How to Make Candy

In offering this volume to the public, the publishers beg briefly to state that it is not a compilation of receipts and directions from unreliable sources, but an entirely new work, written by a gentleman thoroughly proficient in the art of which he treats, assisted in the preparation of the paragraphs relating to flavors, fruit syrups, and medicated candies, by a practical pharmacist of large experience. The object which has continually been kept in view, has been to present a series of reliable formulas, and instructions for the manufacture of those kinds of confectionery which are in greatest demand, and which may easily be prepared by persons possessing little or no experience in this direction, and without the use of expensive machinery or appliances.

How to Make Candy.

The art of the confectioner is one which, without being especially intricate or difficult of acquirement, demands much experience for a full mastery of its details. We cannot hope, therefore, by description merely, however plain and specific, to enable the reader to attain that deftness of manipulation which will be found essential in the preparation of very many of the more delicate and ornamental products which the confectioner is called upon to furnish. This, like every kind of manual skill, can come from experience and practice only. It is quite possible, however, to impart the information by which the various kinds of candies and confections most in demand may easily be prepared, especially for the delectation of the home circle, where the quality and pleasant

flavor of the product is sought, rather than its manufacture into any particular form.

In such cases, the information given in these pages will enable any person who will intelligently and carefully follow the directions laid down, to produce with very little trouble and cost, and of unqualified purity, many of the sweet things which are in such universal demand. Confections so simple as ordinary lozenges, for instance, require skilled labor for their manufacture of uniform size and smoothness, and that they may be neatly packed in small rolls, the form in which they are usually sold; but any intelligent boy or girl can with a little fine sugar, dissolved gum, and flavoring material, produce the same fully equal in quality, though possibly not in appearance, to those made by the largest manufacturer. This little book is not therefore intended to be a technical treatise for the use of skilled confectioners, but a manual of plain and simple recipes and directions for the use, principally, of the young people of the household, who will, we trust, find sweet employment in the practical application of the information given.

MATERIALS USED IN CANDY MAKING.

THE materials used in the home manufacture of candy are neither expensive nor difficult to be obtained, even in places possessing but limited trading accommodations. Aside from sugar in its different forms, the base of all confections, these materials consist chiefly of flavors and colorings which are in almost universal demand for many other purposes, and are hence readily procurable. A brief description of the more prominent characteristics of the principal articles used will be necessary before proceeding to describe the processes in which they are to be employed.

Flavors.

THE essential oils of various aromatic plants are usually employed for the purpose of communicating an agreeable flavor to candies and other confections. In some cases the essential oil is used in an undiluted form, or with only a slight admixture of strong alcohol to "cut it," as the operation is usually termed, that the flavor may be

more readily and uniformly diffused throughout the sugar in process of manufacture.

The proper preparation of many articles, however, requires the introduction of the flavoring material in a less concentrated form, and for this purpose solutions of the different oils are employed, termed essences or extracts.

These, as used by different makers of confectionery, are of varying strength, a matter of little practical importance as regards the quality of the manufactured goods, if made from pure materials, as the amount of any particular kind to be employed is regulated by the taste, and the weaker the extract, the greater will be the quantity needed to produce a certain intensity of flavor. It is, however, considered better in making the more solid forms of candy, to use the flavoring material in as concentrated a state as is consistent with a due regard for its proper diffusion in order that but little liquid may be introduced.

In the receipts for the preparation of flavoring extracts which will hereafter be given, the strength indicated will be that usually adopted by the best makers of these goods, whose products may be substituted in following the directions of succeed-

ing pages regarding the flavor of confections, in all cases where it is not deemed desirable to undertake their manufacture. Flavoring extracts are but simple mixtures of essential oils with spirits, or tinctures prepared by maceration of the flavoring substance in the same material, and the receipts to be given will produce these articles of the best quality, fully equal in all respects to those so largely advertised.

It is only necessary to be careful that the essential oils employed are fresh and unadulterated. The confectioner whose business requires the use of any considerable quantity of flavoring extracts, and who is in the habit of buying those prepared by others, is only paying a large price without any corresponding advantage to himself, for a mere mixture of essential oils and alcohol, when he might easily procure the articles separately and perform his own mixing. Where only small quantities are needed, however, it may be better to purchase a small bottle of good extract than to attempt its manufacture.

The difference in meaning of the terms essence and extract as applied to the solutions described relates solely to the strength of flavor.

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Thus, extract of lemon is prepared by using eight ounces of the essential oil of lemon to one gallon of alcohol, while the essence would contain only two or three ounces of oil in the same quantity of spirits.

General Directions for the Preparation of Flavoring Extracts.

MUCH needless repetition may be avoided by giving just here a few general directions which are to be observed in the preparation of all flavoring extracts, while any special information needed as regards any particular flavor will be found under its appropriate heading. Great care should be observed to secure pure, inodorous alcohol, which must be of sufficient strength to completely dissolve the essential oil at the ordinary temperature.

In most cases, such strength is indicated by the almost immediately resulting transparency of the mixture, but in some instances it is necessary to filter it through carbonate of magnesia in order to effect a perfect combination.

If the oil does not actually separate from the alcohol—which it will not do unless the latter be

weak—a perfectly transparent solution has no advantage, save that of appearance, over one which is slightly cloudy.

As essential oils have very little color, the resulting extracts will be clear, or only slightly tinged. The color is, therefore, no real criterion by which to judge of the strength of the extract. The public, however, not being generally acquainted with this fact, are inclined to favor that style which to them seems the strongest, judging from appearances merely. In deference to this whim, manufacturers of bottled extracts are accustomed to color their goods—a perfectly harmless proceeding, though not really necessary to their excellence.

For this purpose, tumeric is employed to give a yellow; cochineal or aniline dye, a red color.

For practical use in flavoring candies, of course no color need be added to the extracts; in fact, in the manufacture of white goods they should be as free from color as possible.

Anise.—The true essential oil of anise is procured by distillation from the seed of the well-known plant of this name. The oil, generally sold as such, is obtained from the fruit of an East Indian tree,

and so nearly resembles the true oil, that it has generally supplanted it. The flavor of anise is now but sparingly used by confectioners, the taste being too unpleasantly remindful of elixir paregoric and other nauseous medicinal doses of which it is an ingredient, to find much favor with the young folks when presented in the form of candy. The pure oil congeals at a temperature of 50°, and will not readily dissolve in alcohol of a temperature below 60°, though when dissolved it will not separate at a much lower temperature. At the right temperature it unites freely with any proportion of strong alcohol, and the solution does not need to be filtered. The extract is rarely used. If wanted, it may be made in the proportion of one ounce of oil to a pint of spirits.

Cinnamon.—Under this name two essential oils are imported, one, and by far the best known, being the product of the *Laurus cassia*, and rightly named oil of Cassia, though ordinarily termed oil of Cinnamon. The ground bark of this tree has obtained an extensive use in culinary art, and is a favorite flavor in many household dishes. It is that which is usually sold by grocers as ground cinna-

mon, though the same distinction should obtain as in the case of the oil. The other, and much the finer oil, is obtained from the *Laurus cinnamonum*, and is known as oil of Ceylon Cinnamon. Its price is usually seven or eight times that of the ordinary oil of cassia, and in quality it correspondingly excels. For some uses it is indispensable, especially in compounding the cachou flavor to be mentioned hereafter.

The ordinary oil of cassia is the one generally used by confectioners, but the true Ceylon oil has a spicy fragrance peculiarly its own, and would prove much more acceptable. As its flavor is very intense it should be employed with judgment, a few drops only sufficing for a pound of sugar.

Extract of Cinnamon—	True Ceylon oil,	One ounce.
	Alcohol,	One pint.

Tinge lightly with aniline red, then with tincture of tumeric. This combination will give a brownish-red color, resembling that of an extract prepared from the bark.

Cloves.—The characteristic qualities of this spicy product of the Indies are too well known to require an extended description. All parts of

the clove-tree yield the essential oil, but it is more plentifully obtained by distillation from the undeveloped flower-buds. These, when dried, constitute the cloves of commerce.

The flavor of clove is a pleasing one, though not so universally popular as some others.

It is principally used in those forms of confectionery which are intended to give a pleasing perfume to the breath after the use of articles the odor of which may be thought to be objectionable to others. In such cases the oil is used in its concentrated state.

If an extract is required, it may be made as follows :

Extract of Clove—	Oil of clove,	Two ounces.
	Alcohol,	One pint.

Carraway.—The oil from the fragrant seeds of this plant, although readily obtainable, and quite often employed in the manufacture of cordials and liquors, is not used as a flavor for candies.

The seeds themselves are largely made use of in the preparation of comfits, and it would seem that the oil might be acceptably used in the flavoring of candy.

Calamus.—From the root of the sweet flag or calamus is distilled an oil having the peculiar flavor of the plant. It is very little used, save occasionally as an ingredient in the flavoring of small breath confections. The green root sliced into pieces and boiled in sugar has long been a favorite domestic confection, and is often prepared by manufacturers under the name of candied flag.

Checkerberry.—The same as wintergreen, which see.

Coriander.—The small round seeds of this plant were formerly much used in the preparation of large-sized comfits or sugar balls, which were quite a favorite some years ago. At present they are but little called for. The essential oil might perhaps be used as a flavor for some novelty which would be apt to meet with considerable success, as the taste of the seed is pleasant and far from being commonly known, especially to the younger people of the present time.

Bitter Almond.—The essential oil of this name is obtained by distillation from the residue remaining after expression of the fixed oil from

the kernels of the fruit of the bitter almond tree, a member of the peach family. Indeed, the pits of the latter fruit are often substituted for bitter almonds, the flavors of both being nearly alike. Unless perfectly pure, it possesses highly poisonous properties, and should be used with caution. As the injurious effects are due to the presence of a notable quantity of hydrocyanic acid, which may easily be removed without detriment to the flavor of the oil, the necessity of using the latter in a purified form only is apparent.

Bitter almond is a very pleasing flavor when judiciously used, but has a strong, disagreeable taste when added in excess. The extract may be prepared as follows:

Extract of Bitter Almond—

Pure essential oil of bitter almond,	Two ounces.
Alcohol,	One pint.

The extract is usually sent out uncolored. Extracts of peach and nectarine are the same as the above, but are labelled differently to suit the respective demands of customers.

Capsicum.—This pungent flavor is used to a

limited extent, chiefly in the preparation of Cayenne lozenges.

Extract of Capsicum—	Powdered Cayenne pepper,	Four ounces.
	Alcohol,	One pint.

Mix, and let stand for a few days. The extract may be obtained clear by filtration.

Cardamon.—A very agreeable aromatic, used as a breath perfume. The small seeds are coated with sugar, and sold in the form of a comfit. The seeds are quite expensive, which has probably prevented their use in other forms of candy. The flavor would be a fine one for lozenges. Should an extract be desired, it may be prepared as follows:

Extract of Cardamon—		
	Cardamon seeds, finely ground,	Four ounces.
	Alcohol,	One pint.

Allow the seeds to macerate for two weeks, and filter.

Ginger.—The root of this plant is employed by the confectioner both in the recent and dried state. When fresh and tender the roots, deprived of their outer covering, are boiled in syrup, and

form an agreeable, though very rich and pungent, preserve. The preserved ginger is often imported from the East Indies in small earthen pots, which are bound with strips of bamboo.

The dried root is much used in cooking for its agreeable flavor, and in medicine for its excellent stimulating and carminative properties.

In the form of lozenges and drops its pleasant effects are much sought after, especially in the summer months. In the incipient stages of many diseases peculiar to hot weather, its prompt administration has often prevented severe sickness.

The extract is therefore much in demand, and is manufactured and sold in large quantities.

Its preparation is extremely simple, and as the ingredients are so easily procured, it may be made by any family for less than one fifth of its cost when purchased in the small bottles in which it is usually vended. Ginger is cultivated in many tropical countries, principally in the East and West Indies, and Sierra Leone in Africa. That brought from the West Indies is considered to be finer in the flavor, and of greater strength, and is generally known by the name of Jamaica ginger. The root of this species is deprived of its epidermis,

and undergoes a bleaching process before being sent to market, by which it is much improved in appearance. It naturally commands a higher price, perhaps greater in proportion to the price of other good kinds than the real difference in quality demands. As regards the extracts which are so freely advertised as being made from Jamaica ginger, they are, in the majority of cases, a deception so far as their names are concerned, not a particle of real Jamaica ginger entering into their composition.

If honestly prepared, however, of full strength, from a fine quality of African or East Indian ginger, this little fiction of name can hardly be considered in the light of a fraud, as the medicinal properties are the same, and the strength of the substituted article can easily be made fully equal to all requirements.

Extract of Jamaica Ginger—Pure ground ginger, Four ounces.
Alcohol, One pint.

Mix, and allow them to remain, frequently shaking, for four or five days before filtering.

The extract, when completed, may be filtered by draining it through a little cotton-wool placed in the neck of an ordinary tin funnel.

If the first portion which runs through is turbid, it may be returned. After running a few minutes, the extract will come through of a clear brandy color. In large quantities the extract is prepared by the process of percolation.

During the summer months a drink well adapted to the season may be prepared by adding to ice water sweetened with sugar or molasses, a few drops of the ginger extract prepared as above. If made from molasses the drink will be an improvement on the old-fashioned "switchel," that favorite beverage of farmers in haying-time.

Lemon.—From the exceeding great variety of flavors which nature has so lavishly created for the delectation of mankind, hardly any other can be selected which will compare in popularity with that of the lemon. Suited alike to all tastes, in every climate, and in all seasons, in sickness or in health, the palate never tires of its delicious aroma. It forms alike the principal flavoring ingredient of the exhilarating punch of the *bon vivant*, or the simple lemonade of the teetotaller. The fruit, from the rind of which the flavor is obtained, is so well known that any

description is unnecessary. The extract of lemon sold in such large quantities, generally in small panelled bottles, and labelled in so many varying styles, is a simple mixture of the essential oil of the lemon with alcohol.

Extract of Lemon—Pure oil of lemon,		Two ounces.
	Alcohol,	One pint.

Mix, tinge slightly with a few drops of tincture of tumeric, and filter. Of course the proportion of oil may be increased or diminished at pleasure, but the proportions given are those usually adopted by makers of the best flavoring extracts.

For home use a fine extract may be made by grating the outer rinds of a dozen lemons and mixing the same with a half pint of alcohol.

The skin of the lemon consists of two sections, the inner one being white, tough, and bitter, the outer one consisting of an aggregation of small cells surrounded by a very thin yellow envelope, enclosing the pure essential oil in which alone the flavor is found. Consequently, the object in preparing a fine extract should be to obtain all the oil from the outer portion without

destroying the quality of its flavor by mixture with the white and bitter part of the skin.

To secure this result requires care on the part of the operator, the lemon being lightly rubbed on the grater in such a manner that a fresh portion is continually exposed as soon as the oil cells have been broken and removed, and the white portion of the skin appears.

Another way is to remove the outer skin carefully with a very sharp knife, and macerate the thin parings in alcohol. By either process an extract is obtained possessing the beautiful yellow color and fine flavor of the fruit. A modification of this process may be adopted by using lumps of refined sugar as graters. The oil will be absorbed in the pores of the sugar, and when full, a fresh lump may be substituted. These rough lumps saturated with oil when covered with alcohol will readily give up to the latter their fragrant accumulations. Oil of lemon is one of the few articles which it is almost impossible to obtain in small quantities of good quality, from even first-class druggists. The reason for this lies in the fact that it is a substance exceedingly prone to change, and however fresh and pure it may be

when purchased by the dealers, it soon loses its fine taste, and in a greater or less degree acquires an aroma resembling turpentine. It will therefore be found better to prepare it for domestic use directly from the fruit. As the latter varies greatly in price, advantage may be taken of exceptionally low rates, and a quantity prepared for future use. After mixture with alcohol the flavor of the oil remains unaltered for a long time.

Orange.—The flavor of this fruit may be obtained in the form of an extract by either of the processes mentioned in the preceding paragraph.

It is even more disposed than lemon to change by exposure to the air, and hence is little used in confectionery intended to be kept for any length of time before consumption.

Orange Flower.—The flowers of the orange when distilled with water yield a volatile oil, possessing the fragrance of the blossom in a somewhat modified form, owing to the action of the heat used to effect the distillation. The essential

oil rises on the surface of the water which distils over and is termed oil of neroli. The water impregnated with the flavor is sold under the name of orange flower water, and is occasionally used in confectionery. It may also be made by filtering pure water through carbonate of magnesia with which oil of neroli has been rubbed.

The true odor of the flower is best obtained from an alcoholic infusion of the scented pomade prepared in the south of France for perfumery purposes.

Peppermint.—There are few who are unacquainted with the peculiarly grateful fragrance of this herb.

In all parts of our country it is found in certain favorite localities of its own, growing in a wild state, in some places so profusely that its harvesting is a profitable one.

The regular supply of essential oil is, however, obtained from the cultivated plant, large quantities being raised for this purpose in the States of New York and Michigan.

