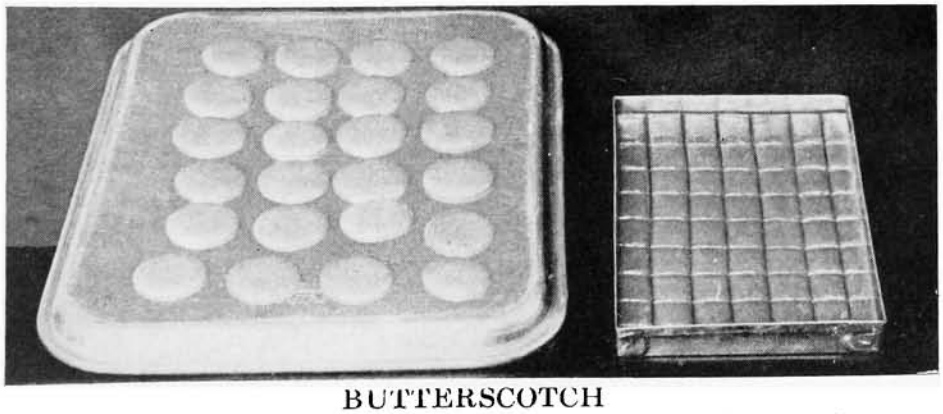
1 pound (2 cups) granulated sugar
½ pound (¾ cup) corn syrup
3 ounces (4 tablespoons) molasses
½ cup water
1 ounce (2 tablespoons) butter
½ teaspoon baking soda
¼ teaspoon cream of tartar
1 quart popped corn

Procedure:

Place all materials except the butter, soda and popcorn in a saucepan and boil moderately to 260–270° F. Add the butter, and boil slowly to 280–285° F. Add the corn, and boil very slowly with constant stirring to 85–90° F. above the temperature of boiling water as registered on the thermometer,

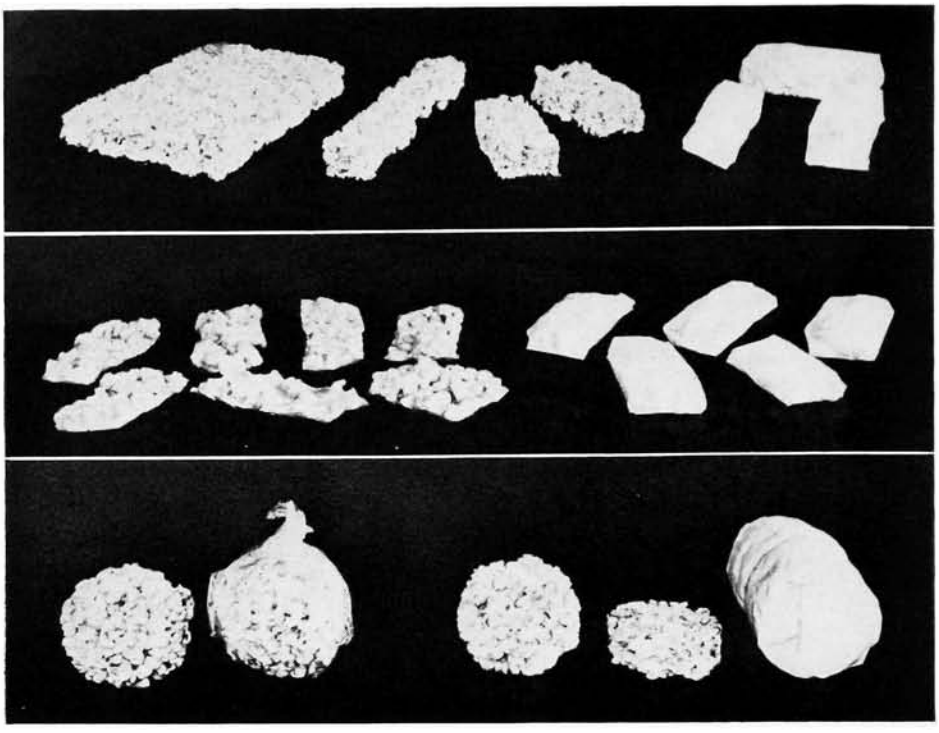
PUFFED WHEAT BRITTLE

Top, as poured onto the cooling pan; *bottom*, cut into pieces, wrapped in waxed paper.



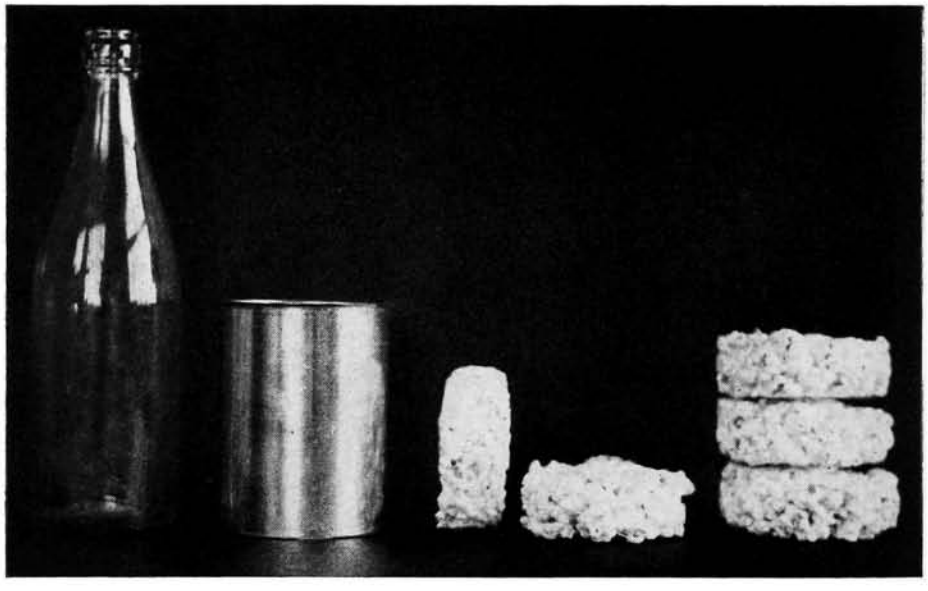
BUTTERSCOTCH

Left, cast pieces; *right*, poured into pan and creased.



