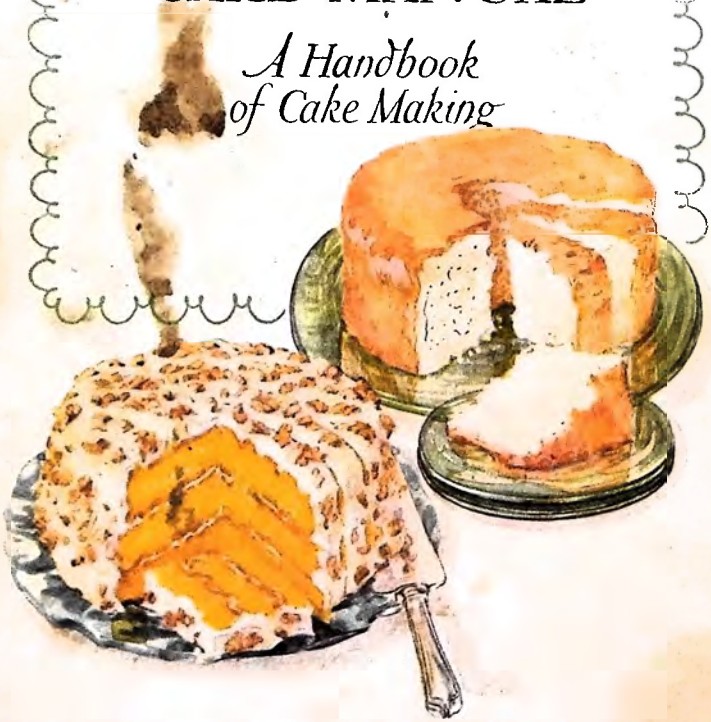
Paul Wilson

The SWANS DOWN CAKE MANUAL

A Handbook of Cake Making



THE Swans Down Cake Manual is a concise summary of the inexhaustible subject of cake. Every effort has been made to include information which is accurate, direct, and usable.

The Swans Down Cake Manual is a handbook of cake making for the use of home economists, students, and all others who are interested in successful cake making.

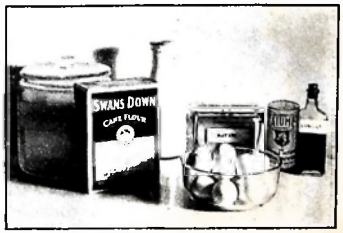
CONSUMER SERVICE DEPARTMENT
GENERAL FOODS CORPORATION
NEW YORK, N. Y.

Sections of the Swans Down Cake Manual

Ingredients for Cake Making

1. Good ingredients make fine cakes. Light, fluffy cake of tender texture and delicate flavor cannot be made from stale or inferior ingredients. Only those ingredients that are of the best quality and strictly fresh should be used for each one has a definite contribution to make in the finished cake.

2. Accurate measurement of ingredients is essential to successful cake making. Certain standardized technic has been developed so that recipes may be used interchangeably. No amount of skill in mixing can offset an error in amounts of ingredients. Only standardized recipes can be depended upon for uniform results. Measurements are always level. The accepted method of measuring is discussed under each individual ingredient topic. These methods have been found accurate with repeated use.



Use good ingredients for cake making

Flour

3. The main classes of flour milled from three kinds of wheat are:

1. Semolina flour. Milled from Durum wheat with a gluten content running from 14% to 20%. Used primarily in making macaroni and similar pastes. Seldom used as flour in the home.

2. Bread flour. Milled from hard wheat, with a gluten content running from 10% to 14%.

3. Pastry and cake flours. Milled from soft wheat with a gluten content running from 6% to 10%.

4. Selection of wheat used for Swans Down Cake Flour is of prime importance. It has been found that soft red winter wheat, because of its gluten quality, makes the finest cake flour. Southern Indiana, Illinois, and other nearby territories have the climate and type of soil best adapted to

its production. Carefully selected wheat of this one variety is used in making Swans Down Cake Flour. Laboratory tests are made by experts on samples from every car of wheat before it is unloaded at the Swans Down mills. If the wheat does not contain the ideal, delicate gluten essential to the finest quality of cake flour, no milling process, however skillful, can produce it.

5. The different portions of the wheat kernel are as follows:

	Per cent
Embryo (germ)	6– 7
Endosperm Inner part composed chiefly of starch cells.	82–86
Aleurone layer Single row of rather large cells surrounding endosperm and embryo.	3– 4
Bran (seed covering) Several layers of cells surrounding aleurone layer.	5

6. Only the endosperm of the wheat kernel is used in making Swans Down Cake Flour. In the process of milling, this inner part of the wheat kernel is first separated, then ground on steel rolls and sifted, re-ground, and re-sifted through the finest silk bolting cloth, from which it emerges as the most finely pulverized flour. Not an atom of cornstarch nor any other ingredient is added to Swans Down Cake Flour during the process of milling.

After Swans Down Cake Flour is milled, it is given the supreme test—the baking test. In the Swans Down kitchens, test cakes are made from every run of freshly milled flour. Cakes meeting certain definite specifications of volume, texture, color, and crumb must be made from this flour before it is ready to be packaged. The baking test is made as a final safeguard of success for the consumer. Every package of Swans Down Cake Flour carries this assurance.

7. It takes 100 pounds wheat for 26 pounds of Swans Down because of the standard of fineness required for this flour. Concurrently, there are other grades of flour milled that are satisfactory for pastry flour, but not of sufficiently high quality for cake flour. Since every wheat kernel has a number of kinds of flour within it, twenty or more streams of flour can be produced from the same wheat in the process of milling. By adjustment of the machinery, the quality and quantity of these twenty-odd streams can be materially changed.