In New York the business is principally in the hands of the Messrs. Hotchkiss, in Wayne

county, and the care and attention which they have bestowed upon the cultivation of this plant, and the distillation of its essential oil, have given to their product a reputation which has caused the article bearing their name to be sought after in the principal markets of the world. In St. Joseph county, Michigan, there are a greater number of acres under cultivation, and much fine oil is sent to market from this section, but not under a trade-mark so well known as that of the Hotchkiss oil. Much of the common oil is either badly adulterated or carelessly made, and has a coarse flavor much different from the fine, ethereal taste of the pure and carefully-prepared article.

The flavor of peppermint is chiefly made use of by confectioners in the manufacture of drops, lozenges, and the small penny sticks which with their brilliant red stripings have at all times proved so attractive to juvenile eyes. No matter what have been the money fluctuations of our country, no dealer has had the audacity to change the *price* of the latter, but by comparing the size of the sticks offered the children of the present day with the generous proportions of those obtainable by the young people of a former generation, we can

see in their attenuated shapes an illustration of the wonderfully diminished purchasing power of the American cent.

For flavoring these forms of candy, the oil is generally used without much reduction. If required, an extract may be prepared in the proportion of one and one half to two ounces of oil to a pint of alcohol. No filtering will be necessary, as the oil is very soluble. For domestic use the essence is the form generally employed, which is, as before stated, but a weaker form of extract. Two ounces of oil to the gallon of alcohol is the standard proportion.

The essences sold by pedlers are still weaker, one ounce only of oil being used to three quarts of alcohol and one of water.

Rose.—It seems to be a noteworthy fact that we rarely care to employ the same substance as a source of gratification to both the sense of smell and that of taste. We prefer to allot to some especial aroma the task of tickling the palate, while to another is assigned the service of delighting the nasal nerves. In accordance with this "natural selection," the odor of the rose is oftener

employed in perfumery than as a means for rendering other substances more acceptable to the taste. Occasionally it is used for flavoring some forms of candies, and when so needed an extract may be made by dissolving one half ounce of the pure oil or otto of rose in a pint of alcohol. The bottled extract for culinary flavoring purposes is made of one half this strength, or two ounces of oil to the gallon of alcohol.

Rose water, which is sometimes used, is obtained in a manner similar to that described under the head of Orange Flowers. The true extract may also be prepared from the scented rose pomade, and has an exceedingly fine flavor. As the pomade is obtainable only in large-sized cans, the preparation of this form of extract, as well as that of orange flowers, is not practicable on a small scale.

Sassafras.—A very fragrant oil is distilled from the bark of the root of the sassafras tree.

It is used principally to flavor lozenges, for which purpose it is employed in its natural state without reduction.

The essence is sometimes in demand as an in-

gredient in root beer, and is made by adding two ounces of the oil to a gallon of spirits.

Vanilla.—A combination of intensity and delicacy characterizes the delicious flavor of vanilla. The plant is a running vine of the orchid family, and is a native of Mexico and South America. The flavor is obtained from the fruit, which is a round, slender pod, from five to eight inches in length, filled with an oily, pulpy mass, containing a great quantity of very minute shining black seeds. The best vanilla comes from Mexico, and is distinguished by the greater size and length of the pods over those of inferior kinds. The pods, usually but improperly termed beans, are collected before they have become fully ripe, and having been carefully dried, are brushed over with a fixed oil, which gives them a glossy appearance. They are tied up in bundles weighing about a pound, and packed in tin boxes which are tightly sealed. The aromatic principle of vanilla consists of a crystalline substance termed *vanillin*, which is never isolated for practical purposes, the flavor being obtained by maceration of the pods in diluted alcohol, and used in the form of an extract.

Owing to the high price of vanilla, its extract is rarely to be obtained in a pure state. Unfortunately, the public taste has become so habituated to the substitute, that it will not pay the price necessarily required for the unadulterated article. This substitute is the Tonka bean, the seed of a tree growing in Guiana, commonly known as the "snuff" bean, from its frequent employment as a perfume for that substance. Used alone, or in combination with a small portion of vanilla, which it strongly resembles in flavor, its taste is not unagreeable to those not accustomed to the delicate aroma of the latter in a pure state.

It is largely employed in the manufacture of the cheap flavoring extracts sold by dealers whose trade does not demand goods of the quality usually kept by druggists and first class grocers. The following receipts will show the difference in the quality of various kinds:

I. Extract of Pure Vanilla—Vanilla pods, Two ounces.
Alcohol, Eight ounces.
Water, Eight ounces.

If only a small quantity is to be prepared, the pods may be sliced and cut in fine pieces with a sharp knife, and thoroughly pounded with

one or two ounces of granulated sugar in an iron mortar. They are then to be placed with the alcohol and water, and allowed to stand ten or twelve days, when the extract may be filtered. If a large amount is required, one of the machines used for mincing meat may be employed with the best results to secure the fine division of the pods; by running the vanilla through once or twice it is uniformly cut in very fine pieces, and needs no further preparation before admixture with the alcohol and water. It is much better to allow the ingredients to macerate for a month if practicable, and large manufacturers, after drawing off the extract, subject the dregs to a second maceration with a fresh portion of diluted alcohol, which second infusion is used in the preparation of another portion of extract from fresh material. In this way every particle of flavor is thoroughly extracted. The extract prepared in this manner is of a clear brandy color, and possesses the true flavor of the vanilla pod, without impairment. Only the best inodorous alcohol should be employed, and the flavor seems to be more thoroughly extracted when it is used in a diluted form.

II. Best Commercial Extract—

Vanilla,	Four ounces.
Tonka beans,	Eight ounces.
Sugar,	Six ounces.
Alcohol,	Two quarts.
Water,	Two quarts.

The vanilla pods are to be finely divided in the manner described in the preceding paragraph.

The Tonka beans, being of a different texture, and containing less oil, may be easily ground in an ordinary hand mill. The further processes of manufacture are the same as those already described.

In this manner is prepared the bulk of the extracts of vanilla, *advertised* as pure and sold as first-class.

III. Common Extract Vanilla—

Tonka beans,	Twelve to sixteen ounces.
Alcohol,	Two quarts.
Water,	Two quarts.
Good brown sugar,	Eight ounces.

The process of manufacture is a simple one. The beans are ground and macerated with the alcohol, water, and sugar for about two weeks. The extract is then strained through a cloth filter and is ready for bottling, though it will be improved in appearance if allowed to stand for a

week, in order that all insoluble matter may be precipitated.

This form of extract is that sent out by the large manufacturers who make a specialty of the preparation of this class of goods for the cheap trade. It is, of course, very inferior in quality, and is sold at a lower price, but the profits on its manufacture are greater than are made on the finer grades.

The color is quite dark, if of sufficient strength, and by comparison with the pure extract, its inferiority is quite apparent.

Wintergreen.—But few of our readers have failed to meet with this fragrant creeping plant in the course of their forest rambles, and every country boy or girl knows some corner of the woods in which it may successfully be sought. The pleasant aromatic taste of its leaves has made it a popular flavor, and it shares with peppermint the distinction of being a universal favorite with juveniles. In those places where its growth is most abundant, it is gathered for the sake of its essential oil, which possesses all the fine aroma of the plant.

Like peppermint, the oil is used for flavoring by direct admixture, with but little reduction. The essence is in demand during the summer months as a flavor for various popular beverages. It is prepared by the addition of two ounces of the oil to a gallon of alcohol. A few drops of aniline dye or cochineal tincture are added to give it a reddish tint.

Artificial Fruit Essences.

An extended description of the mode of manufacture of this class of flavors would doubtless prove interesting to many, but would hardly fall within the scope of this work, as it is our intention to explain in detail only those processes which can be successfully carried out on a small scale, as well as in the large way. Neither could any full account be given which would be intelligible to those unfamiliar with chemical technics. It is sufficient, then, to say that the flavoring principles of many fruits appear to reside in volatile substances belonging to the class of ethers, rather

than that of essential oils. In the case of such fruits these fragrant ethers are developed during the ripening process, and are found in their greatest perfection and intensity of odor just previous to the disorganization of the fruity substance by putrefaction.

We all know how insipid and flavorless a thing a green banana is, and how delicious its taste and aroma become when it is just at the point of decay. These ethers seem therefore to be the product of a chemical change in some of the organic components of the fruit, brought about by exposure to heat and the oxygen of the air.

And when we remember from how few elements are formed the innumerable organic combinations with which we are acquainted, by how feeble an attraction these combinations are held together, and how readily certain agencies operate to break up and rearrange them, we are easily prepared to understand that there are methods by which the chemist may in many instances control the operations of nature, and by conducting them in channels of his own choosing, render them available in the so termed artificial production of certain organic compounds.

Such operations present many apparent anomalies to those unacquainted with the operation of chemical laws, and when told that the ether to which the fine fragrance of the pineapple is due is obtained in large quantities, for flavoring purposes, from putrefied cheese or rancid butter, no wonder that they receive the statement with some degree of incredulity.

Yet the elements which give the fine perfume in the one instance and the nauseous smell in the other, are the same; it is only a change in their proportion and arrangement which causes so perceptible a difference in their effects.

And to illustrate how nicely the line is drawn between pleasing and repulsive odors, it may be stated that the perfume of the tuberose, the fragrance of numerous fine fruits, and the disgusting odor of many noxious insects, belong to the same class of chemical compounds, and but the slightest change in molecular arrangement is required to cause the transformation of one into the other. In some instances, the difference in the sensation produced upon the nasal nerves is due simply to a variation in intensity of the same odor. The delightful bouquet of the Sheldon or Duchess

d'Angouleme pear, the perfume of the jasmin, and the vile smell of the common squash-bug are identical in character. In the latter instance the nauseous sensation seems to be the result mainly of greater intensity of odor, by which a disturbing nervous effect of an unpleasant character is produced.

This quality of intensity of odor is characteristic of all these compounds, and when in a concentrated state, hardly any of them are pleasant to the smell.

Owing to this quality, only a very small quantity of any kind is required to communicate the peculiar flavor which it represents to a large body of sugar or other substance with which it is to be used. The demand, therefore, though large in the aggregate, is limited, and quite within the capacity of a few manufacturing chemists to supply. As they have had the shrewdness to keep the price at a point which, while affording them a good profit, does not tempt to competition, they have obtained a practical monopoly of the production. The artificial essences most in use are the following;

Essence of Pineapple.—This essence is a solution of butyric ether in alcohol. The first step in its preparation consists in the formation of butyric acid, which is most readily obtained by mixing a solution of grape sugar with about one tenth of its weight of cheese which has become rancid, and half its weight of powdered chalk. The mixture is allowed to stand for two or three months in a moderately warm place, during which time the butyric acid forms and combines with the lime of the chalk, from which it is separated by means of sulphuric acid. From the butyric acid mixed with alcohol and sulphuric acid, the butyric ether is formed, which has the characteristic odor of the pineapple. It is also combined with other ethers to produce compounds resembling the flavors of various other fruits.

Essence of Banana.—This essence is prepared by first distilling a mixture of one part of fusel oil, two of acetate of potash, and one of strong sulphuric acid. After careful rectification it is dissolved in alcohol and sold as pear essence. When mixed with butyric ether it quite closely

resembles the natural flavor of the banana, and is sold as the essence of that fruit.

Essences of Strawberry, Raspberry, and other Fruits are simply mixtures of the above-described ethers with others of a similar character, but do not so nearly resemble the fruits which they are supposed to represent. The essences of pineapple and banana are the ones principally used, and may be obtained in small quantities of the retail druggist, or in larger lots for bottling, from the manufacturing chemists.

When first introduced they were alleged to possess poisonous properties, but no ill effects having been observed after their constant use for a long time, no fears need now be entertained on that score. Like many other substances, if used in a concentrated state, they would certainly prove injurious if not fatal, but this would be true of oil of lemon, or many other substances which cannot be classed with poisons. As but very small quantities are needed to produce a pleasant flavor, there is no danger to be apprehended from their use.

Colors.

The influence of the imagination upon the special senses is a recognized fact. A rose by any other name would *not* smell quite as sweet to one, to whom from remembrance of previous association of name and odor, the mere mention of this beautiful flower suggests an idea of a specific delicious fragrance. Nor would the child's stick of peppermint candy afford nearly as much gratification to the juvenile palate if presented without the brilliant red stripings, which, to youthful fancy, seem inseparable from its peculiarly pleasant taste. If, therefore, the employment of color is not in a certain sense necessary in confectionery, it does in some degree add to the enjoyment derived from many articles which are greatly improved in appearance by its use. The few colors needed for this purpose are of a simple and harmless character, and may be easily prepared at home, if their use is deemed desirable.

Red.—

Powdered	Cochineal,	One quarter ounce.
"	Alum,	" " "
"	Sal Tartar,	" " "
"	Cream Tartar,	One half "

Mix and add six ounces of warm water and four of alcohol. Allow the mixture to stand over night, and filter for use. If intended for immediate use, the alcohol may be omitted, and the quantity of water proportionally increased.

II. Take a piece of pure carmine, of the size of a walnut. Rub it in a mortar with one ounce of water, to which add a few drops of ammonia, until the carmine is entirely dissolved. If thick, it can be reduced with more water.

The use of ammonia is not objectionable, as it is so volatile that a few moments' exposure to the air is sufficient to drive away all traces of its presence.

Yellow.—To a half ounce of saffron add two ounces of alcohol, and two of water. Allow the mixture to stand several days. The tincture thus prepared has a deep orange color, and when diluted, or used in small quantities, gives a beautiful yellow shade to all forms of sugar. Gum gamboge, dissolved in water, may be used in small quantities only. If too freely employed its peculiar medicinal properties will prove objectionable.

Blue.—The best and most innocent substance for this purpose is the soluble form of Prussian blue, which may be procured from the druggist in the form of a powder which is very soluble in water without the use of any acid. Ordinary Prussian blue is insoluble, unless a small quantity of oxalic acid, which is highly poisonous, is added. The pure, soluble Prussian blue is a preparation of iron, and of a harmless character. It may be dissolved in water in quantities to produce any desired depth of color. One dram of this powder to two ounces of water will be found sufficient.

Green.—This color is produced by a mixture of the blue and yellow colors in any proportion according to the shade desired.

Purple.—From a mixture of the red and blue solutions.

The above-named colors are all that ordinarily need be employed, and will, by combination, and the use of different degrees of strength of the solutions, produce many beautiful and varying tints.

Many of the French confections and their imitations are colored by substances, the use of which is highly objectionable. To say nothing of the employment of umber, sienna, etc., which are nothing but certain forms of dirt, many substances are introduced like red lead, chrome yellow, and vermilion, which are highly poisonous. The beautiful aniline dyes, though much employed, are considered by many objectionable, and are supposed to be somewhat poisonous in their nature. The intensity of their color is so great, however, that the quantity necessary to produce any injurious effect would not be likely to be introduced. The red and purple shades, as procured in solution from the druggist, may be employed in some forms of confectionery, a few drops only being sufficient to color a large body of sugar or syrup.

Sugar.

THE transformation of this substance into the manifold forms which it is capable of assuming, and the production of compounds pleasing to the taste by its incorporation with other materials,

constitute the art of the confectioner. The sources from which sugar may be obtained, in greater or less quantities, are many. It is found in all fruits and in the juices of many plants. The palm in certain tropical districts, the beet in various parts of Europe, and the maple in our own country, furnish in the aggregate, large quantities. But the supply from these sources is small when compared with the immense quantities furnished by the different varieties of sugar-cane, the plant which is chiefly depended upon to yield the amount required by the commerce of the world.

Raw, or Brown Sugars.—These terms are applied to the sugars which are sent to market in the crude state in which they are obtained by evaporation of the expressed juice of the cane, and the separation of the uncrystallized parts in the form of molasses. They contain varying amounts of impurities, and differ in color according to the degree of skill and care which has been exercised in their manufacture.

The cheaper kinds contain a large percentage of foreign matter, consisting chiefly of dirt and portions of the fibre of the cane, are very dark

colored in appearance, and possess a disagreeable taste and smell. The better varieties have a coarser grain, a fine yellow color, very little odor, and are without impurities which can be detected by the sight.

Refined Sugar.—No matter how much care the manufacturer of the raw sugar may bestow upon this product, it is impossible to procure it in a pure state by the process of evaporation only. A certain amount of coloring and extractive matter of the cane will remain, the removal of which must be effected by a special course of treatment. The purification of the crude sugars is a separate branch of industry, requiring a large amount of capital in its prosecution, and giving employment to a great number of persons.

A full description of the details of this process would, of itself, make a large and interesting volume. For the purpose of the present work, a brief outline will be sufficient, and possibly superfluous, as we are to deal with the treatment of the sugar as furnished by the refiners, leaving to them the care and skill required to obtain the beautiful white and crystalline lumps of sweet-

ness which we propose to transform and modify in many different ways, after we have received it from their hands. The refining operations are principally carried on in immense buildings of great height, in order that the crude product having once been raised to the highest story, may in its succeeding treatment, which consists mainly of a series of filtrations, pass from story to story by its own gravity. The first step is to dissolve the raw sugar in warm water. To this solution a portion of lime is added to neutralize any vegetable acids which may be present. Albumen, in the form of fresh warm blood from the slaughter-houses, is now introduced, and the liquid brought to the temperature of 212°. The albumen coagulates, and rises to the surface, bringing with it many of the coarser impurities. The liquor is now filtered through long cotton bags, and thence into large iron cylinders filled with granulated animal charcoal. The charcoal removes the greater part of the coloring matter, and the saccharine solution, as it emerges from these cylinders, is entirely free from impurities, save a small portion of uncrystallizable sugar. By the subsequent operation of evaporation in a vacuum-pan, the

sugar is crystallized, and being placed while moist in concave moulds, the uncrystallized and slightly colored portion drains away, leaving the pure sugar in a compact mass of snowy whiteness. These "loaves" are cut or broken by machinery, and sold as "crushed sugar," or, wrapped in paper, constitute the old-fashioned form of loaf sugar. The syrup which drains from the sugar during the last operation has a peculiarly pleasant flavor, and is used as an almost indispensable accompaniment to the buckwheat cakes of our winter tables.