POPCORN CONFECTIONS

Top, popcorn cake; *center,* popcorn brittle; *bottom,* popcorn balls and crispettes.



Crispettes and equipment for making them.

or to a hard crack by the water test. Remove from the fire. Wipe off the crystals from the pouring side of the saucepan. Sift in the soda, and stir just enough to mix thoroughly. Pour the hot bubbling materials onto a large, inverted tray—lightly buttered—to form a thin sheet ⅛ to ¼ inch in thickness. Subsequent treatment is described in detail under Stretching, and Cutting. It is doubtful if this candy is improved by stretching, especially if it is cut into suitable pieces for serving. This recipe makes 1½ pounds.

CEREAL BRITTLES

The cereal brittles are made in the same manner as popcorn brittle. The amount of cereal may be varied 1 to 3 cups to suit personal preference. The crisp, puffed and flaked cereals make the most satisfactory brittles.

Straws

The straws are pulled candies, and since they are high-cooked goods, they must be handled differently from the lower-cooked taffies. Small batches only should be attempted by those who do not have special equipment for keeping the candy warm while it is pulled. Pulling should begin at the earliest possible moment, and the candy should be kept warm by working it near a heated surface—for example, over the top of the range or hot plate or near the open door of a hot oven. The porous, brittle character of these candies depends largely upon the amount of pulling they receive.

MINT STRAWS

Materials:

½ pound (1 cup) granulated sugar
2 tablespoons corn syrup

1 tablespoon vinegar
1 tablespoon butter
¼ cup water
Color and flavor to suit taste

Procedure:

Mix all the materials except the color, flavor and butter in a small saucepan. Boil moderately to 260–265° F. Add the butter, and boil slowly to 75–80° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard crack by the water test. Remove the saucepan from the heat; wipe off the crystals from the pouring side with a damp cloth, and pour the hot syrup into a lightly buttered pan and allow to cool undisturbed until the cooled sheet may be handled comfortably. Work near or over a heated surface to prevent cooling. As soon as the piece can be pulled, add the desired amount of color and flavor, and pull until the candy has a satin-like finish and is quite elastic. Pull into a small uniform size cylinder the size of a pencil or smaller, and cut into 4- to 6-inch lengths. When cold and hard, store in a closed container.

MOLASSES STRAWS

Materials:

½ pound (1¼ cups) brown sugar
3 tablespoons molasses
1 tablespoon vinegar
⅓ cup water
½ ounce (1 tablespoon) butter

Procedure:

Mix the sugar, molasses, vinegar and water in a small saucepan, and boil moderately to 270–275° F. Add the butter, and boil slowly to 75–80° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard crack by the water test. Remove the saucepan from the

heat; wipe off the crystals from the pouring side of the pan, and pour the hot syrup into a lightly buttered pan and allow it to cool undisturbed until it can be handled comfortably. Keep the candy warm by working it over a heated surface. Pull it until it has a satin-like finish and is quite elastic. Pull the piece into a small cylinder, the size of a pencil or smaller, and cut into 4- to 6-inch lengths. This is a brittle candy and does not require wrapping. It should be stored in a closed container. This recipe will make about ½ pound. A large batch is difficult for one person to handle unless a heater is available to prevent too rapid cooling.

Lollipops

Materials:

1 pound (2 cups) granulated sugar
½ pound (⅔ cup) corn syrup
½ cup water
Color and flavor to suit taste

Procedure:

Place all the materials except the color and flavor in a small saucepan. Mix and bring to boiling. Boil moderately to 70–80° F. above the temperature of boiling water. Reduce the heat, and boil very slowly to 90–100° F. above the temperature of boiling water as registered on the thermometer being used, or to a very hard crack by the water test. Remove the vessel from the heat, and allow to cool for a few moments. Add 1 or 2 drops of color and 10–15 drops of flavor. Stir just enough to mix thoroughly.

Transfer the hot syrup onto an inverted tray or cookie sheet with a tablespoon. Pour enough of the syrup to form a disc of suitable size—1 to 2 inches in diameter. (See Casting, in Chapter III.) Immediately insert a heavy toothpick or headless match, whittled to a point. The stick should be pushed through the outer cooled layer at the edge and should penetrate to about ⅓ the diameter of the pieces. Twist the stick

slightly to insure even coating of syrup. The free end should rest on the tray. When cold remove from tray, and if not for immediate serving, wrap each piece in a waxed paper.

If preferred and if one can work rapidly enough, the syrup may be divided into two lots at the close of the cooking. Each lot may then be of different color and flavor. Keep the second lot warm, and when ready to cast it, set it over the heat just long enough to thin it sufficiently for coloring and flavoring.

The colder this material is when handled, the thicker the pieces will be.