In the milling of Swans Down Cake Flour, expertness is required in order to retain the desirable qualities of the wheat, as improper milling readily

destroys them. The milling is a carefully controlled and accurate process from first to last. Years of unceasing and intelligent effort and modern scientific knowledge have contributed in making Swans Down Cake Flour a cake flour of the finest quality.

8. Swans Down Cake Flour is milled with such care that it is twenty-seven times as fine as bread flour. This actual degree of fineness has been determined by microscopic test and mathematical formula. The diameter of each particle of Swans Down Cake Flour is one-third of the diameter of a particle of bread flour. Because the volumes of spheres are to each other as the cubes of their diameters, each particle of bread flour is twenty-seven times as large as a particle of Swans Down Cake Flour. Conversely, Swans Down Cake Flour is twenty-seven times as fine as bread flour.

Example:

Diameter of one Swans Down Cake Flour particle = 1
Diameter of one bread flour particle = 6

$$1^3 : 6^3 \text{ or } 8 : 216$$

or 1 : 27

The surface of any sphere is always π (3.1416) x the square of the diameter. The volume of any sphere is always 1/6 π (.5236) x the cube of the diameter. By comparing the surface areas of Swans Down Cake Flour and bread flour with their volumes, it will be seen that Swans Down Cake Flour has three times as much surface per unit of volume as the larger particle.

Example:

Diameter of one Swans Down Cake Flour particle = 1
Diameter of one bread flour particle = 6

π = 3.1416 1/6 π = .5236

3.1416 x 1^2 = 12.5664 (surface of one Swans Down Cake Flour particle)
.5236 x 1^3 = 4.1888 (volume of one Swans Down Cake Flour particle)
Relation of surface area to volume is as 3 : 1.
3.1416 x 6^2 = 113.0976 (surface of one bread flour particle)
.5236 x 6^3 = 113.0976 (volume of one bread flour particle)
Relation of surface area to volume is as 1 : 1.

Since moisture and heat enter the particles through the surface, therefore, under similar conditions, the smaller particles of Swans Down Cake Flour absorb moisture and heat three times as fast as bread flour. This more extensive surface area, as well as uniform fineness, is a distinct advantage in cake making, since a shorter time is required in mixing, and it is desirable to have the maximum surface of flour available for contact and action with the other ingredients. This fineness makes Swans Down batters easy to blend.

9. Swans Down Cake Flour contains 7% to 7½% gluten. A standard quality of bread flour has 11½% gluten. But this difference is of minor importance compared with the difference in *quality* between the two glutens. The gluten in bread flour is necessarily very tenacious and elastic, so that it may withstand the processes of mixing, kneading, and fermentation. During the several hours that bread is rising, this tough gluten is tempered and softened by the action of the yeast.

On the other hand, the gluten of cake flour must be delicate and in condition for immediate baking, since cake is mixed gently and only a few minutes elapse between the mixing and the time when the batter goes into the oven. Cakes are leavened by carbon dioxide gas liberated from baking powder or soda and also by expansion of the air enclosed in the beaten eggs as it becomes heated. Naturally, such delicate expansion is restricted by the tough gluten of bread flour.

Because Swans Down Cake Flour is uniform in fineness a maximum and even expansion of gluten is obtained in cake.

10. Gluten balls show graphically the differences between the glutens in bread and cake flours. Each ball is made from two cups of flour, mixed to a stiff dough with cold water, and tied in a cheesecloth bag. The bags of dough are covered with ice water and allowed to stand one hour, then washed in running water to remove the starch. All starch has been washed away when the water is clear as it comes from the bag. The gluten is then collected, kneaded in a ball, and baked at 400°F. for 45 minutes.

The quality of gluten in cake flour is very noticeably different from that of bread. It is so lacking in elasticity that it is difficult to collect and knead for baking. The difference in the size of the two balls after baking illustrates vividly the difference in the quantity of gluten in bread and cake flours.

11. Bread flour cannot be "made" into cake flour by the addition of cornstarch, as is sometimes recommended. The gluten of Swans Down Cake Flour is very delicate and pliable, while the gluten of bread flour is necessarily tenacious and strong. The quality of the tough gluten in bread flour cannot be changed merely by adding cornstarch. It is impossible to make cake flour from bread flour.

12. Gliadin and glutenin are the two chief proteins of wheat. Globulin, albumin, and proteose are also present in very small amounts. Gliadin and glutenin together constitute the gluten of wheat and form about nine-tenths of the protein. For this reason the terms protein and gluten are used interchangeably, particularly among commercial bakers.

Frequent investigations have been made to determine the possible influence of the ratio of gliadin to glutenin on gluten quality. But the results obtained have been contradictory. However, it is now fairly well established that the proportion of gliadin to glutenin is not as variable as was once supposed, being generally about 1 : 1, so that the basis of varying gluten qualities does not lie in chemical composition. However, chemists agree that gluten quality, or flour strength, is an important factor in determining the value of a flour for baking. It is of special importance in the making of fine cakes.

13. Swans Down Cake Flour and bread flour differ, first, in the variety of wheat used, and, second, in the process of milling. Swans Down Cake Flour may be readily distinguished from bread flour by several simple tests. The distinguishing characteristics of each are as follows:

Swans Down Cake Flour:	*Bread Flour:*
1. Snow-white in color.	1. Cream-colored.
2. Soft and velvet-smooth to the touch when rubbed between thumb and forefinger.	2. Gritty or slightly grainy to the touch when rubbed between thumb and forefinger.
3. Retains imprint of fingers when a handful is picked up.	3. Falls apart loosely when a handful is picked up.
4. Unusually fine due to extremely careful milling.	4. Less finely milled than Swans Down Cake Flour.
5. Delicate, pliable gluten.	5. Strong, elastic, tenacious gluten.