The refining process is not always carried to its full extent, a series of qualities being produced by subjecting the crude sugar to only one or more of the operations described. We thus have certain kinds known as half-refined sugars, which are between the crude and loaf varieties in point of purity.

The principal kinds usually found in our retail stores are :

I.—Loaf Sugar.—This is the purest of all varieties, great care being taken to remove the last trace of uncrystallizable syrup and coloring matter.

It is very white and hard, and is almost chemically pure cane sugar.

II.—CRUSHED SUGAR.—For all practical purposes this quality is as good as the above. All the steps in the refining process are passed through in its manufacture, save possibly a little less care may be bestowed in obtaining that uniform whiteness so essential to the fine appearance of the loaves. It must be remembered that this variety is also first formed in loaves, which are afterward broken into irregular fragments, or sawn into small cubes.

III.—GRANULATED SUGAR.—This variety differs from the above only in appearance, it being prepared in the form of hard grains or small crystals, giving it the appearance of coarse powder.

IV.—PULVERIZED SUGAR.—This is in the form of a fine white powder. It is prepared by grinding the crushed or granulated sugar to the requisite degree of fineness. One variety, not commonly sold in grocery stores, is the icing or lozenge sugar, prepared expressly for the use of confectioners. It is simply a much finer form of ground sugar.

V.—THE PARTIALLY REFINED SUGARS OF VARIOUS GRADES, KNOWN AS COFFEE SUGAR, A, B, AND C SUGARS, OR BY THE SPECIAL BRAND OF INDIVIDUAL REFINERS.—These sugars vary in color from a light brown to a nearly pure white, but are coarse-grained and moist, from the retention of a portion of the syrupy portions. They have more or less flavor, which is not unpleasant for many household purposes, but which unfits them for use in some confections, but is no detriment to their use in candies which are strongly flavored.

Action of Heat on Sugar.—In order to practically understand the philosophy of candy-making, and to obtain accurate information regarding the modification which sugar undergoes when heated, it will be interesting to take a small quantity of crushed sugar, and placing it in a clean brass or tinned kettle with a little water, over a brisk fire, note the distinctive changes which the application of different degrees of heat will cause it to assume. At first we shall see the lumps of sugar softening and breaking up, and as the heat increases, entirely disappearing, a

transparent solution being the result, more or less thick according to the respective proportions of the sugar and water. We have now a simple solution of sugar in water, which, when made in the proportion of ten or twelve pounds of sugar to a gallon of water, is rightly termed in pharmacy, simple syrup.

If our heat be now increased so that the syrup boils, of course, with the evaporation of each particle of water, the remaining liquid becomes more dense until it reaches a point where not enough water remains to hold the sugar in perfect solution. If it now be set aside and allowed to cool gradually, the excess of sugar will deposit itself in large transparent crystals on the sides and bottom of the vessel, and we shall have it in the form usually known as rock-candy. If instead of setting the solution aside for the crystals to form, we continue the boiling, nearly all the water will soon evaporate, and the sugar will manifest a tendency to assume a granular condition, especially upon the sides of the vessel. A few degrees more of heat beyond this point, and we have the sugar in a melted form, of a thick, pasty consistence, but clear and transparent still.

If we dip a spoon into the mass and withdraw it, a long thread of the melted sugar will follow, and if the portion removed be plunged into cold water, it will at once become hard and brittle as a pipestem. It has now reached that condition where the confectioner by a few simple manipulations can produce very many changes in its form and appearance, and it is from sugar while in just this state that the greater number of our candies are produced. But just here we must be exceedingly careful in the management of our heat. If that is now allowed to increase but a little, the mass becomes quickly very dark colored, froths up in the vessel, acquires a bitter taste, and is no more fit to use as a confection. Several technical names are applied by the confectioner to the different degrees of heat to which the syrup is raised in the various operations of candy-making. Thus we have the "thread," or 230° by the thermometer, the "feather," or 235°, the "ball," or 240°, and the "crack," or 250°. After the last comes the caramel at 260°, when the sugar changes its character and becomes very dark colored, as before described. The greatest skill on the part of the operator is required to push the

heat of the boiling sugar just as near the point of this change as possible without quite reaching it. Practically, the greater part of our hard-boiled candies are made at about 250° of heat.

If made at a degree much less than this they soften or change in structure, while the nearer the heat can be carried to 260° the longer do they retain their hardness and transparency, if of a class in which the latter quality is desirable.

It is not necessary for our purpose in this work to dwell minutely upon the tests and characteristics of the various degrees in a separate paragraph. Special directions will be given regarding the proper degree of heat for each variety, when necessary, and it is believed that such directions will be found of more practical application than an attempt to refer constantly to general principles. The latter method would perhaps be more scientific, but the former will certainly prevent any misunderstanding, even if a certain amount of repetition is necessitated.

For boiling sugar, the confectioner has pans of various sizes, especially adapted to his wants. The directions hereafter given will, however, be followed mostly by those who desire to prepare

the different sweets in small quantities only, for their own use, or to supply the demand of the home circle. At the present day hardly a kitchen will be found without some cooking utensil which may be conveniently used for the purpose described. A sauce-pan of tinned iron with a handle and flaring sides, and a lip to facilitate the pouring of the contents, will be found best adapted for such use. An ordinary iron pot, with rounded bottom, will answer very well, but is apt to discolor the candy, besides, being generally quite thick, the heat will oftentimes be retained too long and the sugar become burned, even after removal from the fire. A small brass kettle will do very well if kept quite clean and bright. The porcelain-lined preserving kettles are especially well fitted to be used in boiling sugar, so far as cleanliness and freedom from burning is concerned. The high heat to which they are subjected tends, however, to crack the porcelain lining, especially if the kettle is placed suddenly in cold water, as is sometimes necessary when the heat of the boiling sugar has been carried to the last degree, and the heat of the vessel must be immediately reduced to prevent burning. All things considered, the

ordinary saucepan of tinned iron will be found most convenient when but a small quantity is to be treated.

Candies from Boiled Sugar.—No matter how great a diversity of form, flavor, and general appearance may characterize candies of this class, the first step in the process of their manufacture is the same. This consists in bringing the sugar to the state of a soft transparent mass of a doughy texture, in which condition it may, by different modes of treatment, be compelled to assume many varying forms. This result may be accomplished as follows. Take three and one-half pounds of refined sugar, one and one-half pints of water, and one teaspoonful of cream of tartar. The latter is added for its peculiar effect assisting greatly to prevent the tendency which sugar always has when boiled to assume the granular condition. Mix in a vessel sufficiently large to allow for the expansion of the boiling candy, that the boiling process may go on uninterruptedly without any danger of the contents running over the sides of the vessel. Boil over a brisk fire, taking care, however, that the sugar does not

burn. The heat should be applied to the bottom only, and not to the sides of the vessel, as in the latter instance, small portions of the sugar may become burned, and impart an unpleasant taste to the rest.

After boiling for about fifteen minutes, a small portion of the melted sugar may be removed with a spoon and cooled by placing in a saucer surrounded by cold water. If when cooled it forms a viscid, tenacious mass, and if a portion taken between the thumb and finger forms a long adherent thread when the thumb and finger are separated, the process of boiling is nearly completed, and great care must be used in the further management of the heat, enough being supplied to keep up the boiling without allowing the sugar to be burned.

It must now be tested every few minutes by dropping a small portion into some cold water standing conveniently near. When the portion so dropped becomes at once hard and brittle, snapping apart like a pipe-stem when bent, the process is completed, and the vessel should at once be lifted from the heat. We now have our sugar in a proper condition to be flavored, colored, and

formed into sticks, bars, drops, or lumps as desired. It is next poured into shallow earthen dishes, which have previously been slightly greased, large dinner-plates or pie-platters serving for this purpose, and allowed to cool to a degree at which it can be handled without discomfort. Confectioners employ for this purpose a smooth marble slab with movable sides, arranged in such a way that, if necessary, it may be kept warm with steam heat. If a transparent form of candy is desired, the various flavoring and coloring ingredients are now incorporated with as little handling as possible, and when the mass has cooled sufficiently to retain any shape which may be given it, the forming processes commence. These are performed partly by hand, and in the larger establishments partly by machinery especially adapted to the purpose. These processes consist chiefly of the following operations:

Forming into Sticks.—If flat sticks are wanted, it is only necessary to flavor and color the mass, and pour while soft on square tin trays to a depth as great as the thickness of the sticks. When cool enough to retain its shape it is creased

with a spatula or knife, which is passed nearly through to the bottom of the tray, making it into squares or lengths as wanted. When entirely cooled the sticks will separate by a light stroke in the lines marked by the knife.

If rounded sticks are to be made, the flavored mass when cool enough to retain its shape, and yet warm enough to be moulded, is rolled by the hands into a cylindrical form, which is drawn down to the proper diameter by continued pulling from one end of the rounded mass, and cut in sticks of the proper length.

Drops.—This form of candy may be made by hand, by giving the mass a slightly oval shape and drawing it out as for sticks. The drops are cut off with a quick blow of a sharp knife, from the end of the stick as fast as it is drawn out. Machines are made for this purpose which consist of two revolving cylinders, with depressions on each side so arranged that as the cylinders revolve these indentations come exactly opposite each other; and the soft candy being forced therein by the turning of the moulds, is crowded into the spaces, and assumes the particular form which has been

given them. Another form of drop may be prepared by pouring out the candy while warm, drop by drop, on a greased plate or sheet of tin.

Working the Candy.—In the preceding operations, a clear form of candy being desired, as little handling of the transparent mass as possible should be allowed. If a white, opaque candy is required, the mass, after being sufficiently cooled to be easily handled, is pulled back and forth, in the same manner that molasses candy is worked, a process familiar to all. If the mass is large, a hook, similar in appearance to those used in butchers' stalls, is firmly fastened to the side of the work-room, and the candy pulled out, folded, and thrown back over the hook and again pulled, the process being continued until the candy assumes a sufficiently white appearance. It may then be formed in sticks or drops, as before described.

In all these operations if the mass becomes too stiff to be properly handled, it may be held near the fire for a few minutes until it becomes softened. The working process should take place in a warm room.

Striping.—This process is in theory a very simple one. It requires much experience, however, to overcome many practical difficulties which arise, and to be able to prepare the sticks with regular and well-arranged stripings. It is performed by taking small portions from the warm mass and coloring them any shade desired. These colored portions are then drawn out into coarse but regularly shaped strips, which are imbedded lengthwise in the large roll of candy, and being drawn down with it, diminish in size accordingly, until in the finished stick they appear as delicate stripes. A slight twist is sometimes given just before cutting off the stick. The same principle is applied in the manufacture of a form of candy having words, or even short sentences and various ornamental designs, running the entire length of the stick, so that at whatever point it may be broken, the letters or designs appear complete. This seemingly mysterious effect is very easily produced. To illustrate: If the confectioner wishes the letter O to appear in red running through the entire length of a stick of white candy, he will first take a portion of the warm white mass and form it in oval shape for the centre. This he will surround

evenly with red-colored candy, also in the same condition. Around this he will place a thicker coating of the white mass, which may be striped if desired, and then by rolling the entire lump on a marble slab and drawing it out, all parts of the stick will be equally diminished and retain the form originally given.

Having thus explained the general methods of preparing the sugar which are employed in the manufacture of all candies of this class, we will proceed to give the special directions required for the various kinds.

As remarked in the introduction, it must be remembered that the form or ornamentation of the candy by striping or otherwise, does not add to its quality. Lemon candy, for instance, if made from nice sugar and finely flavored, may be left in the trays as poured from the kettle, and when cold broken into lumps for eating; and the taste of candy so made may be even superior to that of more fanciful appearance. In making boiled goods it is not necessary to use the finest loaf or crushed sugar. The better grades of the half refined sugars, such as are free from any decided flavor of their own, will answer the purpose

admirably, and the small portion of uncrystallizable sugar or syrup naturally contained in them will rather aid than hinder the production of a hard form of candy, which is not as liable to return to the granular condition as if it were made from a better grade of sugar.

Lemon Candy.—Into a bright tinned kettle, thoroughly cleansed to free it from grease or odor of vegetables if a kitchen utensil is employed, put three and one half pounds of sugar, one and one-half pints of water, and a full teaspoonful of cream of tartar. Place over a hot fire and stir until the lumps disappear. Boil briskly until, by testing as before described, the candy becomes hard and brittle when a little of it is thrown into cold water. Now remove the vessel from the fire and pour the contents on a large earthen platter, previously greased with a little butter. After the candy has cooled sufficiently to be handled, and has reached the consistence of ordinary dough, add about a teaspoonful of finely-powdered tartaric acid, and the same quantity of extract of lemon, and work them into the mass. The acid should be very

fine and free from lumps. The mass should be worked enough to distribute the acid and lemon extract evenly, but no more, as too much handling would tend to destroy its transparency. It may now be formed into sticks or drops in the manner previously explained, or spread out flat on tins, in thin sheets, which will easily break as required when cold. We may add just here, that in this and many subsequent operations it will be found extremely convenient to have one or more flat tin trays, made from the largest-sized sheets of tin, and turned up at the edges about a half inch. They should be kept smooth and clean without scraping or scouring, and used instead of the earthen dishes to cool the candy on.

Lemon candy, thus prepared, is beautifully transparent, and of a very light straw color when freshly made. Some makers add a few drops of tincture of saffron just before removing from the fire, which gives a bright yellow color, without diminishing its clearness. It is usually sold in the form of round sticks delicately striped with white, in plain flat sticks, and in drops. After standing for some time, especially if exposed to the air, this candy assumes a granular texture and becomes opaque.

Pineapple, Banana, Raspberry, and Strawberry Candies are prepared in precisely the same manner as lemon, so far as regards the boiling of the sugar and adding of the tartaric acid They are, however, flavored with their respective extracts, and are generally sold by confectioners in the form of drops of varying shapes. The pineapple and banana are colored a bright yellow, and the others a deep red.

In the large cities the candy flavored with these extracts is often sold in the streets by persons for whom it is made in the form of large lumps, weighing ten or fifteen pounds. Being brightly colored it attracts much attention from children, and the sales of these street venders are often quite extensive. It is broken off in irregular lumps as wanted for use. In moderate amounts its use is not particularly harmful, as pure sugar must be used in order to produce its attractive transparency.

It is, however, strongly flavored with acid and possibly with more hurtful kinds than tartaric acid, which should alone be used. The use of very sour candy, even when pure materials are employed in its preparation, is objectionable on

account of the stomach derangements which are apt to follow if eaten in any but very moderate amounts.

Peppermint, Wintergreen, Sassafras, Cinnamon, Rose, Anise, Cloves, and other flavors of Candy require no special directions, the only difference in the methods of their preparation being in the flavoring and color. The flavoring is, of course, a matter of taste, the respective essential oils being employed for this purpose in quantities depending upon the strength of flavor desired. Usually from two to three drams of pure oil will be found sufficient for a three-pound boil. Custom has assigned to the different flavors certain styles of appearance which are generally followed. Thus the first five flavors above mentioned are used with candy which is worked until very white, and formed in sticks with red stripes. Peppermint is usually finished with broad red stripes; wintergreen, with narrow of the same color. Sassafras has one or two yellow stripes alternating with the red; while cinnamon and rose are slightly tinted with red before being worked, leaving the body of the stick a

bright pink color, which is striped with a deeper shade of red. Anise and clove are usually unworked and striped with red, or red and white. The process of working the candy, by separating the particles, of course increases its bulk. A stick of worked candy, therefore, while weighing no more than one of the transparent and solid varieties, appears to be much larger, and presents greater attractions to the juvenile mind intent on getting the full value of its penny investment.

Cream Candy.—The term "cream" is so indiscriminately applied to many styles of candy, that it has almost ceased to have a specific meaning unless in connection with some other explanatory title.

Just here we mean the varieties sold by that name in large irregularly flattened sticks, with rough and striated surfaces. Its mode of manufacture does not differ materially from that of the kinds already described, the same materials being employed and in the same proportions. It requires much working, however, and should therefore be made in a warm room, and the mass kept as soft as possible while being handled. Some con-

fectioners add a little gum-arabic which serves to prevent the granulation of the sugar and gives a smoothness to the taste of the candy. If used, one quarter ounce of pure white gum may be dissolved in the water used before adding the latter to the sugar. The principal flavors are vanilla, rose, and orange. For vanilla, four or five teaspoonfuls of the strong extract should be used. Rose may be flavored with a few drops of the pure oil, care being taken to obtain a delicacy rather than an intensity of taste in this flavor. For orange the oil of neroli is used, the precaution just mentioned being observed. Vanilla cream candy is always left in its natural white condition. Rose is tinted a delicate pink, and orange a pale yellow.