Chapter XVII

MISCELLANEOUS CANDIES

After Dinner Mints

Materials:

1½ pounds (3 cups) granulated sugar
1¼ cups water
½ teaspoon cream of tartar
10–15 drops peppermint extract

Procedure:

Mix the sugar, water and cream of tartar, and boil moderately to a finish temperature of 48–50° F. above the temperature of boiling water as registered on the thermometer being used, or to a medium crack by the water test. Remove the saucepan from the fire; wipe the crystals from the pouring side of the saucepan, and pour the hot syrup into a lightly buttered shallow pan. Allow to cool undisturbed until the sheet can be handled comfortably. Knead and work the piece in the hands until it will stretch readily. Add the peppermint extract, and pull until the candy has a satin-like finish and is quite elastic. The surface will be a series of parallel ridges and grooves. Pull a part of the piece into a half-inch cylinder, and cut with scissors in half-inch lengths to form the well known cushion shape. As the pieces are cut, they should fall into a pan of powdered sugar. Keep the cut pieces thoroughly mixed with the powdered sugar to avoid having them stick together. When the entire piece has been cut, cover the pan and set it aside for 24–36 hours. The pieces should now be thoroughly creamed and are ready to serve as soon as re-

moved from the powdered sugar. To do this quickly and efficiently, pour the powdered sugar and candies into a sieve or colander. Shake out the sugar. Remove the candies to a square of cheesecloth, grasp the two opposite corners in each hand, and lift the cheesecloth to form a hammock. If the hands are alternately lifted and lowered the candies will roll from end to end in the hammock and the very last traces of powdered sugar will pass through the cheesecloth. After dinner mints will keep for a long time if stored in a closed vessel. This recipe will make 1¼ pounds.

Brown Sugar Kisses

Materials:

10 ounces (1⅔ cups) brown sugar
6 ounces (¾ cup) granulated sugar
1 cup water
1 egg white beaten stiff

Procedure:

Mix the sugars and water in a saucepan, and boil moderately to 26–28° F. above the temperature of boiling water, or to a soft ball by the water test. Remove the vessel from the heat, wipe off the crystals from the pouring side with a damp cloth. Allow the syrup to cool for 3 to 5 minutes. Pour slowly into the beaten egg white, whipping or beating the mixture constantly and rapidly. When the syrup is in, continue to beat until the mass is stiff enough to hold its shape. Pour into a waxed-paper-lined pan to form a sheet about ¾ inch deep. When cold remove the sheet of candy to the cutting board and cut into suitable size pieces for serving.

If desired, the candy may be dropped from a spoon onto waxed paper to form irregular shape pieces instead of pouring into a pan for cutting. (See Casting, in Chapter III.)

This is a very porous candy and has poor keeping quality. If to be stored for a few days, pack into a closely covered container. The recipe will make 1 pound.

Marshmallow

GENERAL DISCUSSION

The early pharmacists made a water extract of the roots of the marshmallow to obtain its medicinal properties. This extract was of a highly gelatinous character, and, when intended for the alleviation of certain human ailments, it was beaten with pulverized sugar to form a pleasant and attractive medicine. Later the confectioners appropriated the idea but substituted gums, gelatine or egg albumen for the marshmallow root extract. The original name, however, persists to puzzle many as to why this delicious confection should be named for an humble swamp plant.

The manufacture of marshmallows in the home requires long and persistent beating if the entire operation must be done by hand. If a small electric kitchen beater is available, approximately one-half of the work may be done with it and only the finishing part will require hand labor. The hand rotary egg beater may be used during the earlier stage immediately following the addition of the syrup to the egg white or gelatin.

The texture of the finished goods depends largely upon the amount of air incorporated during the beating. Overcooking or the use of too much gelatin will result in a tough rubber-like product.

Materials:

¾ pound (1½ cups) granulated sugar
9 ounces (¾ cup) corn syrup
½ cup water

½ teaspoon vanilla
{ 3 tablespoons granulated gelatin
{ 1 cup water

Procedure:

Place the granulated gelatin in the beating dish, add the cup of water, and stir to mix thoroughly. Allow to stand until the cooking operation is completed.

Mix the sugar, corn syrup and water in a saucepan, and boil moderately to 11–12° F. above the temperature of boiling water as registered on the thermometer being used, or to a slightly gelatinous mass by the water test. Remove the saucepan from the heat; wipe off the pouring side with a damp cloth, and slowly pour the hot syrup into the mixture of gelatin and water, whipping constantly. When the syrup is all in, discard the spoon or egg whip, and use the rotary egg beater as long as it will efficiently whip the slowly thickening mass. Now discard the egg beater and use the large spoon, giving it a whipping rather than a stirring movement. Add the vanilla at any time during the beating. The marshmallow is finished when the thread that flows from a spoonful held about a foot above the dish becomes so tender and short that it no longer flows in a full thread, but in chunks and pieces. Prepare a platter by dusting the bottom with a mixture of equal parts of cornstarch and powdered sugar. Transfer the finished marshmallow to this tray, and level it off with a table knife or spatula to form a sheet about 1 inch thick. Dust the surface with the sugar-starch mixture and set aside.

There are two simple methods of dusting on the sugar-starch mixture: (1) Use a large salt shaker, or (2) tie the mixture into a cheesecloth bag.

If the marshmallow is inclined to stick to the bottom of the platter, slightly heat the platter by moving it over a heated surface. Dust the cutting board with powdered sugar, and lay the sheet of marshmallow on it upside down. If it has been heated, allow it to cool before cutting. Dust the surface with powdered sugar, and cut into convenient size pieces, approxi-

mately inch cubes. Since the cut surfaces are sticky, they must be rolled in a dish of powdered sugar. If the pieces are to be kept for some days, store in a tightly covered vessel after they have been rolled in powdered sugar.