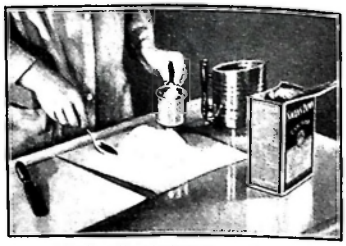
14. A typical analysis of Swans Down Cake Flour is:

	Per cent		Per cent
Protein	7.58	Ash	.30
Fat	.80	Acidity	.09
Carbohydrates	78.23	Moisture	12.48
Fiber	.52		

15. In damp weather, flour sometimes absorbs moisture from the air. In this case, sift the flour five or six times before the open door of a heated oven. Cool flour before using. This so-called "damp" flour may cause the following cake troubles:

1. Undue shrinkage from sides of pan.
2. Sugary, crackled crust.
3. Solid streak at bottom of cake.
4. Sponge cake that falls out of pan before cold.

16. Measuring flour. Always sift flour once before measuring, as it tends to pack. Swans Down Cake Flour, because of its unusual fineness, will pack even more readily than ordinary flour. One cup unsifted flour may vary in amount from about 1¼ cups to 1½ cups sifted flour. In measuring, lift it lightly with spoon into cup and level it off with spatula or straight edge of case knife. When sifting flour, it is convenient to use two squares of paper and so alternate the sifting from one piece to the other.



Lift flour lightly into measuring cup

17. Use exact amount of flour specified in recipe. Amounts given in standardized recipes are more dependable than those determined by practical batter tests. If too much flour is used, the cake is dry and may hump or crack on top. If too little flour is used the cake may fall. With an equal proportion of liquid, cake batter made with Swans Down Cake Flour is a little thinner in consistency than batter made with bread flour. Batter which contains too much flour becomes less glossy.

Shortening

18. Various types of shortenings are used in cake making. The general classes of shortenings include those of animal origin, such as butter, oleomargarine, lard, and suet; those of vegetable origin, such as cottonseed oil and solid cottonseed fat, coconut, peanut, corn, and olive oils, and nut margarines. The only significant difference in these shortenings is in their flavor and fat content.

19. The shortening power of different fats varies according to the actual per cent of fat they contain. Butter and oleomargarine contain about 85% fat, and hence have less shortening power than the 100% vegetable fats. Because of the relatively small amount in which shortening is used in the average cake, solid shortenings can be used interchangeably, with successful results. When substituting a solid vegetable shortening for butter, add more salt (about double the amount given).

20. The flavor of the shortening is easily detected in the cake itself. Butter makes cake with the most delicate flavor. However, good cake may be made with butter substitutes, and their lower price recommends them in many cases. Rancid shortening or strong cooking butter should never be used in cake making. Always use shortening that is fresh and sweet.

21. The natural softness or hardness of shortening affects the texture of cake. Shortenings of medium hardness, such as butter and butter substitutes, produce cake of tender and delicate texture. Very hard shortenings, such as beef suet and mutton fat, tend to produce cake of fine, close grain like that of pound cake. Because of their extreme hardness, these shortenings are difficult to handle. Their strong flavor is also undesirable unless they are used in highly-spiced mixtures. Oils tend to produce coarser texture, but very light, springy cakes which are soft, rather than crumbly, when eaten.

22. Measure shortening by weight, or by tablespoons, or by cups. When measuring shortening in a cup, press it down firmly, to insure accurate measurement. Print butter is easy to cut into the desired amount.

1 pound butter equals 2 cups
¼ pound butter equals ½ cup

A quick way to measure ½ cup shortening is as follows: Fill measuring cup half full of water and add shortening until water fills the cup, keeping shortening under the water. Then pour off the water.

Press shortening down firmly

23. If shortening is unusually hard, it may be creamed more readily if the mixing bowl has been warmed. Do not melt shortening, however, as this makes coarse-textured cake.

24. Incorrect amount of shortening causes cake difficulties. Cake may be made with a very small amount of shortening, but this is best served fresh, for it is apt to be dry after the first day. Insufficient shortening makes coarse-textured cake with a tough crust. The addition of more shortening improves the texture, but if too much is added, the cake will be greasy and crumbly, and will have crisp, uneven edges.

Sugar

25. Beet and cane sugar of the same fineness are equally satisfactory in cake making. Confectioners' sugar is the finest sugar made; then comes powdered sugar (cereal sugar); then the different grades of granulated sugar. The finer the sugar, the less moisture it contains. Therefore, the texture of both butter and sponge cakes made with powdered or confectioners' sugar, is closer and more compact than in cakes made with granulated sugar. Unless some other kind is specified in the recipe, always use fine granulated sugar. It is important to cream the sugar and shortening together thoroughly to insure good texture. It is difficult to get a smooth mixture with coarse sugar.

26. Brown sugar and maple sugar, because of their flavor, are especially good in some cakes, such as spice cake or fruit cake. They are apt to make a heavier crust and slightly coarser texture than fine granulated sugar.

27. In substituting brown sugar for granulated sugar, substitute by weight rather than by measure, since brown sugar contains more moisture. Or for 1 cup granulated sugar, substitute 1 cup brown sugar packed so firmly that it holds the shape of the cup when turned out.