To make chocolate cream candy of this variety, two ounces of chocolate of the best quality should be finely grated and added during the process of working, with one or two teaspoonfuls of vanilla extract, and not to exceed twenty drops of extract of bitter almond.

Cocoanut Candy.—This popular and delicious confection is easily and cheaply made. First

prepare the cocoanut by removing the brown skin from the meat of one nut and grating the latter on a coarse grater. Confectioners have a machine for this purpose, by which the cocoanut is reduced to the form of very thin and narrow slices, but the product is quite as fine when grated. Take three and a half pounds of best crushed sugar, a teaspoonful of cream of tartar, and one and a half pints of water. Boil until the degree termed by confectioners the "feather" is reached, which may be known by dipping a tin skimmer in the sugar, allowing nearly all the syrup to run through, and then blowing hard through the holes. If it has reached this degree the melted sugar will be forced out through the holes of the skimmer in feathery filaments. Remove from the fire, and when cooled a little commence to rub the syrup with an iron spoon against the sides of the vessel. Soon it will begin to assume a pasty opaque appearance, when the grated cocoanut should be added, and the stirring continued for a few minutes. The soft mass may now be poured into frames to set, or dropped in cakes on flat tins.

If desired of the bright red color in which

it is so often seen, the boiling of the sugar should be continued a few moments longer, and the red coloring described in a former chapter added, before the sugar is cooled and the cocoanut mixed therewith. The brown variety of cocoanut bar is made by using the same quantity of dark brown sugar, with a half pint of molasses, and one pint of water.

Peppermint Drops.—These are great favorites with children, and were it generally known with how much ease they can be made at home, much enjoyment would be afforded the young people by their preparation.

Take of dry *granulated* sugar a convenient quantity. Place it in a saucepan having a lip from which the contents may be poured or dropped. Add a very little water, just enough to make with the sugar a stiff paste; two ounces of water to a pound of sugar is about the right proportion. Set it over the fire and allow it to nearly boil, keeping it continually stirred. It must not actually come to a full boil, but must be removed from the fire just as the bubbles denoting that the boiling point is reached begin to rise. Al-

low the syrup to cool a little, stirring all the time, add strong essence of peppermint to suit the taste, and drop on tins or sheets of smooth white paper. The dropping is performed by tilting the vessel slightly, so that the contents will slowly run out, and with a small piece of stiff wire the drops may be stroked off on to the tins or paper. They should then be kept in a warm place for a few hours to dry. If desired, a little red coloring may be added just previous to dropping, or a portion may be dropped in a plain white form, and the remainder colored.

There is no reason why peppermint should alone be used with this form of candy, but confectioners usually confine themselves to this flavor. Any flavor may be added, and a great variety of palatable sweets made in the same manner. If desired, these drops may be acidulated by the use of a little tartaric acid and flavored with lemon, pineapple, or banana. In the season of fruits, delicious drops may be made by substituting the juice of fresh fruits, as strawberry, raspberry, etc., for the water, and otherwise proceeding as directed.

Molasses Candy.—This is especially a confection for home manufacture. Indeed, the term, "old-fashioned molasses candy," is now employed as a title of merit by the confectioner, to indicate the similarity of his products with that made by our grandmothers in the days when French *bonbons* were a rarity seldom seen outside of the very large cities. Its manufacture was often conducted in the large iron kitchen pot, over a fire of glowing hickory coals, and made the occasion for many merry gatherings.

"Old-Fashioned" Molasses Candy.—Into a kettle holding at least four times the amount of molasses to be used, pour a convenient quantity of good Porto Rico molasses. Place over a slow fire and boil for a half hour, stirring all the time, to diminish as much as possible the increase of bulk caused by boiling, and checking the fire or removing the kettle if there is any danger of the contents running over. Be very careful not to let the candy burn, especially near the close of the boiling. When a little dropped in cold water becomes quickly hard and snaps apart like a pipestem, add a teaspoonful of carbonate of soda, free

from lumps, to every two quarts, stir quickly to mix, and pour on greased platters to cool. When the candy is sufficiently cool to handle without burning the hands, it is pulled back and forth, the hands being rubbed with a little butter to prevent the candy from sticking to them. Flour is sometimes used for this purpose, but it gives an unpleasant taste to the candy. The more the candy is worked, the lighter it will be in color, but if made from molasses only, it will be of a bright yellowish-brown shade, and never so white as that sold by the confectioners for molasses candy. Frequently some flavor is added, as vanilla or lemon, but the natural flavor of the boiled molasses is generally preferred.

White Molasses Candy.—Take two pounds of refined sugar of the grade termed by the grocers "Coffee C.," one pint of pure sugar-house syrup, and one pint best Porto Rico or New Orleans molasses. Boil together until it hardens, as before described, when dropped in cold water, add one teaspoonful of carbonate of soda, and work in the usual manner. This style of molasses candy is that made by the large confectioners, and is, in fact, a

sugar candy flavored a little with molasses. It is essential that the syrup used be that obtained from the draining of loaf sugar in the refining process. Much of the so-called sugar-house syrup is in reality nothing but a syrup of glucose, and is manufactured from starch. It may be known by its dark color and viscid consistence, resembling thick mucilage. It is also less sweet to the taste than the pure sugar syrup.

Taffy.—Either of these two kinds of molasses candy, if poured from the kettle into tin trays without working, will produce a fine, plain taffy. It may be left in one sheet, the size of the tray in which it is poured, or, when slightly cooled, may be marked off in squares.

Everton Taffy.—This is a favorite English confection. To make it, take three pounds of best brown sugar, and boil with one and one half pints of water, until the candy hardens in cold water. Then add one half pound of sweet-flavored, fresh butter, which will soften the candy. Boil a few minutes until it again hardens, and pour into trays. Flavor with lemon if desired.

Butter Scotch.—The same as above, for all practical purposes. Some makers, however, substitute molasses, or syrup, in place of the water. Butter Scotch is sometimes imported, at a high price, but the process of its manufacture is very simple. It is generally cut in small squares, each one of which is wrapped in tin foil, and twelve or more of these wrapped in one packet.

Walnut Candy.—The meats of hickory nuts, English walnuts, or black walnuts may be used, according to preference in that regard. After removal from the shells in as large pieces as practicable, they are to be placed on the bottoms of tins, previously greased, to the depth of about a half inch. Next boil two pounds of brown sugar, a half pint of water, and one gill of good molasses until a portion of the mass hardens when cooled. Pour the hot candy on the meats and allow it to remain until hard. Of course it is needless to direct regarding the proportion of meats to the candy, it being a matter of taste entirely. Molasses alone may be used to prepare the candy, but the use of sugar gives a more satisfactory result.

Peanut Candy.—Prepare the meats by removing the thin reddish skin in which they are enveloped, and fill a tin tray to the depth of about an inch. Pour over them the hot candy, made as above directed, stirring the meats that each one may be covered. A little less candy should be used than will suffice to entirely cover the mass of meats, though each separate one should be coated, the object being to use just enough of the candy to cause the meats to adhere firmly to each other, thus forming a large cake, which when nearly cold may be divided in squares or bars with a sharp knife. Almonds, deprived of their skins, or the meats of any nuts may be used in a similar manner.

Chocolate Caramels.—Boil one quart of good New Orleans molasses until it hardens when tested by cooling a little of it in water as before described. Just before removal from the fire add four ounces of chocolate finely and uniformly grated. Pour a thin layer into tin trays slightly greased, and when the surface of the candy has become hardened a little, mark with a knife into squares, These caramels may be flavored with vanilla or

almond if desired, but the natural flavor of the chocolate and molasses is generally preferred without addition.

Corn Balls.—The method of preparing these popular articles is a very easy one, the popped kernels of corn being simply united by some sweet adherent material and formed in the shape of balls. The candy for this purpose does not need to be boiled until hard, but just enough to acquire sufficient firmness to hold the corns without separating. Sometimes a little gum is added, especially if a fine white appearance of the ball is desired. In such cases the following directions will be found to produce a fine article. Add one ounce of white gum arabic to a half pint of water and let it stand until dissolved. Strain, add one pound of refined sugar, and boil until when cooled it becomes very thick, so much so as to be stirred with difficulty. To ascertain when it has reached this point, a little may be cooled in a saucer. A convenient quantity of the freshly popped corn having been placed in a large milkpan, enough of the warm syrupy candy is poured on and mixed by stirring, to cause the

kernels to adhere in a mass, portions of which may be formed into balls by pressing them into the proper shape with the hands.

Ordinary molasses or sugar-house syrup may be used as well, by being boiled to the same degree, no gum being necessary with these materials. Most of the corn balls sold by pedlers are thus made, the flavor of the cooked molasses combining very agreeably with that of the corn.

Corn cake is prepared in a similar manner, the popped corn being finely divided by machinery, and made into a mass with boiled molasses. This mass while warm is pressed by heavy rollers into thin sheets, which are afterwards divided into small square cakes.

Horehound Candy.—In the form of flat sticks and drops this candy is sold in large quantities, on account of its supposed efficacy as a remedy for coughs. It is undoubtedly a pleasant palliative in such complaints, and its continued use leads to the inference that its virtues have favorably stood the test of experience. It is very easily made, and the preparation of a supply for use during the season when colds and bronchial

complaints are prevalent, will form a pleasant occupation for the cold evenings of early winter. To make it, first prepare a strong decoction by boiling two ounces of the dried herb in a pint and a half of water for about half an hour. This decoction is then strained and added to three and one half pounds of *brown* sugar. Boil over a hot fire until it reaches the requisite degree of hardness, when it may be poured out in flat tin trays, previously well greased and marked into sticks or small squares with a knife as it becomes cool enough to retain its shape.

Cough Candy.—So many varieties of candy under this name are in the market, that it would be a difficult task to describe their points of difference. They are all, however, prepared from brown sugar, boiled as described in the last paragraph, using water instead of the decoction.

They are flavored or medicated with camphor, anise, cayenne pepper, and peppermint, in varying proportions to suit the taste of the maker, and are usually sent out in the form of drops in small packages.

In some cases the mass is worked and drawn

out in rolls, which are wrapped singly in circulars extolling the efficacy of the candy enclosed, as a sovereign remedy for every form of throat and lung complaint. The real virtues possessed by such candies are naturally greatly overrated by the manufacturers. As a simple remedy, to relieve the irritation arising from a slightly inflamed condition of those portions of the throat which are within reach of their action, such candies may at times serve a valuable purpose, and by subduing the tendency to cough, give the organs time to recover their natural tone. It would be very unsafe, however, to trust solely to their curative powers in the case of a hard cold affecting the throat or lungs. The following directions for preparing one form of this candy will serve as a guide in all cases, the difference being only in the quantity or kinds of the flavoring ingredients. Boil three and one half pounds of ordinary brown sugar with one and a half pints of water until it hardens when tested in the usual way. To this add, just prior to removal from the fire, a tincture prepared thus: To one half ounce of strong alcohol add one dram of camphor gum, when dissolved add two drams oil of anise, four drams

strong tincture of capsicum, one dram benzoic acid.

Another very popular form of cough candy is prepared by making a decoction, by boiling two ounces of boneset and one half ounce of ground bloodroot in a pint and a half of water, and using this decoction with three and one-half pounds of brown sugar, in the same manner as directed for horehound candy. When about to be poured out in trays or worked, it may be flavored with oil of anise.

Cream Bonbons.

In a former paragraph the indiscriminate use of the term "cream" by confectioners was referred to. The employment of this term for the class of goods the manufacture of which we are about to describe, is, however, perfectly legitimate, the sugar being prepared in such a manner that it has a rich "creamy" taste, melting in the mouth like the delicious substance from which it is named. From sugar thus prepared the choicest and highest-priced confections are made. The different kinds which may be produced by variations in form, color, and fla-

vor, are almost innumerable, and are constantly being changed to suit the popular desire for novelties, but the groundwork of all these transformations, that is, the special treatment of the sugar, remains the same. To this treatment, therefore, attention is first invited.

"CREAMING" THE SUGAR.—Take one pound of best loaf or crushed sugar, a small teaspoonful of pure acetic acid, or a half teaspoonful of cream of tartar and a gill and a half of water. Place over a brisk fire and boil to what is termed the "thread" degree, that is, to about 235° by the thermometer. This degree may be ascertained sufficiently for all practical purposes, by removing a small portion of the boiling sugar, cooling it in a saucer, and testing by dipping in it the thumb and finger; if on separating them the syrup is thick enough to be drawn out in the form of a long thread without breaking, the boiling is sufficiently advanced. Now set the syrup aside and let it cool a little, say for fifteen minutes. The *creaming* is next produced by rubbing the syrup against the sides of the vessel with a large wooden spoon. At first no effect may be perceptible, but

by continuing the process the syrup begins to lose its transparency and becomes opaque and white at the side where it is being rubbed. As fast as each portion passes into this condition it is stirred into the mass and the rubbing process continued, until at last the entire mass has become of a beautifully white and creamy texture.

This process is usually conducted by confectioners on a large marble slab, slightly warmed, the syrup being poured thereon and rubbed back and forth with long spatulas. After this granular, creamy condition has been produced, the sugar may be thinned, if necessary, with a very little water, that it may drop more readily into the moulds. The water must, however, be added only a few drops at a time, as it is an easy matter to get the mass *too* soft. Usually the flavoring liquids will be sufficient. The sugar thus prepared is now ready to be colored, flavored, and formed in the many varying styles which have been devised by the ingenuity of confectioners.

STARCH MOULDS—Owing to the peculiar softness and lack of adherence of the sugar in the creamy state, a special treatment is necessary in

forming it into any desired shape. If cast in ordinary moulds, the bonbons could not easily be extracted without breaking. To remedy this difficulty, temporary moulds are constructed of finely-powdered starch, which substance, being still less adhesive than the sugar, may easily be removed when the latter has received its shape. This process differs from other modes of casting in moulds in that the latter are in this instance removed from the objects cast, while usually the reverse is the case, the objects cast being taken from the moulds.

The construction of these starch moulds is very simple, requiring no utensils but those found in general household use, or which may readily be extemporized from a shallow tin tray or wooden box. The best form is a square wooden tray, two or three inches in depth, which is filled with finely-powdered starch, the top of which is smoothed even with the sides of the tray. A number of pieces of wood or plaster models of the exact size and shape of the articles to be cast are fastened at regular distances from each other on a flat board. By pressing these forms firmly upon the surface of the powdered starch, indentations of corresponding

shape are of course produced therein, and the starch is sufficiently firm to retain the shape of these indentations when filled with the liquid sugar.

After the sugar has set and become firm enough to retain its form without breaking if carefully handled, the bonbons may be lifted from the starch by running the fingers underneath, or starch and all may be placed in a coarse sieve, which being gently shaken will allow the fine dry starch to fall through, leaving the bonbons on the sieve. They are next allowed to harden slightly on the surface, by exposure to the air in a dry place, and are then ready to be covered with crystallized sugar, or other materials, if desired.

CRYSTALLIZING—This process consists in depositing a coating of fine crystals of pure sugar upon the surface of the bonbons, thereby giving them a finer appearance, and, by protecting them from the air, causing them to retain their moisture for a much longer time. It really adds little to the fine taste of these confections, and may be dispensed with when they are made for home use only. The process is a simple one, but requires

some little care to ensure uniform results. It may be conducted as follows. To two pounds of sugar add one half pint of water. Boil until the sugar is entirely dissolved. The articles to be crystallized are to be placed on wire frames in a tin box and entirely covered with the above prepared syrup, to which, just before pouring into the box, should be added one ounce of pure alcohol.

The whole should be kept at a moderately warm temperature, say about 70°, and allowed to remain undisturbed for ten or twelve hours. Near the end of this time the goods should be examined, and if sufficiently crystallized, the superfluous syrup may be drained off.

They are then dried by a gentle heat and are ready for use. The principle upon which this process is conducted may be easily understood. Water, when cold, will of course retain only a certain amount of sugar in solution. If heated, however, a much larger proportion of sugar may be introduced, which will be retained in solution so long as the high temperature is maintained. When the syrup begins to cool the particles of sugar which can no longer be held therein, assuming a crystalline form are deposited on the

surfaces of the bonbons or other articles which may be ready to receive them. The addition of the alcohol still further diminishes the solvent power of the syrup and tends to hasten the process. If very fine crystals are desired, its use is not recommended.

Lemon Bonbons.—To one pound of sugar brought to a "creamy" condition in the manner described, add the very finely grated outer peel of three or four average sized lemons, and enough of the juice to impart a pleasant acid taste. The juice of one lemon will usually suffice for this purpose. The outer yellow rind only should be used, rejecting the white and bitter inner portion. Mix thoroughly with the sugar and drop into the depressions in the starch moulds. Allow the bonbons to remain in the moulds until hardened sufficiently on the outside to be removed without breaking, then take them carefully away and allow them to remain for twenty-four hours in a moderately warm place. They may then be crystallized.