Marshmallows made in this manner by hand will not be quite as light and tender as the commercial goods, but they will be acceptable and much less expensive.

This recipe will make a sheet about 12 by 18 inches by 1 inch thick. Large scissors are useful for cutting the sheet into inch cubes.

Marshmallow Cream

Materials:

1 pound (1¼ cups) corn syrup
6 ounces (¾ cup) granulated sugar
2 egg whites (medium) beaten stiff
½ teaspoon vanilla

Procedure:

Place sugar and corn syrup in a saucepan, mix, and boil moderately to 225° F.; then boil slowly to 17–18° F. above the temperature of boiling water as registered on the thermometer being used, or to a very slight gelatinous mass by the water test. Remove from the heat, wipe off the pouring side of the vessel with a damp cloth. Allow the syrup to cool for approximately 5 minutes. Slowly pour the cooled syrup into the beaten egg white, stirring or beating the mixture constantly. If two persons can perform this operation, the rotary hand egg beater may be used. Otherwise the egg whip or electric beater will be necessary. When the syrup is all in, continue to whip until the consistency is such that the string which flows from a spoonful held about a foot above the pan will pile up approximately an inch on the material in the pan and will be noticeable for at least 20 to 30 seconds after the last of the material leaves the spoon. Add the vanilla, and stir

to distribute thoroughly. When finished, store in a closely covered vessel. This recipe makes about 4 cups.

Most of the beating may be accomplished with the hand rotary egg beater. A large spoon should be used during the latter stage.

Molasses Sponge

Materials:

1 pound (2 cups) granulated sugar
¼ teaspoon cream of tartar
3 ounces (4 tablespoons) molasses
¾ cup water
2 teaspoons baking soda

Procedure:

Mix the sugar, cream of tartar and water, and boil moderately to 265–270° F.; then boil very slowly to 290–295° F. Keep the crystals steamed or washed off from the side of the cooking vessel. Remove from the fire, add the molasses, and boil very slowly to 90–95° F. above the temperature of boiling water as registered on the thermometer being used, or to a hard crack by the water test. Remove the saucepan from the fire, wipe off the pouring side, sift in the soda, distributing it uniformly over the surface of the hot syrup. Stir quickly two or three times around the kettle to distribute the soda uniformly. Pour the foaming mass onto the buttered bottom of an inverted tray. Pour in a thin layer, moving the saucepan back and forth across the buttered tray to form a sheet about ½ inch thick. Any considerable stirring after adding the soda, or too much spreading of the poured material with spoon or spatula, is likely to result in a dry granular candy.

When the sheet has cooled sufficiently to hold a knife crease, make cuts lengthwise of the piece ½ to 1 inch apart. Allow these to set, then cut crosswise to form squares or small rectangles. These are really not cuts but creases made by forcing the cooled outer surface down into the softer material which

has not cooled. As soon as possible after creasing, loosen the sheet and turn it over. Otherwise it will be almost impossible to remove it, once it becomes cold. When the candy has cooled to room temperature, break it along the creases into the size pieces designed.

Nougatines

Materials:

¾ pound (1½ cups) granulated sugar
6 ounces (½ cup) corn syrup
1 ounce (¼ cup) chopped nut meats
½ cup water
⅛ teaspoon salt
½ teaspoon vanilla
1 egg white (large) beaten stiff

Procedure:

Place the sugar, syrup, salt and water in a saucepan. Mix thoroughly, and boil moderately to 250–255° F.; then reduce the heat to slow boiling. Bring to a finish temperature of 60° F. above the temperature of boiling water as registered on the thermometer being used, or to medium crack by the water test. Remove the vessel from the heat. Wipe the crystals from the pouring side of the saucepan, and allow the syrup to cool for five minutes. Pour the hot syrup into the beaten egg white, beating or whipping the mixture constantly. Avoid cooking the egg white into large flakes. If a small lump of the syrup hardens on the bottom of the pan, it indicates that you are not stirring the mixture thoroughly. However, this lump will melt as more of the hot syrup is poured into the pan. When the syrup is all in, continue to beat or whip until the material becomes somewhat stiff. Add the nut meats and the vanilla, and continue to stir the heavy materials until the glassy appearance is replaced by a satin-like finish and the consistency is such that it will just flow. Pour into a lightly buttered pan to form a sheet about ¾ inch in thickness, and set aside to cool.

When cold, remove from the pan to the cutting board, and cut into pieces ¾ inch wide and 1 inch or more long. Wrap each piece in waxed paper. This recipe will make about 1 pound.

Sugar Stick Candy

Materials:

2 pounds (4 cups) sugar
1¼ cups water
½ teaspoon cream of tartar
Color and flavor to suit

Procedure:

Place all the materials except color and flavor in a saucepan. Mix, and boil moderately to 52–54° F. above the temperature of boiling water as registered on the thermometer being used, or to medium crack by the water test. Remove from the fire, and wipe off the pouring side of the saucepan with a damp cloth. Pour the hot syrup into a lightly buttered pan to form a sheet ½ inch or less in thickness, and allow to cool undisturbed. When cool enough to handle, take the sheet into the hands, work it into pulling condition. Add the color and flavor desired—8 to 12 drops of a good extract will give average flavor. Pull the piece until it acquires a satin-like finish and is quite porous. Pull out from the piece a half-inch cylinder 12 to 18 inches long. Cut it off with scissors, and lay it on a tray filled with powdered sugar. Continue until the entire piece has been cut into similar lengths. Now, note if these lengths have shortened and thickened, especially at the ends. If so, stretch to original length and cut with scissors into 4- to 6-inch lengths. These sticks will flatten just a little before hardening, even when laid in powdered sugar. If perfect cylinders are desired, take the cut pieces to a cool place, lay them on a cutting board, and gently roll them on the board beneath the palms. Two or three rollings at intervals of a few minutes should be sufficient. Lay the sticks in the tray of powdered

sugar, cover with sugar, and set aside. After about 24 hours they should be perfectly creamed or sugared.