28. Measure granulated sugar by filling the spoon or cup full, then leveling it off with spatula or back of case knife. Sift sugar in order to insure an even fineness. Brown sugar takes a very different measuring rule. To measure 1 cup, pack it down into the cup so firmly, that it keeps shape of cup when turned out. This is the most accurate method.

Fill cup full, then level off with spatula

29. Incorrect amount of sugar. Too much sugar makes tough, heavy cake, with a crust that is crackled and sugary. Cake without enough sugar is dry and coarse, with a tough crust that does not brown readily. Used in the right proportion, sugar helps to make cake light and tender, and creamed with the shortening, gives fine texture.

Sugar seems to increase the viscosity of egg whites. Thus, when sugar is added to egg whites in certain amounts, more air can be enclosed. Angel food cake illustrates this fact. Too much sugar gives angel food cake a sugary crust; it makes an undersized cake with a collapsed, coarse, and gummy crumb.

Eggs

30. Fresh eggs make the most delicate cakes, but they should be at least three days old in order to beat successfully. Since it is impossible to beat as much air into cold storage eggs, or those preserved in brine or water glass, as into fresh eggs, it is better to use the latter in making angel food and delicate butter cakes. The lightness of these cakes depends largely on the amount of air beaten into the egg whites. See paragraphs 69, 74, 77.

31. Egg whites help to make cake light and loose-textured because a large amount of air can be enclosed in them. They contain practically no fat and 12% protein (chiefly viscous albumin), which makes it possible for them to be stiffly beaten.

32. Egg yolks are not as viscous as egg whites, due to the presence of a large amount of fat (33%), and, therefore, cannot have as much air enclosed in them. Thus, when maximum expansion of air is desired in order to leaven a cake, egg yolks and whites must be beaten separately. Egg yolks help to make cake fine-grained. Too many egg yolks make a cake heavy and soggy.

33. Egg yolks left from angel food and white butter cakes may be utilized in making sponge cake, gold cake, custard, creamed eggs, griddle cakes, omelets, sandwich fillings, Hollandaise sauce, dessert sauces, and cake fillings.

34. Cakes may be made without eggs, but the addition of egg improves them. Since eggs hold water, more liquid can be used without interfering with the lightness of the cake. Therefore, a cake containing egg will be softer in texture than one made without egg.

35. Eggs effect very thorough mixing of shortening with other ingredients, and in this way help to prevent cake from falling. Therefore, rich cakes, like pound cakes, must be made with a larger number of eggs than plain cakes.

36. Measure egg whites for angel food cake, because eggs vary in volume. From eight to ten egg whites fill one cup. Separate egg whites singly into saucer, to make sure of their freshness before pouring them into measuring cup.

Separate egg whites one at a time into saucer

Liquids

37. Various liquids may be used satisfactorily in cake making—sweet or sour milk and cream, buttermilk, water, or fruit juices. In using sour milk or cream, it is best to use quickly-soured products, as they are milder and of better flavor than those that have soured slowly. Sour milk is especially good for spice and chocolate cakes as it gives an unusually tender texture. Evaporated and condensed milk, and milk powders are all used, but fresh milk is the standard liquid for delicate cakes.

38. To measure one cup of liquid, have cup level on table, and fill until brimming full. Measure one tablespoon or one teaspoon by dipping into the liquid and filling spoon brimming full.

39. Incorrect amount of liquid. Too small an amount of liquid makes cake dry and coarse-grained. Too much liquid may cause tunnels, heavy streaks, or sogginess. Of these two faults, the former is most common.

Leavening Agents

40. Two important leavening agents are employed in cake making—air and carbon dioxide gas. Air is incorporated into the batter either directly, by beating and folding; or indirectly, by the addition of stiffly-beaten egg whites. Since air acts as a leavening agent by expansion during the baking, as much as possible should be enclosed in the batter.

Carbon dioxide gas is liberated by the action of heat and moisture on baking powder; also by the action of sour milk, sour cream, buttermilk, molasses, or cream of tartar on soda. The gas is freed from the baking powder or soda (whichever is used), and, in escaping, leavens the batter.

41. Baking powder consists of three ingredients:

1. Soda (source of the carbon dioxide gas).
2. Acid (which liberates the gas).
3. A drying agent such as cornstarch or flour.

Upon the addition of moisture, and the application of heat, the acid acts upon the soda (alkali), liberating carbon dioxide gas. Some drying agent is necessary in order to coat the tiny particles of soda and acid and prevent the premature action of the baking powder in the can.

42. There are four types of baking powders. The alkali in each is sodium bicarbonate. The acid is the variable ingredient. *Tartrate* powder contains tartaric acid or its acid salts; *phosphate* powder contains acid salts of phosphoric acid; *S. A. S.* powder contains compounds of aluminum; *phosphate-S. A. S.* powder contains acid salts of phosphoric and sulfuric acids.

The various types of powders differ greatly in their rate of reaction. Tartrate and phosphate powders, known as rapid-acting, liberate most of their gas in the cold batter or dough. S. A. S. powders are the slowest in their action and release a relatively small amount in the cold.

Calumet Baking Powder, a phosphate-S. A. S. powder, is a double-acting baking powder. The acid ingredients are calcium phosphate and sodium aluminum sulphate—a combination which effects *controlled* or *double-leavening action*.

The first leavening action begins in the mixing bowl when liquid is added to the dry ingredients. This first release of gas is due to the rapid action between the phosphate and soda in the presence of moisture.

The second leavening action, scientifically proportioned to the first, does not take place until heat is applied. It is due to the action of the sodium aluminum sulphate on the soda. This retarded action, beginning when the batter is placed in the oven, continues slowly and steadily during the baking.