Orange Bonbons.—Prepare as above, using only thoroughly ripened oranges. Those with a

bright yellow rind are to be preferred, as their rich color adds greatly to the appearance of the bonbons. Both lemon and orange bonbons may be prepared by using their respective flavoring extracts and a little citric or tartaric acid, but they are not as fine as when made directly from the fruit.

Chocolate Bonbons.—To one pound of the creamed sugar, add two ounces of finely grated chocolate of good quality, or the chocolate may be melted over boiling water and added to the sugar, any lumps being rubbed out against the sides of the vessel.

Flavor with vanilla or bitter almond extracts. The latter should be used only sparingly, ten to fifteen drops of extract being sufficient to flavor a pound of sugar.

Almond Bonbons.—Remove the skins from four ounces of almonds, by dipping them for a moment in boiling water, which will cause the skins to come off readily when rubbed. Pound the white meats to a paste in a mortar, and add to the creamed sugar. A few drops of bitter almond extract will improve the flavor.

Walnut Bonbons.—Four ounces of walnut meats are to be very finely chopped—not pounded—and incorporated with a pound of the cream. The meats of other nuts may be prepared in the same manner and added.

Other Flavors.—It hardly seems necessary to give specific directions for each flavor, after the above illustrations, the same general course being pursued in each instance. The variations which may be produced are almost innumerable, yet after all consist in the incorporation of different flavoring materials with the prepared sugar in quantities depending upon the taste of the maker. For this purpose may be used the various flavoring extracts and the juices of fruits. The flavors of some of the latter are however hardly intense enough to communicate a pleasant taste, unless used in such quantities as will reduce the consistence of the sugar too much. The pulps of fruits made by boiling them with a little sugar and passing through a fine sieve, are well adapted for this purpose. Of such, raspberry, strawberry, and plum, make the choicest bonbons.

Coloring the Bonbons.—This may be done

by using any of the colors described in a previous chapter. Frequently two colors are used in the same bonbon. In this case, the indentations in the mould are first only partly filled with the sugar of one color, over which that of another color is poured.

Chocolate Cream Drops.—From the entire list of delicacies prepared by the confectioner none can be selected which are more generally liked than these. The retail prices asked for the better qualities are, however, exorbitant, and tend much to limit the consumption. There is no good reason why such high prices should be asked. The finest quality of plain chocolate should be obtained for less than fifty cents per pound, and as this substance is used only as a covering for the cream and constitutes only about one-fifth of the weight of the finished drops, the rest being sugar at a much less price, the actual cost, aside from the labor employed in their fabrication, ought not to exceed twenty-five or thirty cents a pound. These prices refer to the finer grades, which are sold at from eighty cents to one dollar or over per pound, according to the location, fashionable or

otherwise, of the vender. For the common varieties the cost is much less, large quantities of starch and other more objectionable adulterants being introduced. The popularity of these confections and the extreme ease with which they may be prepared by even the most inexperienced amateur confectioners, should tend to render their manufacture a favorite pastime for all lovers of pleasant and practical home amusements. Aside from the great saving in cost when so prepared, the entire freedom from adulteration should be something of an inducement for undertaking their manufacture. The process of such manufacture may be divided into two steps: First, the formation of the "cream;" second, the covering of the same with the chocolate.

PREPARATION OF THE "CREAM."—The process given in a former paragraph relating to cream bonbons, is the one usually employed by confectioners who have proper facilities for preparing it on a large scale. The product is no better, however, if as good, as that made in the manner to be described, but is somewhat more economically obtained, when thus manufactured in

large quantities, from the fact that less manual labor is needed in bringing the creams to their proper shape. When so made the drops are formed in starch moulds, and are somewhat more uniform in size and shape than when made by hand only. To prepare a delicious "cream" in a very simple manner, it is only necessary to properly mix the white of eggs with sugar and flavoring materials. To be specific, the following directions are given, the quantities named being, of course, subject to such variation in amount as may be desired. Take the white of one egg, beat it to a froth, adding an equal bulk of water at the last. Into this stir with a stiff spoon enough fine sugar to make a doughy mass, sufficiently firm to retain its shape when moulded with the hands. Another method is to mix the paste of a somewhat thinner consistence, just thick enough to pass readily through the mouth of a biscuit forcer when pressed. This tool may be readily extemporized by fastening firmly a conical bag of very close-textured cloth around a short tin tube. The bag being filled with the paste and drawn together at the top, a gentle pressure will force the paste through the tube. As it is forced out, the drops may be cut

off with a thin knife and dropped on a tin. Any desired flavor may be imparted by adding of the proper extract to suit the taste. It will be observed that the adhesiveness of the white of the egg is lessened by the addition of water. The object of this is that only sufficient adhesion of the particles of sugar may be produced to cause the paste to retain its shape until covered with the chocolate. If too much material of a gummy character is mixed with the sugar, the cream will become hard and brittle, thus entirely losing its distinctive character. The sugar used must be *very* fine. The kind used in the manufacture of lozenges and described in the paragraph relating to those confections, is the only kind which will afford entirely satisfactory results. If it cannot readily be procured, the ordinary pulverized sugar of the grocer may be sifted and only the finer portion used. A very passable cream may be made by using such sugar in the state in which it is ordinarily sold, but the grain is too coarse to give the peculiar smoothness which is the chief characteristic of this confection.

COVERING WITH CHOCOLATE.—After mixing the

sugar as just described, it is to be formed with the hands into a uniformly tenacious mass, from which small portions may be detached with the thumb and finger and formed into little balls or conical-shaped drops, or a portion may be rolled out on a board and pieces cut off and formed as desired. These little balls of cream are placed as fast as formed on a plate or sheet of tin, slightly oiled, and allowed to harden slightly on the surface. A half hour will generally be sufficient time to allow for this purpose.

The preparation of the chocolate covering is very simple, and is performed by placing a cake of the best plain chocolate in an ordinary tin saucepan, and setting the same into a kettle of boiling water. No water need be added to the chocolate, but under the influence of the heat thus applied, the latter will slowly melt and become of a thick fluid consistence.

The balls of cream may now be introduced one or two at a time, and rolled in the chocolate for a moment until entirely covered. They are then to be lifted by means of a fork, held for a moment that the superfluous chocolate may drop back, and then placed on a plate or tin slightly greased, and al-

lowed to remain until cold. The entire process of making several pounds of chocolate creams need not occupy over an hour. A half pound cake of chocolate will be sufficient to cover two pounds of the creams.

The drops thus prepared will be found to be far superior to those usually sold, if a fine quality of chocolate be employed for the covering. The finest drops, made by the Broadway confectioners, are covered with chocolate which is sweetened and flavored with vanilla. They have a delicious flavor, and although really costing less, from the fact that a less quantity of chocolate is used, sell for a higher price than the plain drops.

The chocolate with which they are covered is thus prepared. Take half a pound of the best quality of chocolate, place it in a pan over boiling water, and when softened by the heat add half an ounce of gum arabic, previously dissolved in two tablespoonfuls of hot water; stir the chocolate and gum together, until the mixture is perfectly smooth, then add four ounces of fine icing sugar, work it in well, flavor with a little strong vanilla extract, and cover the cream balls as before described. The cream may, of course,

be modified in flavor by the introduction of any of the flavoring ingredients mentioned in the paragraph on cream bonbons.

It should be remembered, however, that all flavors will not pleasingly combine with that of chocolate. Vanilla and bitter almonds are the ones most used for this purpose.

Cream Almonds.—The cream having been prepared as described for the chocolate drops, is formed by the hand around the meats of the almonds, which may be covered to any thickness as desired. If rolled while moist in very fine granulated sugar, the outside will present a crystallized appearance, or they may be allowed to harden on the outside, and crystallized in a solution of sugar, in the ordinary manner.

Cream Walnuts.—The meats of the English walnut having been removed from the carefully cracked nuts in such a manner that the separate halves remain unbroken, form by the addition of the prepared cream, a fine confection. For this purpose the cream should be made of a thick, pasty consistence, not so firm as when used for

the confections just described. When so prepared, a portion is spread with a knife on the inner surface of a half meat and another half pressed upon it. Just enough of the cream should be used that the meats may be firmly imbedded therein, without being covered. The meats of the hickory nut may be used in the same manner. The cream should be flavored only a very little, vanilla being best suited to combine well with the natural taste of the walnut.

Gum Drops.—When Gum Arabic is dissolved in water, and the mucilage thus formed is exposed to the air; by the evaporation of a portion of the water a hard crust of gum forms on the surface of the mixture, which tends to prevent any further evaporation, and the inside portion will consequently remain in a liquid state for a long time. In a similar way are made the favorite confections known as gum drops, which are simply a mixture of gum arabic and sugar, flavored in various ways, and formed into small conical shaped drops, the outside of which becoming slightly hardened, causes the inside to remain in that soft condition which is characteristic of this confection. The

addition of the sugar, besides being necessary on account of its sweetness, prevents the gum from assuming that condition of flinty hardness which it would otherwise do, and renders it softer and more soluble in the mouth.

Gum Drops can very easily be manufactured by the "home talent" of any intelligent household. To prepare the mixture of gum and sugar, take one pound of good gum arabic and dissolve it in one and a half pints of water. Strain, and add one pound of refined sugar. Heat until the sugar is entirely dissolved. The mixture should be evaporated until of the consistence of very thick honey, so thick that it will flow only very slowly from the lip or spout of the vessel containing it. Next fill a shallow box with fine starch, and having smoothed the surface, proceed with a stick, having a rounded end, of the size desired in the finished gum drop, to make indentations in the starch, as thickly together as can be done without disturbing the shape of one by the formation of another. Round buttons of wood may be fastened to a flat board, if desired, and the entire set of indentations prepared at once by pressing the board on the surfaee of the starch.

The mixture of gum and sugar should now be placed in a vessel having a long lip or spout, and as the liquid is poured slowly out, a portion just sufficient to fill each indentation should be stroked off with a wire and allowed to drop therein. Any flavor may be obtained by using enough of the desired flavoring extract to suit the taste, and a little color may be added if wanted. These should be added while the mixture is warm. When the mould is filled it must be set in a warm place for several days, until the drops are sufficiently hardened on the outside to bear handling without breaking. They may then be removed from the starch, and crystallized in the manner described in the paragraph relating to bonbons

Of course this process is unnecessary where the drops are to be used in a short time, and is employed principally to improve the appearance of goods. Only pure gum arabic is used in the manufacture of the best qualities of these confections. Those made to sell at a low price, especially those used in the "mixed candies," sold so freely by the sidewalk venders, are made from corn-starch prepared as described in the paragraph on Fig Paste, to which ordinary glue is sometimes added.

Lozenge Making.

THE Lozenge is one of those forms of confectionery the consumption of which is more uniform and less affected by caprice on the part of consumers than any other. At nearly all seasons, and with all persons, these aromatic disks find favor. Aside from the great quantity consumed for the gratification of the taste alone, many are employed as a pleasant vehicle for the administration of some medicinal substance, and especially is this the case with the numerous troches and similar compounds used for the alleviation of various affections of the throat. Such employment of these confections suggests, therefore, a natural division of the description of the process of their manufacture into two parts.

I. Aromatic and Fruit Lozenges.

The manufacture of this class of confections is quite simple, and the ingredients for each kind are few in number. For the varieties most in use gum, sugar, and flavoring material are alone required.

PREPARATION OF THE GUM.—Only the better

qualities of gum arabic should be employed. It is not necessary to use the very whitest and most expensive sorts, but it should be free from dirt and not too dark, save for colored lozenges. To two ounces of the gum, coarsely ground if convenient, add four ounces of warm water and allow the mixture to stand until the gum is dissolved, which will take from twelve to twenty-four hours, according to the size of the pieces.

The mucilage thus formed, after being strained through fine muslin gauze to remove any particles of foreign matter, is ready for use. Only the quantity needed for each operation should be prepared, since if allowed to stand for a few days, it becomes sour and acquires an unpleasant taste.

SUGAR.—The finely pulverized sugar sold by grocers will answer very well for the preparation of lozenges for home use, but confectioners employ a kind especially prepared for their purposes. This variety may be obtained from any dealer in confectioners' supplies, or in a small way from the confectioners themselves. It is simply refined sugar reduced to a *very* fine powder, as fine as

flour, and if obtained from respectable dealers, is entirely pure. It is known as lozenge or icing sugar, and aside from its use for this particular purpose, is employed in the manufacture of many other forms of confectionery described in other pages of this work. By many unprincipled manufacturers of the cheap candies retailed on the streets and in the lower classes of stores, large quantities of a peculiar form of calcareous earth termed terra alba are employed to adulterate lozenges as well as other confections.

The fraud may be easily detected by allowing the suspected goods to dissolve in water; if of pure sugar, the solution will be transparent, while if adulterated the particles of foreign matter will settle to the bottom.

FLAVORING MATERIALS.—A general description of these has already been given. The particular form to be employed in each instance, whether an essential oil, an aromatic substance, or an extract, will be stated in each of the succeeding formulæ.

MIXING THE MATERIALS.—This process is so simple that a very short description will suffice.

The powdered sugar, in such quantity as may be desired, is placed in a pan or on a large moulding board, and into a depression made in the centre of the sugar, a little of the mucilage, prepared as already described, is poured. This is worked up with the sugar, at first with a stiff spoon, but as it loses its pasty consistence and becomes more like dough by the admixture of more sugar, the hands may be employed.

In brief, the process is precisely the same as that employed by the cook in mixing yeast and flour to make the sponge for bread. If the dough becomes too stiff a little more mucilage may be added; if too pasty, more sugar is required. The hardness of the lozenge depends upon the thickness of the mucilage. If very thick with gum the product will be hard, and will dissolve more slowly in the mouth. If less gum be used, the lozenge will be softer in texture. The exact consistence to be given to the mass before cutting is difficult to describe, but a very little experience will enable the operator to adjust the proportions of sugar and mucilage. If too much of the latter is employed, the mass will stick to the slab while being rolled. This trouble may be corrected

by the addition of more sugar. On the contrary, if the mass is inclined to crumble, the addition of a very little mucilage will remedy the difficulty. The mass when rightly prepared will roll out, and cut easily without adherence to the edge of the cutting tool.

An ordinary wooden roller may be employed to reduce the mass in successive portions to the desired thickness.

For home use, the thickness of these portions may be regulated by the eye, a little variation being of no consequence. If uniform thickness is desired, it is necessary to place upon the ends of the rollers, bands of metal about a half inch in width and of the same thickness as that to be given to the finished lozenges. The same result may be effected by cutting away in a turning lathe a portion of the roller to the requisite depth, leaving flanges of the right thickness on each side.

The rolling out of the mass should preferably be conducted on a smooth marble slab, the mass being occasionally dusted with powdered starch to prevent its adherence. A smooth, hard-grained board, such as is used for moulding bread, will answer, if the slab cannot conveniently be procured.

FORMING THE LOZENGE.—For this purpose a cutter is employed, which may easily be procured from a tinsmith at a small expense.

It consists of a tin tube about four inches in length, the diameter of the smaller end being that of the lozenge to be cut.

The diameter of the larger end should exceed that of the smaller by about one fourth of an inch. The tapering form thus given insures a smooth cut of the lozenge, and a free delivery without the mutilation which would be caused by the adherence of the mass to the sides of the cutter, if straight.

The edges forming the joint should be brought together and soldered without lapping. The cutting edge is to be made sharp by a fine file, and when dulled, may be restored in the same manner.

Large manufacturers sometimes employ cutters of steel, which are of course more durable. The mass having been rolled to the proper thickness, is lightly dusted with a little fine starch, and the cutter being quickly and forcibly pressed upon the yielding mass and withdrawn, brings with it a perfectly-formed lozenge. By re-

peating the process, the tube of the cutter is quickly filled, and its contents are then strewn upon a flat tray or board and placed in a room of moderately warm temperature to dry. The deftness of manipulation attained by expert workmen in this branch of confectionery is interesting to witness. Quickly seizing just the right quantity of the saccharine dough, a few sweeps of the roller suffices to bring it to a uniform thickness. The lower portion of the cutter is then grasped with the ends of the thumb and the first two fingers, and with motions as quick as those of a piano player, the arm sweeps across the table, the individual cutting motions being hardly perceptible, and the contents of the cutter are emptied on a tray kept in waiting by a boy whose duty it is to remove the finished lozenges as fast as a tray is filled by a workman. These are at once placed in the drying room, where a current of dry heated air is constantly passing over the trays, and in a few hours the goods have acquired the requisite degree of hardness for safe handling without breaking. Of course the shape of the lozenge may be varied at will by a corresponding change in the form of the cutting edge.

Frequently fanciful effects are produced by coloring portions of the mass of various tints. These colored portions are rolled separately to nearly the required thickness, and then, after placing one on the other, slightly moistening the surfaces to be brought in contact, the entire sheet thus formed may be rolled to the proper thickness. A layer of red lozenge mass may thus be placed on white, and the finished lozenge will be of these respective colors on its opposite sides. Motto lozenges are made by means of small stamps containing a word or sentence in relief. These are lightly touched on a cloth which has been moistened with the desired tint, and pressed upon the freshly-cut lozenges.