Many variations may be made with this candy, such as cutting the sticks 8 to 10 inches long and curving one end to form a cane. Or if the cylinder is drawn to a quarter-inch or less, initials, monograms or even names may be fashioned. As soon as made, these pieces should be placed in powdered sugar. Once work of this kind is begun, individual ingenuity will devise many interesting and complicated figures or designs—enough in fact to keep the children busy and happy for an entire afternoon at a cost of only a few pounds of sugar.

Striped Stick Candy

This candy may be made by a single worker, but it is much better if two can work together.

Procedure:

Make a batch of taffy as directed under Sugar Stick Candy. The syrup may be cooled in one lot, or in two lots if there are two workers. If one person is working, pull the candy about half as much as necessary. Divide the piece into two equal parts. Set one part near the heat where it will keep warm. Color and flavor the other half, and proceed to pull it to a finish. Exchange places with the half-finished piece, and pull it to a finish. It may be left white and unflavored or only lightly flavored. Form this last piece to resemble the outspread palm and the wrist; lay it on the cutting board, which has been very lightly dusted with powdered sugar. Take the other piece and give it a few quick pulls, just to soften it and form it into the shape and size of the first piece. Lay the second piece on the first piece. Press together along the edges to form a good union. Pull the piece into a uniform cylinder about ½ inch in diameter, and cut to a length of 10 to 15 inches. Twist the piece to give the spiral effect of the two colors. Continue until the candy has all been pulled. Cut the cylinders into 5-inch lengths. If the

candy is soft, carry it to a cool place and keep the sticks rolling until they are firm enough to retain their shape. Lay the cooled sticks in a tray of powdered sugar; sift sugar over them, and set aside. After 24 hours the candy should be thoroughly creamed or sugared.

If it is desired to place one of the colors within the other instead of having striped candy, then proceed as follows, beginning with the two pieces prepared as above. Dust the cutting board with powdered sugar. Take one of the pieces (the outside one) and shape it as above, except to flatten it out so that the hand part is about 4 to 5 inches across each way, while the wrist and forearm part is about 2 to 3 inches wide.

Form the other piece into a ball, and from one side pull out a cylinder ¾ inch in diameter and equal in length to the forearm of the piece on the cutting board. Place the ball and its cylinder on the first piece so that the ball shall be in the center of the flattened palm and the cylinder along the center of the forearm. Bring the edges of the under piece up over the top one in such a manner as to completely cover it. If the under piece should be too large, trim it off with scissors so that the edges just meet but do not overlap. By gentle pinching and patting make a firm and smooth joint of the edges. By careful manipulation pull into a cylinder ½ to ¾ inch in diameter. Cut into 10- to 15-inch lengths. Complete the operation as directed under Sugar Stick Candy.

Salted Nuts

Some kinds of nut meats are salted with their skins on; others require that the skins be removed. The methods of removing the skins are blanching and heating.

Blanching:

Almonds, pistachio nuts and English walnuts are blanched. This is accomplished as follows: Place the nuts to be blanched

in a vessel of boiling water and leave there, stirring to insure uniform heating, until the skins loosen. The time will vary with the kind of nut and the relative volume of water and nuts, but is approximately two minutes. It is best to determine the time by testing. Drain off the hot water, and chill the nut meats in cold water. Drain, and remove the brown outer skins by pressing the nut meat between thumb and fingers. Do not allow the nuts to become dry, as the skin will again adhere closely to the meat. When all the skins are removed, spread out to dry.

Heating:

The large type peanuts are heated in a slow oven until the skins become dry and brittle and may be removed by rubbing the nuts between the palms of the hand. Avoid getting the nuts too hot, and keep them stirred at frequent intervals to insure even heating. The small Spanish peanut is very rarely skinned. It is generally salted with the skin on.

Frying or Cooking the Nut Meats:

Any good edible oil may be used. As a general practice the vegetable oils are preferred to the animal fats, although some recommend a mixture of equal parts of lard and fresh butter. Mazola, Crisco or any good salad oil is excellent for this work. A quarter-pound of oil will handle 1 cup nut meats if the container is narrow—5 to 6 inches.

Place the oil or fat in a narrow deep vessel, heat slowly to just below the boiling temperature; if your thermometer will record temperatures up to 375° F., heat the oil to 340–360° F. Place the nut meats in a wire basket, and lower it into the hot oil. Or the nut meats may be placed directly in the oil. Keep the nuts well stirred to insure even cooking. When the almonds and other white nut meats show a delicate brown color, they have been cooked long enough. Nut meats such as pecans and Spanish peanuts, whose skins are reddish brown, must be cooked on a time schedule. Just how long

is determined by the rate of heating and the relative amounts of oil and nut meats. Usually 1½ to 2 minutes will be sufficient.

When the cooking is finished, strain off the hot oil and spread the nut meats on a large piece of unglazed paper, which will absorb the superfluous oil. Bring the meats into a heap and sift fine salt over them. Stir well to insure uniform salting. Spread on a clean piece of paper to cool. When cold they may be packed into waxed paper bags or waxed-paper-lined boxes.