Calumet Baking Powder has definite advantages in cake making.

1. It imparts to cakes a distinctive soft velvetiness of texture.
2. Cakes made with Calumet have remarkably fine, even grain. This means excellent keeping qualities because they retain the moisture well after baking.
3. Cakes leavened with Calumet are successful even when oven temperatures fluctuate. This provides an assuring margin of safety but should not encourage carelessness in baking.
4. Calumet cakes can withstand slightly higher baking temperatures than ordinary (about 25 degrees).
5. Cake batters may be successfully stored before baking for several hours at room temperatures; for several days in a refrigerator. The batter should be poured into the baking pans, covered tightly with a damp cloth and waxed paper, and stored in a cool place until ready to bake.

Calumet's double action means greater efficiency. Less of its leavening gas is lost from the surface of a batter during mixing; consequently, less than the usual amount is required to leaven a mixture adequately. *With few exceptions, one level teaspoon of Calumet Baking Powder to a cup of sifted flour is the correct proportion.* This amount gives the best results in texture, grain, and lightness.

All Swans Down recipes are developed with Calumet Baking Powder. If another type of baking powder is used with Swans Down recipes, the amount of baking powder may need to be adjusted, since all baking powders are not interchangeable in amounts. It is safest to use in these recipes the baking powder as well as the flour with which they have been developed.

43. Cream of tartar in angel food cake acts as any acid in coagulating the albumin of the egg whites. This helps to strengthen the delicate cell walls and thus retain the air in the cake. (Lemon juice or vinegar is sometimes used instead of cream of tartar.) It is a mistaken idea that cream of tartar functions as leavening in angel food cake.

44. Soda may be used with sour milk, sour cream, or molasses. The standard proportion is ½ teaspoon soda to one cup sour milk, cream, or molasses. If the milk or cream is very sour, or if the molasses has much acid (very dark), either more soda must be added, or baking powder used in addition to the soda.

One-half teaspoon soda not only counteracts the acidity of one cup sour milk or cream, or molasses, but will, in addition, leaven one cup flour. Baking powder is used to leaven any additional flour in the mixture. This avoids the use of excess soda, which leaves a bitter or alkaline taste, easy to detect in the finished cake even when in very slight excess.

Fill spoon full, then level off with spatula

45. Measure baking powder, soda, or cream of tartar, by filling a spoon full, then leveling it off with spatula or back of case knife. Sift with the flour three times to remove any lumps and to insure an even distribution of the leavening, otherwise there may be occasional large holes throughout the cake, making uneven texture.

46. Incorrect amount of leavening. Too much leavening makes cake with coarse, uneven grain, porous, crumbly texture, and a tough, sticky crust. Insufficient leavening causes poor volume, pale color, an inclination to heaviness, close, compact grain, heavy crust, and a tendency to gummy texture.

Chocolate

47. Chocolate is unequalled as an ingredient for fine cakes. Baker's Unsweetened Chocolate is a choice blend of skillfully selected cocoa beans. After thorough cleaning, the beans are carefully roasted for several hours in order to bring out the flavor of each variety of bean. They are then dried, shelled, and slowly ground between heavy, heated millstones. Under heat and tremendous pressure the natural cocoa butter melts and mixes with the rest of the bean to form a smooth, ruddy-brown liquid. It is then run into metal molds, and cooled, when it solidifies into cakes of various weights, each deeply grooved into squares that break off easily to facilitate measuring.

48. To substitute cocoa for chocolate additional shortening should be added to the recipe used in amounts as follows:

For 1 square chocolate, use ¼ cup cocoa and ½ tablespoon shortening.

Baker's Breakfast Cocoa contains 26% fat, which is a higher figure than for any other cocoa, and 4% higher than the United States government requirement for cocoa of "breakfast" standard, which is the highest standard in America. In chocolate-flavored cake with no shortening, such as chocolate angel food cake, cocoa, because of its lower fat content, is preferred to chocolate. To add cocoa to a cake mixture, sift it with the flour.

49. Chocolate and cocoa both have thickening power, due to the natural carbohydrate that they contain. They are products of the cocoa bean. Pure cocoa contains 11.14% starch and plain chocolate contains 8.11% starch. Because of this starch, the batter of chocolate cake should contain more liquid than that of plain cake.

Flavorings

50. Flavoring combinations have interesting possibilities in cake making. The monotony of plain vanilla or lemon may be relieved by using combinations of flavoring, one flavor bringing out or developing another. In any combination the result should be a subtle blend in which no single flavor predominates. Originality inspires many combinations not found in recipes. Grated orange and lemon rind are particularly good flavorings for some cakes.

Spices must be fresh and of good quality. They should be measured carefully so that the flavor is a pleasing blend. Too much spice should not be used or the delicate flavor of the cake will be disguised. They should be sifted with the flour so that they may be thoroughly mixed with the other ingredients.

Fruits and Nuts

51. Fruits and nuts occasionally sink to the bottom of the cake. To prevent this, dust the fruit or nuts with flour (using flour from the amount stated in recipe, about 2 tablespoons to 1 cup).

Fruits and nuts will also sink to the bottom if the batter is very thin. With soft fruits, like prunes, pour in half the batter, then put in the prunes and pour in the remaining batter. Or, plump the fruit in oven, and add it to the batter at the last. Or, start baking the cake at slightly higher temperature than would otherwise be used. This cooks the batter quickly at first and helps to prevent the fruit from sinking to the bottom. Reduce the temperature slightly at the end of fifteen minutes.