PIPING.—Instead of being cut into lozenges, the mass is sometimes prepared in the shape of small cylindrical sticks. In the large way, this is accomplished by forcing the soft mass through tubes of the proper shape and size, and cutting the cylinders thus produced into any required length. The same shape may be obtained by rolling portions of the mass on a slab with a thin flat board. The ribbed varieties of pipings, into which coltsfoot rock and bath pipe are sometimes

formed, and all shapes except the cylindrical, can be made only in the manner first described, the changes in shape being effected by variously formed tubes.

Various Flavors of Lozenges.

Anise.—To one pound of sugar add from thirty to forty drops of pure oil of anise cut with a little alcohol. The ordinary oil of star anise is universally employed by confectioners, but is not nearly so delicate in flavor as that obtained from the seed.

Clove.—To each pound of sugar add of the pure oil of cloves to suit the taste, being careful not to flavor too strongly. Twenty to thirty drops will suffice for the taste of most persons.

Cinnamon.—To each pound of sugar add twenty drops of the oil of Ceylon cinnamon. If this variety of oil were oftener used, its flavor would soon become popular. Unfortunately only the ordinary oil of cassia is employed save in the high-priced lozenges of foreign manufacture,

or the goods sent out by the best confectioners for the finest retail trade. It is the fashion to give to lozenges of this flavor a bright pink or red color.

Cayenne.—To each pound of sugar add forty to fifty drops of the strong extract of Cayenne pepper made as heretofore described. The demand for this particular flavor is quite limited, and the lozenges are chiefly used for the purpose of playing harmless jokes upon the unwary. These are also colored a light red.

Currant.—Take equal parts of fine currant jelly and a very thick mucilage of gum arabic: mix and add sugar until the mass is of the proper consistence. The pulp of any preserved fruit may be substituted for the jelly, and many varieties of flavors be thus produced.

The black currant lozenge, prepared from the pulp of the English fruit, is a favorite remedy for the alleviation of throat difficulties.

Chocolate.—To one half pound of Baker's best chocolate melted over boiling water, add four ounces of *hot* thick mucilage of gum arabic,

and continue the heat until the mixture is brought to a uniform consistence. Add sufficient sugar to bring it to a proper state for rolling, and proceed as before directed. If the mass shows a tendency to harden, it may be slightly warmed. Only a little should be mixed at a time, and the cutting operation should be performed as quickly as possible.

Cachou.—To one pound of lozenge mass, prepared with sugar and gum mucilage in the usual way, add thirty to fifty drops of the flavoring extract, made according to the formula given in the paragraph relating to cachous. A bright red color is usually given to the mass, and the lozenges are cut quite small and thin.

Ginger.—The extract of Jamaica ginger heretofore described, may be used in the proportion of a teaspoonful of the extract to a pound of sugar, or stronger if desired. The pure ground ginger may also be incorporated with the sugar before it is made into a mass. When so used it should be sifted through a very fine sieve, to remove the fibrous portions of the root.

Lemon.—To each pound of lozenge mass add twenty to thirty drops of pure oil of lemon, or a teaspoonful of good extract. This flavor is not often used from the fact that it spoils very quickly when exposed to the air, though while fresh, the lozenges thus prepared are very fine. A very little tartaric acid, just enough to impart a pleasant sour taste, may be added if desired. Color yellow with a few drops of tincture of tumeric.

Musk.—The true perfume of the musk is very difficult to procure in a pure state. Its use is confined chiefly to the preparation of extracts for the handkerchief, and when so used it is generally compounded with other substances, so that even the best extract of musk designed to be used as a perfume cannot be employed for flavoring purposes. It will hardly be practicable, therefore, to prepare lozenges of this flavor in a small way, unless an absolutely pure extract can be purchased from some reliable druggist. The extract is prepared as follows: One ounce of pure pod musk, or three quarters of an ounce of pure grain musk is added to one quart of

diluted inodorous alcohol and allowed to macerate for a month in a warm place. If pod musk is used, it must be very finely cut. A few grains of sal. tartar, not to exceed twenty, will aid in bringing out the flavor, if added to the tincture.

It is somewhat difficult to give directions as to the amount of this flavor to be used, owing to the great diversity of taste in this regard. About one teaspoonful of extract to a pound of sugar will generally suffice. Too strong a flavor will prove disagreeable to many. Imitation musk lozenges are flavored with a compound of aromatic oils, principally cinnamon, clove, and rose.

Orange.—Prepare as directed for lemon, substituting the oil or extract of orange.

Peppermint.—To each pound of lozenge mass add from fifteen to twenty-five drops of pure oil of peppermint. By using the English oil, the flavor will be the same as that of the imported lozenges.

The American oil is, however, if pure, much to be preferred, and is exported in large quantities to be used by English confectioners in pre-

ference to the oil produced at home. Peppermint lozenges are seldom, if ever, colored, and care should be taken to use very white gum in their preparation. Some manufacturers add a few drops of blue color to the mass to neutralize any yellowish tinge in the materials, and give the lozenges a fine white color.

Pineapple.—The aroma of this delicious fruit is illy adapted for use as a lozenge flavor, from the fact that in its natural state it is not sufficiently intense, and is destroyed by any attempt at concentration.

The artificial flavor is therefore the only one which can be employed, but is insipid unless a little acid is also used. The same remarks will apply to banana and other artificial flavorings.

Quince.—These may be prepared from the jelly of the fruit in the same manner as directed for currant.

Raspberry.—Prepare from the pulp of the fruit the same as currant. Before mixing with the sugar, pass through a fine hair sieve to remove the seeds.

Rose.—To each pound of sugar add fifteen drops of pure oil of rose dissolved in a little strong alcohol. Particular care should be observed to use only a pure and fine flavored oil, as that which has been adulterated will give to the lozenges a musty and unpleasant taste. If a strong extract, prepared from the French flower pomade of this odor can be obtained, it will give a much finer flavor than that of even the purest oil. Rose lozenges are usually colored a bright red.

Sassafras.—To each pound of sugar add twenty to forty drops of fine oil of sassafras. Lozenges of this flavor are seldom colored.

Sarsaparilla.—To each pound of sugar add one half ounce of powdered extract of liquorice, or the same quantity of roll liquorice dissolved in a little water. Mix thoroughly, and flavor with a mixture of equal parts of oils of wintergreen and sassafras.

Vanilla.—To each pound of sugar add a full teaspoonful of good extract of vanilla. This

flavor, though much admired in other confections, is seldom used in lozenges, the popular taste requiring something of a more pungent character.

Wintergreen.—To one pound of sugar add twenty to forty drops of pure oil of wintergreen. No color is required.

In all the preceding receipts, the use of gum arabic only as a coherent material has been directed. For such purposes it possesses many qualities, all of which are not combined in any other similar substance. It is, therefore, employed by the best manufacturing confectioners in the production of first-class goods.

For the cheaper grades, other gums of less cost are sometimes substituted. For home use, a delicious lozenge may be made, of any of the preceding flavors, by substituting the beaten whites of eggs in place of the gum mucilage, and otherwise following the directions given. Such lozenges, while fresh, have a fine taste, but do not retain their good qualities with age.

Crystal Lozenges.—By employing sugar in a finely granulated condition, and otherwise fol-

lowing the directions given, a peculiar texture is obtained in the finished lozenge, which is rendered crystalline, and almost transparent, in appearance. For such use, the pulverized sugar sold by grocers for culinary purposes, may be used, the finer particles being removed by sifting.

Cream Lozenges.—By the addition of a little inodorous glycerine, the lozenges retain their moisture for a long time, hardening only sufficiently to bear moderate handling. They resemble in taste a freshly cut lozenge of the ordinary kind, and easily melt in the mouth. A very small proportion of glycerine, usually about two ounces to a pound of sugar, will produce this effect. A thin mucilage should also be used. Only a good quality of glycerine should be employed for this purpose, as the cheap grades have an extremely nauseous taste.

A similar effect may be produced by the use of a thick syrup of glucose or starch sugar.

Diadem Lozenges.—These are made by mixing enough of the mucilage with the sugar to produce a thick, pasty mass instead of a dough.

This mass is then forced through orifices in a metal plate, which is placed in the bottom of a square box having a closely fitting piece of wood which is pressed down upon the mass. As portions of the mass of sufficient thickness project, they are scraped off with a thin blade and deposited on sheets of paper to dry. They are usually more strongly flavored, and as they contain more gum than the ordinary lozenge, are, of course, harder, and smoother to the taste.

Medicated Lozenges.

Cough Lozenges.—Under the various terms of Troches, Pastiles, Pulmonic Wafers, etc., etc., thousands of packets of medicated compounds, in the form of lozenges, are consumed. Each manufacturer has, of course, his own formula, and the superiority of his own especial product is loudly vaunted in newspaper advertisements and circulars. In reality, there is very little difference in the composition of these numerously styled articles, and by whatever name they may be called, they are practically the same in their effects.

Intended chiefly for the alleviation of func-

tional derangements of the throat and vocal organs, they necessarily contain in combination substances possessing demulcent, sedative, tonic, and often slightly astringent properties. As the proportions of any one of these substances vary in the recipe of any particular manufacturer, so may his article be especially adapted to the alleviation of the particular form of disorder under which some purchaser may be laboring. It is not wonderful, therefore, if his faith has been based upon some such accidental adaptability of the remedy to the disease, that the confidence of the purchaser should be very strong regarding the superior merits of the articles prepared by some particular manufacturer, and ready to manifest itself in the form of a "certificate."

If the manufacturer can only succeed in securing in some such manner the signature of a "well-known clergyman," the effect of his representations will be proportionately increased. The continued and frequent use of such remedies, however pleasant their immediate effect may be upon the organs, the disorders of which they are intended to relieve, is apt to produce serious disturbance of the functions of the digestive organs.

The following formula is a good general representative of that employed in the manufacture of those articles of this description which have the greatest reputation and most extended sale.

In many, the extract of conium is omitted, a wise precaution, if the troches are sold to be used *ad libitum* as an article of confectionery. As a medicinal ingredient, however, it possesses valuable properties, and the cough lozenges, or troches containing it, when judiciously used, are much more efficacious in allaying irritation of the throat than are those from which it has been omitted.

When introduced, specific directions regarding the number of troches to be taken as a dose should accompany each packet, otherwise their too free use might be productive of disagreeable results.

Bronchial Troches.—

Extract of Liquorice,	One pound.
Sugar,	Two pounds.
Gum Arabic,	Four ounces.
Powdered Cubebs,	Four ounces.
Extract of Conium,	One ounce.

In addition to these ingredients, some makers add various aromatics, as cloves, cinnamon, etc. Powdered pellitory, in small quantities, is sometimes added, but such variations from the above formula are not popular, the public taste having in a manner been educated to a certain standard of flavor, any great departure from which is apt to be regarded with suspicion.

The mode of manipulation may be varied in combining the above ingredients according to the quantity to be operated upon. When small quantities only are employed, it will be found more convenient to use the extract of liquorice and gum arabic in a powdered state.

They should be uniformly mixed with the sugar and cubebs, by being passed through a sieve, and the extract of conium having been reduced with water to the consistence of cream, may then be introduced, and the mass worked into the form of a dough as before described. Gum arabic and extract of liquorice are, however, much more expensive in a powdered state, and economy will, therefore, dictate a mode of procedure involving a little more trouble, but producing better results, as there will be no

chance for the adulteration of these articles as is too often the case with them when purchased in a powdered state.

This method is simply to dissolve the extract of liquorice and gum arabic separately, with as little water as will suffice to effect their complete solution. When dissolved, they may be mixed and evaporated over a water bath until the compound reaches such a degree of consistence that the introduction of the sugar, cubebs, and extract of conium will bring the mass into a suitable condition for rolling. When the extract of conium is used, the thickness of the rolled mass and the size of the cutter should be so graduated that each lozenge may contain a definite and uniform amount thereof.

Horehound Lozenges.—Boil one pound of dried horehound leaves, with one quart of water, for an hour, replacing the amount of water lost by evaporation. Strain the decoction, expressing the leaves strongly in a press, or in a strong cloth bag by twisting. Add thereto one ounce of gum arabic and allow it to dissolve. Next evaporate the liquid to four or five fluid ounces and in-

corporate with it sufficient sugar to form a mass of the usual consistence for forming into lozenges.

Boneset Lozenges.—Prepare in the same manner as horehound, substituting the dried leaves of the boneset.

Liquorice Lozenges.—Dissolve four ounces of best extract of liquorice in sufficient water to soften the entire mass Add to this enough of the powdered sugar to make a mass suitable for rolling. If only a small quantity of liquorice is desired, the mass may be made to nearly the required consistence with mucilage and the dissolved liquorice added in quantities to suit. When the directions first given are followed, no gum is needed, the extract of liquorice possessing sufficient adhesiveness to form a hard lozenge. Another form of liquorice lozenge may be prepared by mixing the powdered liquorice root with the sugar in the proportion of one part of the former to three of the latter, and forming the mixture into a mass with gum mucilage.

Various forms of cough lozenges are prepared

by incorporating different medicinal substances with the extract of liquorice and sugar, but it is hardly necessary to give formulas, each manufacturer having his own particular proportions, as determined by his own experience or the tastes of his customers. Oil of anise is the usual flavoring ingredient. Coltsfoot Rock and Bath Pipe are simply a combination of the ingredients above named, a larger proportion of gum being used to give hardness to the finished article. The mass, instead of being cut in lozenges, is forced through cylindrical moulds, and is thus formed into sticks, which may be either plain or corrugated.

Chlorate of Potash Troches.—

Chlorate of Potash in fine powder, Seven and a half ounces.
Lozenge Sugar, Twenty-five ounces.
Gum Arabic in powder, One ounce.

Mix the powders and form into a paste in the usual manner with mucilage. The thickness of the sheet and size of cutter should be so adjusted that from the above quantity of materials, from 720 to 750 lozenges may be cut. Flavor with any essential oil according to taste.

Soda Water and Fruit Syrups.

The preparation of this class of syrups is so very simple that it would hardly seem possible that there should be much demand for the products of those who make the manufacture of these goods a specialty. Yet such is the lack of practical knowledge respecting their preparation, that many establishments do an extensive business in this line, and make large profits which might easily be saved to the consumer. The greatest demand for these syrups comes from the venders of soda water, especially from those whose sales are small, and to whom the saving of a manufacturer's profit would be quite an object, amounting to no small percentage of the amount of their sales during the season.

Druggists, with few exceptions, prepare their own syrups, and in consequence we find the soda water sold in their establishments, as a rule, greatly superior in quality to that obtained elsewhere. The profit to be made by the substitution of syrups of inferior quality is so small that it should hardly be a temptation to any dealer,

and the reputation for selling fine soda water will be more than likely to bring him a greater profit by reason of increased custom. If the dealer's sales are large enough to warrant his giving any attention at all to this branch of his business, he will find it greatly to his interest to take the preparation of his syrups into his own hands.

In addition to the use of fruit syrups with soda water, they are employed in some families quite extensively in the preparation of pleasant cooling drinks, by the addition of ice-water, or as a pleasant flavoring ingredient in punches or other combinations of like character.

Simple Syrup.—This is the base of most syrups used. Its very name indicates the ease with which it may be prepared. It is "simply" a solution of refined sugar in water. Regarding the quantity of sugar to be used custom varies somewhat. If the syrup be too thin, more must be used to render the soda water sufficiently sweet, and this of course dilutes the sparkling beverage and renders it less brisk to the taste. The proportions in general use by the best drug-

gists do not vary greatly from twelve pounds of sugar to one gallon of pure water, and if these quantities are employed the result cannot fail to prove satisfactory. To prepare simple syrup, therefore, take twelve pounds of the best crushed sugar, place it with one gallon of water in a convenient vessel over a fire and heat to the boiling point, skimming off the impurities, should any rise to the surface. When cool, pour into jugs or clean kegs, according to the quantity, and keep in a cool place. No clarification is necessary.

Some directions call for the use of the white of an egg to clear the syrup, but no advantage is to be gained by subjecting it to such treatment if the ordinary crushed sugar is used. The syrup thus made should be entirely transparent and free from color.

Having our simple syrup ready, we will note the special treatment which each flavor demands. In some cases, especially when the juices of fruits are employed, the syrup is not first prepared and then flavored, but these processes go hand-in-hand. In such instances, specific instructions will be given as required.

Lemon Syrup.—Prepare an extract of lemon by dissolving one ounce of pure and fresh oil of lemon in one pint of inodorous alcohol. Dissolve one ounce of citric acid in three ounces of pure water, and add to the solution one ounce of alcohol. These two solutions are to be kept on hand for use as wanted, the quantity of each to be prepared at one time to be determined by the wants of the consumer. If perfectly fresh oil of lemon is obtained, and pure alcohol is used, the extract will retain its freshness throughout the season.

The acid solution is apt to spoil if kept too long, and should therefore be made only in such quantities as will necessitate frequent renewal.