Chapter XVIII

CANDY MAKING FOR PROFIT

The home candy factory has many commendable features and is therefore a most important factor in the community life. It supplies pure, high-grade confections with the homemade flavor and character to those who can and will pay a little more for this extra quality. It gives pleasant and profitable employment to those who are adapted to do this type of work. It enables the homemaker or some member of her family to start a business in a small way which, through proper management, may be developed into a profitable enterprise without large expense for training or equipment.

The turnover is rapid, and the profits sufficient to insure a good wage. The small capital necessary does not become tied up in manufactured products because sales must quickly follow production. Experiences of others show that it is better to begin in a small way and to increase the output and the equipment as the business demands.

The Market

The home factory must find its market among the consumers. Rarely will it be good business to sell its products to the trade until it has grown to commercial

proportions. As a general rule the market is to be found in the home community. The roadside stand, the tea room, and a selected clientele who may or may not live near by are possibilities for a good market, while the individual, the family, the various clubs, anniversary parties and public gatherings are the home candy maker's sure market. The various holiday seasons offer special opportunities for the sale of homemade candies made in harmony with the occasion.

Just how the market is to be developed is a special and local problem which must be solved by individual initiative and ingenuity. The market is there—in thousands of communities—and requires only that it be developed through judicious sampling or proper advertising of exceptional quality homemade candies.

Kinds of Factories

Home candy factories are of two general kinds, depending upon the type of work done. They are (*a*) special and (*b*) general.

SPECIAL

In the special type factory the production is restricted to one product or to a very small group of products usually made from the same basic materials. A good illustration of this is to be found in those small New England home factories which offer for sale only such products as contain maple sugar. The "maple sweetheart" has long been a delicacy among residents of the maple producing centers. Popcorn confections are another example which

find ready sales, especially at summer resorts. Other factories specialize in a few choice candies, such as the fudges, caramels or chocolates. Specialties such as penny candies, five-cent bars, the cream mints or any other candies which come within the ability of the operator to produce are possibilities worthy of careful consideration.

GENERAL

This type of home factory is characterized by a relatively large variety of candies in its production. The output may vary over a wide range of candies within a given group, or it may include one or more from many groups. The success of this type requires greater versatility and a wider experience and greater adaptability on the part of the operator. He must be expert in the production of many kinds of candies and confections, and naturally, too, the equipment and facilities for working must be considerably increased over those of the special factory. Compensation, however, may be found in the wider market and the probable higher average level of profits which are often possible in a diversified business.

Equipment

The kind and size of equipment will be determined by the kind and amount of work to be done. The equipment to be found in a well stocked home kitchen may suffice for a start. Certainly the equipment listed in Chapters II and III will be sufficient for the beginner, who must establish a market, and whose success is not as yet assured. It is always a good procedure to begin with a

minimum investment and to increase the facilities for larger production as the need arises. If a special type factory is planned, it may be advisable or even necessary to have some special equipment, the nature of which will depend upon the character of the products to be made. For example, if candy hearts or mint creams or other types of molded candies are contemplated, some type of molds will be necessary.

As the business grows and the need for time-saving equipment becomes more acute, the candy maker will need to get in touch with the candy makers' supply houses or the manufacturers, who are always only too willing to supply whatever may be required. These needs naturally will depend upon the line of development. It must be kept in mind, too, that in so far as possible homemade candies should be produced in the homemade manner. The small batch which received careful personal supervision, from the assembling of materials to the finished product, will generally be more typical of homemade candy than when larger batches are made by inflexible rule. The electric mixing and stirring machines, rubber molds, cream mint droppers, marble slabs, etc., are all time and energy savers and should be installed as soon as the business will warrant the extra investment.

Sources of Equipment and Supplies

Supply houses which handle candy makers' equipment and some necessary supplies are located in practically all the leading cities. The address of one or more of these may be had from the local or near-by confec-

tioner or from the city library. The supply house should be consulted for such special equipment as the proposed business or the necessary expansion may require. Also, such supplies as colors, flavors, chocolate, boxes and waxed paper can be purchased from these firms.

Such supplies as sugar, syrup, nut meats, cocoanut and dried fruits may be purchased in relatively large quantities at a considerable saving on each item. The local grocer and the near-by city wholesale house should be consulted on prices and grades before extensive purchases are made. Whenever possible the local dealer should be called upon for at least a part of the regular supplies. This will enlist his interest and sympathy, and he will become a booster for the business.

Supplies of all kinds should be of good grade. High quality candies cannot be made from inferior material.

The Workroom

The workroom of the beginner may be the home kitchen, provided it is large and well ventilated. It should be equipped with plenty of table space and a good source of heat. The heat which comes from a flame under control, such as gas or some one of the oils, is more satisfactory than the coal or wood range, although either of these may be used if conditions demand it.

As the business grows, the operations may be moved into a room or small building especially designed for work of this kind. The fundamental things to keep in mind with respect to the workroom are sufficient working space, good lighting, facilities for ventilation, a good source of heat and an adequate water supply.

Regardless of whether the place is open to visitors, it must be kept as clean as soap and water and tireless energy can make it. Such a workroom is an excellent salesman.

The Storeroom

The storeroom should be cool and not too dry. It will be used more for materials and supplies than for finished products. Many candies dry out quickly when stored in a warm, dry room. Most candies should not be made with the intention of storing them. Excepting some kinds of chocolate coated candies, freshly made goods are much better than goods stored a few days.