Candied fruits, such as candied cherries or citron, preserved pineapple or ginger, may be added by pouring part of batter in pan, and sprinkling part of fruit over it. Add remaining batter, and sprinkle fruit over top. The fruit will then be evenly distributed throughout the cake.

52. Cut nuts on board, using long, sharp knife. Hold it at the point with the left hand and work it around in a half circle with the right hand. Do not cut nuts too fine. If they are steamed first, they are more apt to be distributed uniformly throughout the cake. In dark cakes, the flavor of toasted nuts is especially good. To toast nuts, spread in shallow pan and brown delicately in moderate oven (350°F.). Do not put nuts through food chopper unless the oil from the nuts is desired, rather than the nut meats themselves for such grinding tends to mash the nuts.

53. Coconut is a favorite ingredient in cake. Of the various types of coconut, Baker's Coconut, Southern Style, is especially fine for cakes as it is freshly grated, slightly sweetened, and packed without any liquid in air-tight cans. It has the true flavor and natural moistness of coconut just taken from the shell. Its long, lacy shreds make it very decorative for frostings. It should be sprinkled over the cake while the frosting is still soft.

Baker's Coconut, Milk-Packed, is freshly grated, unsweetened, packed in coconut milk, in air-tight cans. Before using, press out the milk and stir the coconut until it is fluffy. The milk may then be used as the liquid in cake batter and imparts to the cake a blended coconut flavor.

Baker's Coconut, Premium Shred, is the familiar, daintily-shredded coconut, sugar-cured, and packed in a moisture-proof paper package that keeps it fresh.

Utensils and Their Use

The Swans Down Cake Set

54. Everyone who makes cake needs good tools, for they simplify the process of cake making. The utensils should be those which are both convenient and essential to cake making. By lending ease and accuracy to each step, proper utensils effect speed in mixing, and more uniformly successful results. Efficient tools always pay for themselves in convenience.

55. The Swans Down Cake Set is made up of those utensils which are unusually convenient for cake making, but not always available in every community. In its special way, each utensil facilitates cake making. The set consists of:

One patent, heavy tin angel food pan	Wooden, slotted mixing spoon
One square, heavy tin cake pan	Steel spatula
Aluminum measuring cup	Wire cake tester
Set of aluminum measuring spoons	A copy of "Cake Secrets"

The following paragraphs describe the utensils and tell how each one is used. Pictures throughout the book show their convenience in cake making.

NOTE—The price of the Swans Down Cake Set, with directions for ordering, is stated on page 48.

56. Special angel food pan, (8½ x 3½ inches). Ideal for all types of sponge cakes because of the extended tube and the movable slides on two sides. Immediately after the cake is removed from the oven, lift the slides and invert the pan. Allow the cake to stand one hour, or until cold. The extended tube provides for circulation of air which prevents steaming, and thus insures a crisp crust. Remove the cake when cold by slipping spatula or knife through the slots to loosen cake from bottom of pan; then cut around the edge of pan and tube, and the cake will fall out easily.

Lift slides and invert pan

Insert spatula through slots to loosen cake

The cake should cling to the sides of the pan while cooling. It is so delicate it cannot support its own weight while warm. As it cools, however, the cell walls stiffen and become sufficiently strong to hold it in its original shape.

Never grease the angel food pan or the cake will drop out before cold, thus causing a flattened, soggy cake. If the pan has once been greased, even successive and thorough washings may not prevent this from happening.

57. The square cake pan, (8 x 8 x 2 inches), is unusually convenient for butter cakes. To prepare it for baking, cut a square of paper to fit the bottom of the pan and grease both pan and paper with an unsalted fat. Since the taste of fat is very quickly detected in the crust, butter is the best fat to use for this. Melt the butter in cup over hot water, and use only the oil on top. Do not use the salt that sinks to the bottom, as salt tends to make the cake stick.

Cut paper with sharp knife; fit into pan

58. The aluminum measuring cup is an accurate half-pint measure tested by the U. S. Bureau of Standards. It is the equivalent in measure of 16 level tablespoons. It is grooved on one side to read ¼, ½, and ¾; on the other, to read ⅓ and ⅔. This cup is convenient for measuring both liquid and dry ingredients. A lip on either side makes it easy to pour liquids.

59. The set of aluminum measuring spoons consists of one tablespoon, one teaspoon, one-half teaspoon, and one-quarter teaspoon. This set of spoons simplifies the tedious process of measuring small but necessary amounts. The tablespoon is the equivalent of three teaspoons.

60. The wooden, slotted mixing spoon is a help in mixing butter cakes. It is light and easy to handle, makes very little noise, and does not discolor the batter.

61. The flexible steel spatula is useful in a great variety of ways. Use it in making level measurements, in cleaning bowls in which cake has been mixed, in cutting through batter to break large air bubbles before the cake goes into the oven, and in cutting sponge cake from the pan after the cake has cooled. Its many uses soon make this spatula an indispensable utensil.

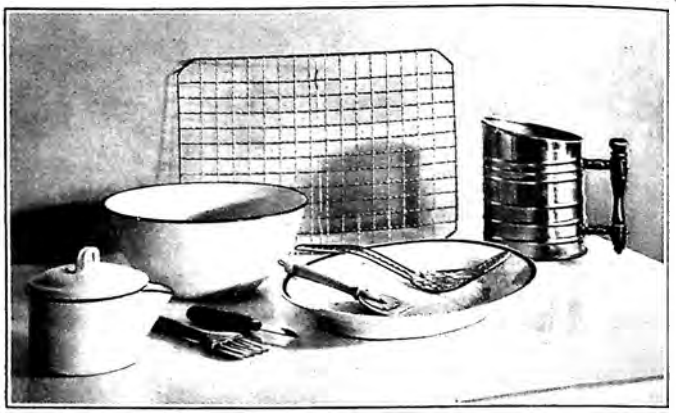
62. The wire cake tester replaces the broom straw. Insert tester in center of cake and if dough adheres to the wire, the cake is not sufficiently baked. If, however, the wire comes out clean and dry, the cake is done.