To flavor the syrup, it is only necessary to add to a portion of the simple syrup sufficient of both the extract and acid solution to suit the taste. No special directions in this regard are necessary, as tastes vary greatly. Generally, a teaspoonful of the extract, and twice that quantity of the acid solution will be sufficient for a pint of syrup. The addition of the syrup will cause the syrup to assume a slightly milky appearance, a matter of little consequence, especially

when the syrup is kept out of sight of the customer in the various patent draught machines now in general use. Too much care cannot be exercised in selecting a fine quality of oil of lemon for making the extract, as on this depends the excellence of the syrup.

If a pure and fine quality of oil of lemon cannot be obtained, it will be best to use the lemon extract of some reliable maker. If a little additional trouble can be willingly assumed for the sake of better results, the following process will give a syrup of delicious taste, and really better than can be obtained in any other way.

Wash a dozen lemons, slice them thinly, and cover with ten pounds of powdered sugar; cover the vessel in which they are placed, and allow them to remain for several hours, or until the sugar has absorbed the juice of the lemons. Next, add just enough water to make a thick syrup, and heat *gently* until the sugar is dissolved. Under no circumstances must the syrup be allowed to boil, and the less heat that can be used to effect the complete solution of the sugar the better will be the syrup.

Orange.—The syrup of this fruit, though very fine, is not as popular with the public as that of the lemon. It may be prepared in precisely the same manner from the extract or the fruit.

Vanilla.—To a pint of syrup add three teaspoonfuls of fine vanilla extract. The quality of the syrup will of course depend upon that of the extract used. The extract made by the first process described in the paragraph relating to this flavor under the head of flavoring extracts will always give satisfaction. Dealers in soda water will find it more to their advantage to manufacture their own extracts according to the directions heretofore given, of whatever quality their trade demands, than to purchase the bottled extracts of any manufacturer.

Ginger.—To a pint of syrup add from one to two teaspoonfuls of the extract of Jamaica ginger, made as before directed. A few drops of tincture of curcuma will give a bright yellow appearance, which is generally considered to be indicative of greater strength of flavor. Under the name of ginger ale, a combination of ginger and

lemon flavors in soda water has become quite popular. A "ginger ale syrup" may easily be prepared by adding to the ginger syrup, strongly flavored, just enough of lemon extract to modify the taste, say a teaspoonful of extract to a pint of syrup. A little of the acid solution should likewise be added, but not as much as is used in the syrup when flavored with lemon alone. The bottled ginger ale is simply soda water sweetened and flavored with this syrup. Ginger syrup is sometimes made by boiling the bruised root in water until the latter has acquired a strong taste; it is then strained and sugar added to bring it to a syrupy consistence.

The "extract of ginger ale," sold to be used as a flavoring for this syrup, seems to be simply a strong decoction of ginger colored with a little burnt sugar. Syrup of much better quality can be made by using the regular ginger and lemon extract.

Raspberry.—This fine syrup, to be in perfection, should be prepared directly from the fruit. A very fair imitation syrup may be produced, and it is this which constitutes the bulk

of that sold by manufacturers, but when subjected to the test of comparison with the true syrup of the fruit, the great superiority of the latter is at once apparent. The directions usually given for the preparation of this syrup involve the expression of the juice and the use of heat in order to coagulate the vegetable albumen and render the syrup less liable to ferment.

The following process which has been used by the writer for many years, while saving much trouble and expense, yields a syrup surpassing in delicacy of flavor that prepared by any other method, while its keeping qualities are simply perfect. Take of ripe raspberries, either black or red, any convenient quantity. Place them in a wide-mouthed earthen vessel, an ordinary stone pot will answer, and bruise by stirring with a flat wooden paddle. The berries need not be completely mashed, only the surface needs breaking, and this is accomplished by a little stirring and bruising with the paddle. Next, mix pure acetic acid and water in the proportion of one part of acid to ten of water, and pour over the berries, using for this purpose just enough to slightly cover them and no

more. Allow the berries to stand thus covered by the acid for ten or twelve hours.

Prepare a stoutly sewed bag of canton flannel or thick cotton cloth in a conical shape, and fasten the large end firmly around a hoop, Suspend this bag by wires or stout strings from the ceiling, and fill with the contents of the vessel. The acetified juice will soon commence to run away in a beautifully transparent and finely colored stream, and should be received in a clean vessel placed underneath. Allow the juice to drain as long as any will run, and when the liquid no longer drops from the bag, remove that which has filtered through and add twelve pounds of refined sugar to each gallon. Dissolve by a very gentle heat, not to exceed 125° F., and pour the finished syrup into large bottles or jugs. These may be corked and sealed, and the syrup will keep without showing any signs of fermentation throughout the entire year. Of course a fine quality of acetic acid must be used. That obtained from the rectification of pyroligneous acid sometimes contains a trace of creosote, which, of course, renders it unfit to be used for this purpose.

The acid should be entirely free from any extraneous odor, having only its natural smell, which is not unpleasant, and harmonizes finely with the bouquet of the fruit. The contents of the bag should not be expressed, but any waste of the fruit may be prevented by stirring up the residue with a fresh portion of acid and allowing it to drain, when it may be added to a fresh portion of berries. If *expressed*, minute portions of the fermentable parts of the berries will pass through, and not only tend to injure the fine transparency of the syrup, but will be apt to cause it to spoil by fermentation.

If any dealer will take the pains to experiment on a small quantity of berries, following the directions given, we are confident he will be unwilling thereafter to prepare this syrup in any other way. The acid is used in just the right proportion to give only a pleasant tart taste, which renders the syrup much more agreeable than when made from the juice of the berries without such addition, The syrup thus prepared is very rich in flavor and of a very deep color. If desired, it may be reduced at the time of using with a little plain syrup.

The imitation syrup of raspberries is prepared by flavoring simple syrup with an extract compounded as below. It should be colored a bright red with cochineal or aniline.

Bruised Orris Root.	3 ounces,
Acetic Acid,	2 "
Acetic Ether,	1 ounce,
Alcohol,	1 pint.

Mix and allow to stand a few days, then filter.

Strawberry.—The same process as that just described is to be followed in every respect, substituting fully ripe strawberries in place of the raspberries.

The strawberry being somewhat firmer in texture, needs a little more bruising, and may therefore be broken with the paddle in such a manner that the juices may escape, yet without beating the fruit to a pulp. A good way in preparing small quantities is to take each berry between the thumb and finger, and with a little pressure crush the berry just enough to allow the juice to flow freely. The results obtained by treating the strawberry in this manner, still

better exhibit the superiority of this process over the one usually employed.

The flavor of the strawberry, as all know, is exceedingly delicate and must be very carefully treated in order that its fine qualities may remain unimpaired. If expressed, the juice must be boiled, in order to coagulate and remove the fermentable portions, and by such treatment the delicate flavor is entirely ruined. When obtained by the use of acetic acid, the aroma is entirely preserved, the degree of heat employed to dissolve the sugar not being sufficient to injure the flavor of the fruit in the least. The color of the syrup is superb, and needs no addition of any foreign coloring material to improve it. The finished syrup, if kept in a cool place, will remain unchanged in its qualities for an entire year, or longer. Advantage may consequently be taken of the very low rates which sometimes prevail when the market has temporarily become glutted, and enough syrup prepared to last the entire season.

The addition of acetic acid to the juice *after expression* has been before recommended, but the method of extracting the juice by means of the

acid *without* expression is, so far as known, original with the writer, and from many years' experience he can testify to its excellence. The testimony of the few to whom the process has been communicated has likewise been uniformly in its favor. Aside from the excellent quality of the syrup thus obtained, the saving in the troublesome labor of expression employed in the old methods, is very great and doubly welcome, since it comes at so busy a season of the year.

An imitation syrup of strawberry may be made by using as a flavor the artificial extract prepared by the manufacturing chemists; but it in no manner resembles the real flavor of this berry, having only a peculiar fruity odor, more general than specific in character. In this connection, it may be well to allude to the substances purporting to be "pure fruit juices." In many cases they are mere imitations; but those sold by reliable houses are really obtained from the fruit. They are prepared, however, by a species of fermentation which is as ruinous to the fine flavor of the fruit as the strong heat employed in other processes.

Their use, whether they are pure or fictitious

in character, cannot be recommended to those who desire to obtain a reputation for fine soda water.

Pineapple.—The preparation of a syrup directly from this fruit is somewhat difficult unless on the large scale, when proper utensils may be provided to save labor. The process described for raspberry cannot well be employed, owing to the peculiar texture of the fruit. The juice must therefore be obtained by expression, and to this end the fruit must first be reduced to a pulp by means of a coarse revolving grater, or in the small way by pounding in a mortar. The pulp is then subjected to great pressure in a strong tincture press, and from the juice thus obtained the syrup is prepared. The juice, like that of all fruits, contains much fermentable matter, which can only be removed by heating it to the boiling point; but in so doing the fine flavor is, of course, greatly impaired. During the season while pineapples are plenty, the better way is to prepare the syrup in small quantities as wanted, heating the juice to a degree sufficient to dissolve the sugar only. The syrup is prepared by adding

to the expressed juice sugar in the proportion of twelve pounds to the gallon. A little of the solution of citric acid described in the paragraph on lemon syrup is sometimes added to give sharpness to the taste. The addition of a little acetic acid aids in preventing fermentation, but the taste of this acid does not, as in the cases of raspberry and strawberry, harmonize well with the natural flavor of the fruit. The artificial extract of pineapple more nearly resembles the natural flavor than is the case with any other of these peculiar essences, banana alone excepted, yet it falls far short of giving the satisfaction to be obtained by the use of the juice of the fruit.

Coffee.—Make a very strong infusion of pure Java coffee in the usual manner, and add twelve pounds of sugar to each gallon thereof. By grinding the coffee very fine and percolating with boiling hot water, a much finer product is obtained. Only pure coffee should be used, at least two pounds being required for each gallon of the infusion.

Chocolate.—Place a half-pound cake of plain

chocolate of good quality in a saucepan and set the latter into a kettle of boiling water. The chocolate will soon melt, when one quart of boiling water should gradually be added, and afterward two and a half pounds of sugar. Stir until the latter is dissolved, and strain through a hair sieve. Add two teaspoonfuls of good vanilla extract and a few drops of extract of bitter almond. The addition of the almond is, however, a matter of taste, many persons considering it a great improvement, while others are better suited with the natural flavor of the chocolate with a little vanilla flavor only.

Wild Cherry.—Take of fresh ripe wild cherries one quart. Bruise in a mortar with a wooden pestle, that the pulp of the fruit may be crushed without breaking the stones. About a tablespoonful of these should, however, be broken with an iron pestle, the object being to obtain only a certain amount of the bitter flavor of the meats. If all were broken this flavor would be too strong. Add one half-pint of pure inodorous alcohol and one half-pint of water, and macerate for a week; express and filter. To one quart of

simple syrup add four to six ounces of the extract of the fruit prepared as above. The ordinary syrup of wild cherry is made by flavoring simple syrup with bitter almond extract and coloring. If the fresh fruit cannot be obtained, the dried cherries may be used without being bruised, just enough of the spirit being added to cover them. They must be allowed to macerate for at least ten days and then expressed with considerable force in a strong tincture press.

Wintergreen.—This flavor is rarely used alone, but in combination with other flavors serves to give an agreeable taste to the so-called sarsaparilla syrup. If a syrup of this flavor is required, it may be made by adding to simple syrup enough of the essence of wintergreen to give a pleasant taste. This syrup is generally preferred of a bright red color.

Cream Syrup.—If real cream can readily be procured, it forms a very fine addition to many syrups. It should be mixed with its own bulk of fresh milk, and sweetened by the addition of one pound of pulverized sugar to each

quart of the mixed cream and milk. It is not always practicable, however, to obtain a regular supply, and the real cream is therefore seldom used.

The following directions will be found to furnish an acceptable substitute. Beat the whites of two eggs and the yolk of one thoroughly with one pound of pulverized sugar. Add gradually one pint of fresh rich milk and stir until the sugar is dissolved; strain through a fine sieve. The sugar is added to the cream more to prevent it from turning sour than for its sweetening property, as this quality is furnished by the particular syrup with which the cream is used.

Many dealers are in the habit of using nothing but rich milk without any addition, in place of a cream syrup. If the syrups with which it is used are sufficiently heavy, the result is perhaps as satisfactory as when the more elaborately prepared mixture is substituted.

Sarsaparilla.—It is a popular delusion that this syrup has valuable medicinal properties in addition to its agreeable flavor. The use of the substance from which it takes its name has, how-

ever, long since been dispensed with, and whatever medicinal properties might have resided in a syrup prepared therefrom, are now in vain to be looked for in the simple aromatic syrup which bears the name of sarsaparilla, but contains none of it.

Nor is the omission to be deprecated. Enough medicine is swallowed by the average individual in other ways, without the necessity of imbibing it in his daily drink. The popularity of this syrup has, however, been maintained by its fine aromatic flavor, a flavor at first added to disguise the unpleasant taste of the medicinal tincture which was added to the syrup. As now used, sarsaparilla syrup may be prepared as follows: To one pint of alcohol add one ounce each of oils of sassafras and wintergreen. This forms the flavoring extract which may be added to simple syrup according to taste. The syrup is usually preferred of a dark brown color to keep up the sarsaparilla delusion.

A little burnt sugar or solution of extract of liquorice will give the requisite tint. When large quantities of this syrup are used, it is the practice of most dealers to prepare it from a good

quality of brown sugar. When thus made, the color will generally be sufficiently dark without the addition of any coloring material. Syrup thus prepared is somewhat cheaper and equally as good.

Catawba.—Prepare a very heavy simple syrup, using sixteen pounds of sugar to a gallon of water. Add to a portion of this an equal bulk of fine catawba wine having a rich bouquet. Hock, claret, and other wine syrups are prepared in a similar manner. Some dealers prefer to keep the simple syrup on draught, and after drawing a sufficient quantity in the glass to properly sweeten the contents, add the wine just previous to filling with soda water.

Milk Punch.—To one pint of heavy syrup add a half pint each of brandy and Jamaica rum. Flavor with two teaspoonfuls of an extract prepared by macerating two ounces of ground nutmegs in eight ounces of alcohol. The syrup is first to be poured into the glass in the proper quantity, and ordinary cream syrup added before drawing the soda water.

Orgeat.—The true syrup of this flavor is prepared from the meats of the sweet and bitter almond. To make it, take three ounces of the sweet and one ounce of the bitter almond meats, deprive them of their skins by immersing them for a moment in boiling water and rubbing off the skin, which will easily come away; pound to a fine paste in a clean iron mortar, and gradually add one pint of simple syrup. Strain through a fine sieve.

This process gives a syrup of a very delicate flavor, but dealers hardly care to undertake the trouble involved in its preparation.

An excellent imitation is made by flavoring the cream syrup already described, made with eggs and milk, with a few drops of extract of bitter almond.

Champagne.—To one quart of good Rhine wine, with a rich bouquet, add two ounces of old Otard brandy, one tablespoonful of good sherry, and three pounds of pulverized sugar. Dissolve the latter by stirring without the application of heat. This syrup should be kept very cold, and used with soda water from a highly charged

fount. It forms a much better substitute for genuine champagne than any of the numerous doctored cider imitations.

Sherry Cobbler.—To one pint of good sherry add an equal measure of heavy simple syrup and one lemon cut in very thin slices. Allow the syrup to stand a few hours, strain through a sieve, and bottle for use.

Fancy Syrups.—Under the names of Ambrosia, Nectar, etc., many variously flavored combinations are from time to time set forth by the dealer to give variety to his list of syrups, and attract custom by their novelty. As no special uniformity need be observed in this regard, a few formulas are given, to any of which the dealer using may assign that name which his fancy may suggest.

I.—Take of simple syrup one pint, syrup of wild cherry and good port wine, of each four ounces. The flavor of this is exquisite when made from fine materials.

II.—Raspberry syrup one pint, vanilla syrup one pint, Sauterne wine one half pint.

III.—Vanilla syrup one quart, pineapple syrup one half pint, raspberry syrup one half pint.

IV.—Heavy simple syrup one pint, lemon syrup one half pint, brandy one half pint, extract of nutmeg ten drops.

V.—To one quart of good Rhine wine add one lemon and one orange, each thinly sliced, one half of a small pineapple, sliced, and three pounds of fine sugar. Allow them to stand for a few hours, heat gently over a water bath, stirring until the sugar is dissolved, and strain for use.

Sugar-House Syrups.—The genuine "old-fashioned" sugar-house syrup is obtained in the process of refining sugar, and is simply the molasses which drains away from the sugar after it has been brought to the crystalline form. Its flavor varies with the different kinds of raw sugar which are treated, and it is of various qualities according to the degree to which the refining process is carried. It is used quite freely by families, especially in the winter months, as an agreeable addition to many kinds of food.

Owing to the high price at which the genuine article is held, many cheaper substitutes are in the market.