Containers

The sales package as a general rule should be inexpensive. There may be exceptions when customers prefer to pay extra for a fancy package, but most of us buy candy rather than fancy boxes. The box should be substantially made and of proper size to hold the desired contents. The box with the straight sides which may be purchased from supply dealers or manufacturers, and which comes collapsed, is preferable to those whose sides slope outward and which come nested. Any printing which is wanted may be placed on the box cover by the manufacturer, or the local printer can do the work on the collapsible type box.

Waxed paper of medium weight may be used for box liners, also to place between the layers; or a light-grade white or gray cardboard may be used to separate the

layers and to protect the top. The local printer can supply the cardboard, while the waxed paper may be obtained from the candy supply houses.

Bonbon cups for packing chocolates and bonbons, paper for wrapping taffies and caramels, and cellophane paper of assorted colors may be purchased from the regular supply firms. Taffy wraps are cut to 4-by-5-inch size, while caramel wraps are 2½ by 4 inches.

Selling Price

Too often the operator of a kitchen factory tries to overcapitalize the value of homemade products, with the result that prices are set so high the sales become few. The home candy maker should make an honest effort to determine the actual cost of producing each type of candy offered for sale. The items to be considered in arriving at the cost of production are materials, labor, fuel, packages, a small charge for overhead, and perhaps a small charge for incidental costs which are too small to be actually figured to the unit of a pound. When the cost of production has been determined, a reasonable profit may be added, and their sum will give the sales price. This method allows for both a wage and a profit. When labor is hired, a profit must of necessity be included if the business is to continue.

The following general plan may be taken as a means of determining the sales price. Five pounds of a high quality chocolate fudge may be made for a cost of about 12 cents per pound for materials and fuel. The actual time required to do all the necessary work, from assembling the materials to packing the finished candy into boxes,

will be less than one hour. If 50 cents per hour is allowed for labor, and if a small per cent is added for incidentals and overhead, the fudge will cost ready to sell about 22 to 25 cents per pound. Whether that shall be the selling price and the producer is satisfied with a wage of 50 cents or more per hour, or whether a profit shall be added and the sales price advanced to 30 cents or more per pound, is a problem which the producer must solve. Excessive prices, however, will surely mean reduced sales and may in the long run prove disastrous.

APPENDIX

FINISH POINT FOR CANDIES

Temperature Test—Degrees Fahrenheit above the temperature of boiling water as registered on the thermometer being used.

Water Test—In water at approximately 60° F. (See Water Test, in Chapter III.)

Candy	*Temperature*	*Water Test*
Acid Fondant	26—28	Soft to medium firm ball
After Dinner Mints	48—50	Very hard ball
Apple Nougatine	38—40	Hard ball
Brown Sugar Caramels	35—36	Medium hard ball
Brown Sugar Kisses	26—28	Soft to medium firm ball
Butterscotch	80—85	Hard crack
Caramel-Pecan Roll	37—38	Medium hard ball
Cereal Brittle	85—90	Hard crack
Chocolate Caramel	33—34	Firm ball
Chocolate Coated Popcorn	55—60	Medium crack
Chocolate Fudge	22—23	Very soft ball
Chocolate Nut Toffee	38—40	Hard ball
Cocoanut Brittle	80—85	Hard crack
Cocoanut Caramels	35—36	Medium hard ball
Cocoanut Fudge	25—26	Soft ball
Coffee Caramel	35—36	Medium hard ball
Coffee Fondant	26—28	Soft to medium firm ball
Coffee Fudge	22—23	Very soft ball
Crackerjack	60—65	Medium crack
Crystallizing Syrup	8—10	
Divinity	27—28	Soft ball
English Toffee	38—40	Hard ball
Fruit Caramel	35—36	Medium hard ball
Fruit Fondant	32—33	Medium firm ball
Fruit Fudge	24—26	Medium soft ball
Fruit Jelly		Firm mass
Fruit Paste		
Fruit Taffy	48—50	Very hard ball

Candy	*Temperature*	*Water Test*
Glacé	90—100	Very hard crack
Honey Caramel	35—36	Medium hard ball
Honey Chocolate Caramel	35—36	Medium hard ball
Honey Chocolate Fudge	27—28	Soft to medium firm ball
Honey Divinity	32—33	Firm ball
Honey Fondant	30—31	Medium firm ball
Honey Marshmallow	15—16	
Honey Nougatine	68—70	Medium crack
Honey Panocha	30—31	Medium firm ball
Honey Taffy	54—56	Very hard ball
Maple Caramel	35—36	Medium hard ball
Maple Cream	17—18	Gelatinous mass
Maple Cream Candy	24—25	Soft ball
Maple Flavored Fondant	22—24	Medium soft ball
Maple Fondant	20—22	A heavy gelatinous mass to a very soft ball
Maple Fudge	24—25	Medium soft ball
Maple Sugar Candy	23—24	Medium soft ball
Maple Sugar	20—22	A heavy gelatinous mass to a very soft ball
Maple Wax	20—22	A heavy gelatinous mass to a very soft ball
Marshmallow	11—12	
Marshmallow Cream	18	Gelatinous mass
Marshmallow Fudge	25—26	Medium soft ball
Mint Straws	75—80	Hard crack
Molasses Sponge	90—100	Hard crack
Molasses Straws	75—80	Hard crack
Molasses Taffy	46—48	Very hard ball
Nougatine	65	Medium crack
Nut Caramel Roll	37—38	Medium hard ball
Nut Log (center)	28—30	Medium firm ball
Orange Cocoanut Fudge	24—26	Medium soft ball
Panocha	23—24	Very soft ball
Peanut Brittle	82—86	Hard crack
Peanut Butter Fudge	24—25	Medium soft ball
Plain Caramel	35—36	Medium hard ball
Popcorn Balls	60—65	Medium crack
Popcorn Brittle	85—90	Hard crack
Popcorn Cake	60—65	Medium crack
Popcorn Crispettes	60—65	Medium crack