63. "Cake Secrets," the treasure house of Swans Down recipes, is included in every Swans Down Cake Set. This book contains the recipes for over one hundred delicious cakes, cookies, pies, French pastries, shortcakes, biscuits, and quick breads.

64. An oven thermometer is a safeguard against cake failures, as incorrect baking temperatures may ruin the best of cake mixtures. To be perfect, a cake must bake uniformly at a certain specified temperature, or within a definite range of temperatures. Baking without a thermometer is bound to be a matter either of luck or of judgment based on experience. In either case, successful results are apt to be uncertain. However, with an accurate oven thermometer, correct temperatures may be maintained and successful results are then reasonably certain. The Oven Thermometer is a standard portable thermometer which is inexpensive and may be used in any type of stove.

Oven Thermometer

NOTE—The price of the Oven Thermometer is stated on page 48.



Some convenient utensils for cake making

65. Other very convenient utensils useful for the cake maker are:

1. Enamel, glass, or earthenware mixing bowls with rounding bottoms in correct sizes for beating eggs and mixing batters.
2. Flour sifter, strongly constructed, simple, and of generous size.
3. Egg beaters. (a) Center-drive rotary egg beater, strong, with comfortable handle to grip. For beating whole eggs or egg yolks. (b) Flat wire egg whisk. Useful for beating egg whites carefully.
4. Lipped enamel cup with cover in which to keep melted shortening for greasing cake pans. (May be heated.)
5. Washable pastry brush. Convenient for the greasing of pans.
6. Sharp knife made of stainless steel. For cutting nuts and fruits.
7. Plate or batter scraper. Rubber wedge fitted into handle. Cleans mixing bowl, cups, and spoons quickly and quietly.
8. Pans. Assortment of 9-inch and 10-inch round pans, also oblong loaf pans, muffin pans, and various fancy cake pans.
9. Wire cake rack. Allows circulation of air around cake while it is cooling. This prevents steaming and sogginess in baked cake.
10. Cake-box. Covered, ventilated, and large enough for party cakes.

Classes of Cakes

66. There are two main classes of cakes. Cakes that contain shortening of any kind are called butter cakes, while those that contain no shortening are called sponge cakes. Within each one of these classes there is an almost endless number of cakes. For example, in the butter-cake class are such familiar favorites as:

Coconut Layer Cake	Fig Cake
Chocolate Fudge Cake	Prune Cake
Pineapple Feather Cake	Chocolate Layer Cake
Orange Cream Cake	Burnt Sugar Cake
Devil's Food Cake	One, Two, Three, Four Cake
Spice Cake	Apple Sauce Cake
Silver Cake	Maple Cake
Pineapple Upside Down Cake	Caramel Cake
Washington Pie	Ribbon Cake
Hickory Nut Cake	Chocolate Marshmallow Cake
Spanish Cake	Gold Cake

All of these cakes are based upon the standard, type, or pattern butter cake. Variations in ingredients and frostings make the difference.

Then there is the large class of sponge cakes, both plain and elaborate, but all popular. Angel food cake is synonymous with sponge cake in the minds of many people, and might well head the list:

Angel Food Cake	Cherry Angel Food Cake
Chocolate Angel Food Cake	Marble Angel Food Cake
Coconut Angel Food Cake	Daffodil Cake
Tutti-Frutti Angel Food Cake	Pecan Angel Food Cake

And sponge cakes are not only delicious in themselves, but lend themselves to many interesting combinations, such as:

Sunshine Cake	Jelly Roll
Lemon Sponge Cake	Chocolate Ice Box Cake
Creole Sponge Cake	Russian Roll
Hot Water Sponge Cake	Lady Fingers
Economy Sponge Cake	Chocolate Sponge Roll

Within this rather formal classification of butter cakes and sponge cakes, too, are the famous cakes of long-ago—traditional cakes with fascinating bits of history still clinging to them. For these cakes, there are the treasured old family recipes which have been carefully preserved from generation to generation. Some of these interesting cakes with the charm of yesterday are:

Twelfth Night Cake
Currant Cake
Lady Baltimore Cake
Lord Baltimore Cake
Dundee Cake
Banbury Cake
Dolly Madison Cake
James Madison Cake
Christmas Cake
Old-Fashioned Cream Cake
Spice Cake
Crumb Cake
Seed Cake
Pound Cake
Lenten Tea Cakes
Henry Clay Cake

An artistic and perfect cake lends the crowning touch to many festive occasions. Here are such well-known cakes as:

Bride's Cake
Wedding Cake
Tiny Reception and Tea Cakes
Christmas Fruit Cake
New Year's Cake
Birthday Cake
Anniversary Cake
Harvest Cake

Butter Cakes

Swans Down Butter Cake

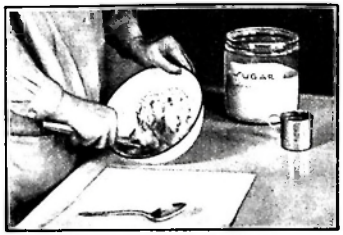
67. All butter cakes—white, devil's food, yellow, and spice— every one may be made by one basic method, the standard butter-cake method. There are various other methods by which butter cakes may be made, notably the time-saving methods in which the shortening is melted and added to the liquid ingredients. There are also variations of this method. These short-cut methods are most successful in cakes containing a relatively small amount of shortening. Such cakes have a muffin-like texture, when compared to the even-grained, feather-like texture of cake mixed according to the standard butter-cake method. However, economy of time in mixing often recommends these methods. The Swans Down Butter Cake is a delicious cake, with fine texture and moist, tender crumb. It is a representative butter cake that may be used as a master recipe for an endless variety of cakes. The Swans Down Butter Cake is mixed by the standard butter-cake method.