Most of these are prepared from starch or artificial sugar, and while they are not, if properly made, deleterious to the health of the consumer, they do not possess the fine flavor of the true syrup. They are generally quite thick and heavy, of a dark color, and have a peculiar "stickiness" resembling that of a thick mucilage. There is no necessity for the use of these cheap substitutes on the score of economy. The following receipt will furnish a syrup fully equalling the best "golden drips," and at a less price than is usually asked for the common grades. Take from six to eight pounds of half-refined sugar of the grade denominated "C" by grocers; place in a kettle over a brisk fire, add two quarts of water and bring to a boil. Continue the boiling for a few minutes, skimming off any impurities which may rise to the surface, allow the syrup to cool, and pour into bottles or jugs for use. The proportions of sugar may of course be varied, as the syrup is desired to be thick or thin. If too thick, the sugar will crystallize on the sides of

the vessel containing it. A very little gum arabic, say one ounce to the above quantity, dissolved in the water before it is added to the sugar, will counteract this tendency, but it is hardly worth while to take this trouble, as the crystallized sugar can easily be dissolved in water and added to a fresh portion of the syrup. Care should be taken to procure the kind of sugar described, as it alone possesses the peculiar taste of the refiners' syrups.

Burnt Sugar.—This term is commonly applied to sugar which has been heated to what is termed the caramel degree. The sugar is not really *burned*, but undergoes a chemical change in its properties. It is used in this state for coloring syrups and other preparations. To make it, take ordinary brown sugar in any convenient quantity, add a very little water, just enough to aid in bringing the sugar to a uniform consistence, and heat over a brisk fire until it increases greatly in bulk, emits puffs of smoke, and turns to a dark brown color. Remove from the fire, and add gradually enough hot water to bring the mass to a syrupy consistence.

Miscellaneous.

Cachous.—This term, from a French word signifying an aromatic berry, is given to the small silver-coated pellets used for the purpose of communicating an agreeable odor to the breath. They are much used by smokers to conceal the disagreeable smell arising from the use of tobacco. Those sent out by Hooper, of London, have attained much celebrity, and large quantities are annually sold in this country.

The secret of their composition was for a long time carefully guarded, though many recipes have from time to time appeared, purporting to be genuine. The majority of these give results totally different from what should be expected from the genuine formula, while others, though better, merely approximate, without actually producing the real flavor. The following receipt, *if pure materials are employed*, will be found to yield a flavor which can with difficulty be distinguished from that of the genuine Hooper cachous:

Oil *English* peppermint,	1 ounce.
Rose,	1 "
Cloves,	1 "
True Ceylon cinnamon,	¾ "
Tincture of musk,	4 ounces.
Alcohol.	12 "

The tincture of musk should first be prepared by macerating one half ounce of best pod musk, finely cut, in one pint of alcohol for at least two weeks: the longer it can stand, the better. The same formula may be used with the substitution of ordinary oils, but the product, while of a pleasing character, and very useful for some purposes, will be quite different from that to be obtained by closely following the formula. For cheap goods, the musk is entirely omitted, and the quantity of oil of rose reduced. The body of the cachou is composed of extract of liquorice and sugar. The extract of good quality, free from adulteration, is dissolved in sufficient water to soften it and bring it to the state of a thick paste. Powdered lozenge sugar is then added in sufficient quantity to bring the mass to a pilular consistence, and the flavor thoroughly worked in in the proportion of from four to six drams to

the pound, according to the strength desired. The mass is afterward divided into small pills by the ordinary pill machine, and these are coated with silver by rotating them while moist in a globe into which a few sheets of silver leaf have been placed.

The introduction of a little pure glycerine will cause the mass to retain its moisture and consistence, thereby facilitating the process of silver coating. Under the name of "Trix," "Jokes," etc., similar preparations have been introduced They are made and flavored in the same manner as cachous, but the silver coating is omitted, such omission being no detriment to the quality of the articles, as no real advantage is gained by its use, it being employed for the sake of appearance only.

The same flavor is used in the manufacture of the cachou lozenge, previously described, which form of confection is much to be preferred to the metallic coated cachous. These lozenges are to be prepared in the ordinary way, but should be strongly flavored and cut very thin and small. They command a much higher price than ordinary lozenges, and will therefore repay a little extra trouble in this regard.

Frosting or Icing Sugar.—The finely powdered sugar described in the section relating to lozenges is much better adapted for use in the preparation of frostings for cakes than the "pulverized" sugar usually kept by grocers for that purpose. In ornamental sugar work for striping, lettering, and executing various designs on fancy and loaf cakes, its use is indispensable.

As its cost is but a trifle more than that of the ordinary kind, a little inquiry on the part of customers would cause it to be placed in the regular stock of grocers, as the many uses to which it may be profitably applied in culinary operations would cause it to be an article in steady demand were its qualities better known.

In the preparation of lemonade, punches, and other drinks in which the speedy solution of the saccharine constituent is desirable, its extreme fineness secures the ready accomplishment of such a result. For adding to strawberries and other fruits which need sweetening before sending to the table, it will be found more desirable than the coarser grained variety.

To prepare frosting, add to the beaten whites of eggs as much of the powdered sugar as will

suffice to form a thick pasty mass, just soft enough to spread evenly with a knife. Flavor to suit the taste, and color if desired.

Various ornamental devices may be formed by a combination of raised stripes of frosting on a plain surface.

To execute this style of ornament, stiff letter-paper should be rolled in the form of a cone and fastened with a little mucilage.

The small end can then be cut away, leaving a hole in that part of the cone of whatever size may be desired. After the frosting has been applied to the surface of the cake and allowed to harden, another portion, made in the same manner, but not so thick, is to be placed in the cone, through the small end of which it will slowly pour in a fine line, which may be drawn around the surface to be ornamented in any shape desired. The proper consistence of the paste can be ascertained by experiment.

It should be just thin enough to ooze slowly through the orifice, yet firm enough to retain its shape when laid on the surface of the cake.

Sugared Almonds.—The preparation of

these popular sweets cannot conveniently be undertaken on a small scale, yet a brief description of the process employed may not be uninteresting. Some confectioners still employ manual labor in their production, but steam and machinery have in most instances taken its place. When made in small quantities, a copper pan of hemispherical shape is suspended by chains over a hot charcoal fire in an open furnace. Into this pan the meats of almonds are placed and over them poured a small quantity of very heavy syrup, so heavy, in fact, that it must be kept hot in order to prevent the sugar from crystallizing.

The pan being quickly shaken to and fro, the almond meats are uniformly covered with the syrup, from which the little water remaining is quickly evaporated by the heat of the furnace, leaving the sugar deposited upon the meats in a thin coating. A fresh portion of syrup is then added, the almonds again shaken, and in this manner the process is continued until they are covered with the proper thickness of sugar. On the large scale, the pans are spherical in shape, and set at an angle, so that through an opening in the top the heated syrup may be allowed to

drip in a small stream upon the almonds, which are kept in constant agitation by the revolutions of the pans. These are kept in motion by steam power, and are heated by coils of pipe through which steam is continually passing. The almonds thus prepared are much more uniform in appearance than those which are coated by hand. In the same manner are prepared all forms of comfits and other confections which consist of a nucleus of any kind covered with a hard sugar coating. Sugar-coated pills are likewise so covered.

Sugared Dates.—These are easily prepared by selecting large, well-shaped dates, and making an incision in the side the entire length of the date. The stone is removed, and a paste of sugar prepared in the same manner as the inside of chocolate drops, or some of the "creamed" sugar of bonbons, inserted. The dates are afterward crystallized, or for home use may be rolled in pulverized sugar. Other dried fruits may be treated in a similar manner.

Fig Paste.—Take one pound of figs, chop them coarsely, and boil with a pint of water until

reduced to a soft pulp; strain through a fine sieve, add three pounds of sugar, and evaporate over boiling water until the paste becomes quite stiff. Place the warm paste in a mould, made from an ordinary wooden box, by removing the nails with which the sides are fastened, and holding them in place by a stout string, instead. When the paste is cooled, by removing the string, the sides may be taken away, leaving the paste in a square mass, which may be divided in small pieces with a thin-bladed knife. These pieces should be rolled in fine sugar, after which they may be packed in boxes without adhering to each other.

SECOND METHOD.—Take a heaping tablespoonful of corn-starch, place in a saucepan, and add first enough cold water to moisten the starch uniformly, and next a half pint of boiling water. Heat over boiling water until it is thoroughly cooked and becomes transparent. In fact, the same steps should be taken as are employed by a laundress in preparing a thick starch. Next add a half pound of good brown or half-refined sugar, and the strained pulp of four ounces of figs, prepared as directed in the preceding paragraph, and

evaporate the paste over boiling water until it becomes quite thick and adhesive in character. Place in the mould as previously directed, and treat in the same manner when cold. In this general way, and from the same material as a base, are prepared the many semi-transparent pastes which are sold under various names. By adding grated cocoanut, chopped raisins deprived of their seeds, dried currants, etc., many styles may be produced. The paste may be flavored and colored as desired. The pulps of various preserved fruits, as currant, raspberry, strawberry, etc., may likewise be added before evaporation.

Large quantities of these pastes are prepared by several firms in New York and Boston who make a specialty of such products. By the aid of steam they are enabled to make them of uniform quality, and sell them so cheaply as to obtain a practical monopoly of their manufacture. Though the process employed is simple enough, its practical application is attended with many difficulties unless proper machinery and appliances are used. It will hardly pay, therefore, to undertake the preparation of such goods on a small scale.

Marsh Mallow Paste.—Dissolve one pound of clean gum arabic in one quart of water; strain, add one pound of refined sugar, and place over a fire, stirring continually until the sugar is dissolved and the mixture has become of the consistence of honey. Next, add gradually the whites of eight eggs well beaten, stirring the mixture all the time, until it loses its stickiness and does not adhere to the fingers when touched. The mass may now be poured out into a pan or box, slightly dusted with starch, and when cool divided into small squares or strips. In some cases the mass is rolled in thin sheets while warm, and strips cut off, which are dusted with starch and formed in rolls by folding. Just before turning out the paste it should be flavored. For this purpose neroli or rose is usually employed.

Jujube Paste.—Take of gum arabic one pound; dissolve in a pint and a half of water and add one pound of sugar. Evaporate to a very thick consistence, and when cooled a little, but while still warm enough to run, turn into shallow tin pans which have previously been oiled. Any flavor may be added before turning it out.

Candied Flag.—Take any convenient quantity of freshly-gathered flag-root; cut in small pieces and boil for two hours in enough thick simple syrup to keep the pieces covered. Pour off the superfluous syrup, and allow the candied flag to dry, or after draining a few minutes roll the moist pieces in fine sugar, which will adhere and form a coating. If the full strength of the flag is not desired, it may be boiled in water for a short time, and the water poured away before adding the syrup. Confectioners sometimes coat the pieces after they have been boiled in the syrup, with a covering of hard sugar, by the same method used in preparing sugared almonds.

Candied Ginger.—Take any desired quantity of green ginger-root; remove the outer skin by immersing it a few minutes in boiling water, after which the skin may easily be rubbed off. Cut in pieces, and boil in thick simple syrup until it becomes quite soft and transparent in appearance. In this state it may be used as a preserve, but if wanted in the form of a dried confection, the boiling should be continued over a slow fire until the water has evaporated from the syrup, and it

shows a tendency to granulate. The superfluous syrup may now be poured off, and the candied ginger placed in a warm room to dry. If too strong as thus prepared, the ginger may first be boiled in water to remove a portion of its pungency.

Vinegar Candy.—This is a form of candy of an essentially domestic character. Several receipts for its preparation have been published, but the general mode of procedure in each case varies but slightly. The following will perhaps prove as satisfactory as any. To one quart of good New Orleans molasses add one teacupful of good cider vinegar. Boil until it reaches the point where a little dropped into cold water becomes very hard and brittle. Pour into shallow platters until cool enough to be handled, and form into a large roll which may be drawn down to any size and cut off in sticks.

Artificial Honey.—Many receipts have from time to time appeared for the preparation of syrupy compounds which are said to be as good as the real honey produced by the industrious

insect whose time and energies are exclusively given to its manufacture.

The truth is, the "little busy bee" has the only correct formula for making the genuine article, and he has not yet published it. The many imitations are very inferior to the real article, and generally depend upon a portion of it for what little honey flavor they may have. As a matter of interest the following directions are given, and the compound prepared therefrom will be found to be a very superior substitute when it is not desirable to use the genuine—but it is a substitute only.

Take of refined sugar three pounds, water one pint, gum arabic two ounces. Dissolve the gum in the water, add the sugar and boil for about twenty minutes, taking care that it does not burn. Flavor with five drops of an extract prepared as follows: Oil of rose, ten drops, oil of peppermint, twenty drops, oil of spearmint, ten drops, extract of jasmine, one half ounce, alcohol, two ounces. The "honey" thus prepared may be slightly tinged with a little tincture of saffron. The syrup, without any flavoring, may be used to mix with very strongly-flavored honey, and such

mixture is by some thought to be an improvement, for the reason that it is milder to the taste and less apt to disturb the stomach than the genuine.

Lemon Sugar.—This preparation, though a very unsatisfactory substitute for the real fruit in making lemonade, is yet used in considerable quantities during the summer months. There are two styles in market, one composed of sugar and tartaric acid mixed and flavored with lemon, the other being sugar with the lemon flavor alone, the acid being contained in a small bottle which is inserted in the sugar at the top of the box in which it is packed. In one case enough of the mixture is taken to make a pleasant tasting solution; in the other, the flavored sugar is first dissolved in the water, and a few drops of the acid solution added. The use of this acid solution, if made from tartaric or citric acid, is not objectionable. In many instances, however, sulphuric acid is substituted, and, although its use in the very dilute form required may not be productive of any great injury, it is certainly not as well adapted for a drink as the pure vegeta-

ble acids. For home use, there is no necessity of uniting the ingredients in the form of a special preparation. Lemonade may easily be prepared by acidulating iced water with a little powdered tartaric or citric acid, sweetening to the taste, and flavoring with a few drops of lemon extract.

Made in this manner, the lemonade is a very acceptable substitute for that made directly from the fruit. The lemon sugar is, however, at the best, a very inferior preparation, as the flavor of the lemon soon loses its delicacy and acquires a disagreeable taste resembling that of turpentine.

If a quantity of lemonade is needed, as at a picnic or other gathering, don't buy any lemon sugar to make it of, no matter how highly recommended. Procure from the druggist enough pure citric or tartaric acid (the first-named is better in flavor, the last cheaper in price), to render the required quantity of water pleasantly sour. Add sugar to sweeten, and lemon extract to flavor, and the lemonade will be complete without the risk of injury to those partaking of it.

Soda Powders.—These powders are quite

freely used in the summer months in the preparation of a pleasant effervescing drink, especially in places remote from easy access to the modern "soda fountain." They are made by folding in a blue paper thirty grains of the bi-carbonate of soda, the same as that used for baking purposes, and in a white paper, twenty-five grains of powdered tartaric acid. They may be used with any of the fruit syrups prepared in accordance with previous directions, using the precaution to dissolve the acid in the tumbler containing the syrup, and the soda in a little water only, in another glass. In order to prepare a number of the powders, a measure can easily be made by taking an ordinary paper pill-box and putting into it the exact quantity of soda for a single powder. It should be slightly shaken until the surface is level, and a line exactly even therewith drawn with a pencil around the inside of the box.

The portion of the box above this line may then be removed with a sharp knife, and the remainder fastened to a short flat handle. By filling it with the powdered soda, and stroking off the excess with a knife or spatula, a uniform amount may be measured for each powder.

Another box should in like manner be prepared for the acid.

Ginger Beer Powders.—Pulverized sugar, two drams, powdered ginger of good quality, five grains, carbonate of soda, thirty grains. Mix and fold in a blue paper. In a white paper fold twenty-five grains of tartaric acid. Use the same as soda powders. For forty-eight powders the above proportions will require one pound of sugar, one half ounce of ginger, and three ounces of soda.

These may first be thoroughly mixed and divided in separate powders by a measure constructed as for the soda powders. Two and a half ounces of the powdered acid will make forty-eight white papers.

Seidlitz Powders.—These are used as a medicine rather than as a pleasant drink, though they may be rendered more palatable by the use of a small quantity of fruit syrup with the acid. For twelve powders take one ounce of bi-carbonate of soda and three ounces of powdered Rochelle salts; mix thoroughly, and divide into

powders by the use of a measure specially prepared for this purpose. Fold in blue paper. For the acid powders to accompany the above, divide seven drams of powdered tartaric acid into twelve equal parts. Fold in white papers.

Cheap Candies.—A great deal of candy has of late been offered at extremely low rates at retail, from twenty to twenty-five cents per pound being the usual price. It is generally composed of many varieties, principally, however, of those which offer the largest opportunities for adulteration.

Of the different kinds going to make up the assortment, the bonbons, lozenges, and similar candies are composed of a mixture of terra alba and cheap sugar, the gum-drops are made from cornstarch, and the stick candies from glucose or starch sugar. This latter substance is not especially injurious, but the candy made from it is not nearly so fine in taste as that prepared from pure cane sugar. Such candy may be detected by its lack of sweetness, the yellowish color of that which is sold for white, and its peculiar lack of tenacity which causes the sticks to break very easily.

Candy prepared from pure sugar, of the stick and other varieties made by boiling, could perhaps be afforded at twenty-five cents per pound, but this would hardly cover the cost of the best kinds of the mixed grades, which are made from fine and pure materials.

The nuts and fruits used in the cheaper varieties are also of poor quality, being mostly worm-eaten, old, or damaged. It will be found much the better way, if economy is an object, to prepare the simpler varieties at home.

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