Candy	*Temperature*	*Water Test*
Popcorn, Chocolate Coated	55—60	Medium crack
Popcorn, Crystallized	24—26	Soft ball
Salt Water Taffy	42—44	Very hard ball
Scotch Kisses	75—80	Hard crack
Sea Foam	27—29	Soft ball
Syrup Fondant	26—28	Soft to medium firm ball
Taffy for Popcorn Confections	60—65	Medium crack
Vanilla Fudge	26—28	Soft ball
Vinegar Taffy	44—46	Very hard ball

EQUIVALENT WEIGHTS AND MEASURES

Brown Sugar
½ pound = 1¼ cups
Butter
½ pound scant = 1 cup
1 ounce = 2 tablespoons
Chocolate
1 ounce = 1 square or 4 tablespoons
4 ounces = 1 cup finely cut
Cocoanut
1 cup = 3-4 ounces
Corn Syrup
¾ pound = 1 cup
Confectioners', or Powdered, Sugar
1 pound = 3¼ cups
Gelatin
1 ounce = 3 tablespoons
Granulated Sugar
½ pound = 1 cup
Honey
¾ pound = 1 cup
Molasses
¾ pound = 1 cup
Nut Meats
¼ pound = 1 cup

GLOSSARY

Albedo: The inner white porous peel of the grapefruit.

Caramelize: The change that takes place when sucrose (cane sugar) is heated above 200° F. The sugar loses water and changes to a brown color. It has a characteristic taste and flavor.

Cerelose: Corn sugar. A dextrose sugar formed by hydrolysis of cornstarch.

Creaming: The process through which all stirred candies go as they change from the heavy viscous syrup to a very fine crystalline structure; the change which takes place when taffies and taffy-like candies lose their wax-like character and become dry and brittle or soft.

Deliquescent: Possessing the property of absorbing moisture from the air.

Dextrin: An intermediate product formed when starch is hydrolyzed; soluble in cold water; forms a syrup which has adhesive properties.

Dextrose: Also called glucose and grape sugar. One of the invert sugars. Occurs in many fruits and vegetables.

Doctor: A substance which, when added to a sucrose (cane sugar) solution, will, of itself or because of some chemical change produced by it, retard or prevent the formation of large sugar crystals.

Dribbling: Allowing drops or sheets of syrup to fall from the pouring vessel into the cooling pan.

Enzyme: A product of a living cell which is capable of bringing about certain chemical reactions independently of the mother cell. One of these changes is the hydrolysis, or inversion, of sucrose (cane sugar) to form dextrose and levulose.

Extract: A flavoring extract is a solution in ethyl alcohol of proper strength of the sapid and odorous principles derived from an aromatic plant or parts of the plant.

Ferment: The product of a living cell which has the power to bring about chemical changes such as fermentation and hydrolysis.

Gelatinous: Of the nature and character of gelatin, or soft jelly; viscous.

Generic: Refers to a relatively large group or class of objects which have common characteristics.

Graining: The process whereby noticeable size crystals are formed during the manipulation of a candy or while it is in storage.

Hydrolysis: A chemical decomposition which involves the addition of water; e.g., when one molecule of sucrose is broken down by the action of acid or enzymes, one molecule of water is added which results in two molecules of simpler sugars—one each of dextrose and levulose.

Hydrolyze: To subject to the process of hydrolysis.

Inversion: The process of changing sucrose (cane sugar) into a mixture of equal parts of invert sugar—dextrose and levulose.

Invert Sugars: Those simpler sugars which are produced by the inversion or hydrolysis of cane sugar. They are dextrose and levulose.

Invertase: An enzyme also known as sucrase. It functions to bring about the hydrolysis of sucrose (cane sugar).

Levulose: Known also as fruit sugar. One of the invert sugars; occurs in many of the fruits and vegetables.

Maltose: An intermediate sugar which is produced when starch is hydrolyzed. A constituent of corn syrup.

Monoclinic: A crystal with a single axis of symmetry. Two additional axes of reference are chosen at right angles to the axis of symmetry and are oblique to each other.

Mother Crystals: Sugar crystals which, when introduced into a heavy sucrose (cane sugar) solution, tend to cause crystallization of the sugar from the syrup.

Mother Liquor: The liquid which remains after the crystallizable materials have crystallized.

Nuclei Crystals: The microscopic crystals which form first in a supersaturated sucrose solution, and which if not hindered will grow to noticeable size.

Retarder: A substance which, when present in a supersaturated solution of sucrose, slows down the normal rate of crystal formation, and which as a rule envelops the nuclei crystals or by its presence causes them to be enveloped.

Saturated: A solution of sugar and water is saturated when all the sugar possible, under existing conditions, has been dissolved by the water. This is a stable solution.

Seeded: Relates to the addition of sugar crystals for the purpose of facilitating crystallization.

Simple Syrup: A sucrose syrup made by mixing 1½ parts of granulated sugar and 1 part of water, and heating only to solution.

Solvent: The constituent of a solution which is liquid in its pure state.

Sucrose: Cane sugar, or common household sugar. Includes also the brown sugars, powdered sugar and maple sugar.

Supersaturated: A solution of sugar and a liquid is supersaturated when because of changed conditions there is more sugar in solution than could be dissolved normally. Such a solution is very unstable.

Synthetic: When applied to some particular substance it implies that the substance has been built up by the union of simpler compounds or elements.

Technique: Method or skill in handling or manipulating.

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