68. Swans Down Butter Cake

2 cups sifted Swans Down Cake Flour
2 teaspoons Calumet Baking Powder*
½ teaspoon salt
⅔ cup butter or other shortening
1 cup sugar
3 egg yolks, well beaten
⅓ cup milk
1 teaspoon vanilla
3 egg whites, stiffly beaten

Sift flour once, measure, add baking powder and salt, and sift together three times. Cream butter thoroughly, add sugar gradually, and cream together until light and fluffy. Add egg yolks, then sifted flour, alternately with milk, a small amount at a time. Beat after each addition until smooth. Add vanilla; fold in egg whites. Bake in two greased 9-inch layer pans in moderate oven (375°F.) 25 to 30 minutes, or in greased loaf pan in moderate oven (350°F.) 50 to 60 minutes. Double the recipe to make three 10-inch layers.

69. Hints on mixing butter cakes. Creaming the shortening means mashing and beating it with a spoon until it has the texture of very thick cream. Then add the sugar gradually, and cream together until light and fluffy. The beaten egg yolks are added next.



Cream mixture until light and fluffy

Add a small amount of the sifted flour mixture to the creamed mixture first, as milk tends to curdle it. The fat separates out readily unless bound together by the flour. If this separation occurs, the cake may be coarse-grained and less velvety.

Beat the mixture until smooth after each addition of flour and liquid. This helps to make even-grained texture.

Do not beat egg whites until ready to use them, or the air that has been beaten in will be lost. Eggs may be beaten most successfully when they are cold. Beat the whites with wire whisk until they are stiff enough to hold up in peaks, but not until they are dry. If beaten until dry, the cake will not be as light, fluffy, and moist as it should be.

Beat egg yolks with rotary egg beater until thick and lemon-colored, then add them to the thoroughly creamed butter and sugar. Underbeaten egg yolks may result in a heavy streak at bottom of cake.

*With other types, adjust amounts, since baking powders are not interchangeable.

If adding whole eggs to the batter, beat them until light, add to the creamed shortening and sugar, and beat mixture thoroughly. Or, add unbeaten eggs, one at a time, beating well after each addition.

Fold, rather than beat, stiffly beaten egg whites into the cake mixture. Fold carefully and thoroughly, but only until egg whites are thoroughly blended, for unnecessary folding may break down some of the air cells.

After cake batter is in pan, cut through center at right angles, to break any large air bubbles and to draw batter from the center and spread it uniformly in the pan. If the corners of the pan are not filled with batter the cake is apt to burn on these edges. Rap pan on a table several times to break air bubbles.

70. Beating and folding are the only two motions used in cake making. The *beating motion* is made by lifting the mixture over and over by means of a spoon or whisk. In this manner, the under part of the batter is continually lifted to the surface. Beating is the best means of incorporating air into a mixture—hence its value in cake making. This beating motion should be quite vigorous and brisk so that it may incorporate a maximum amount of air.


Beat the mixture until smooth

Folding is the motion made by cutting down through the mixture and curving up and over to enclose more air without the loss of that already beaten into the eggs. Down, up, and over describes this motion. Folding is the method used in combining sponge cakes, and in combining beaten eggs with batters. The folding motion is used whenever one or both of the mixtures contain important amounts of air. It should be done gently and not prolonged.


Fold in egg whites—down, up, and over

Stirring, on the other hand, is a circular motion, by means of which ingredients are thoroughly blended. Sauces should be stirred, but cakes should not, as stirring does not incorporate air into mixture. Stirring may also break some of the delicate cell walls, thus releasing the air that has already been beaten into the mixture, and lessening the volume of the finished cake.

Sponge Cakes

Swans Down Angel Food Cake

71. Sponge cakes contain no shortening of any kind. True sponge cake is leavened solely by air beaten into eggs. Mock sponge cake is the so-called sponge cake made with fewer eggs and baking powder, and is the least expensive kind of sponge cake. White sponge cake (angel food cake) is made with only the whites of eggs. Yellow sponge cakes are made with whole eggs, as well as with egg yolks only. Sponge cake is an inclusive term which covers all these types. Their mixing technic is based upon incorporating air.

72. Angel food cake may be combined in a number of ways— by the standard method, by variations of the standard method, or by the syrup method. Swans Down Angel Food Cake is mixed by the standard method. White, delicate, fluffy angel food cake is a universal favorite. Success is practically insured if this recipe and these directions are accurately followed.

73. Swans Down Angel Food Cake

1 cup sifted Swans Down Cake Flour
1 cup egg whites (8 to 10 eggs)
¼ teaspoon salt
1 teaspoon cream of tartar
1¼ cups sifted granulated sugar
¾ teaspoon vanilla
¼ teaspoon almond extract

Sift flour once, measure, and sift four more times. Beat egg whites and salt on large platter with flat wire whisk. When foamy, add cream of tartar and continue beating until eggs are stiff enough to hold up in peaks, but not dry. Fold in sugar carefully, 2 tablespoons at a time, until all is used. Fold in flavoring. Then sift small amount of flour over mixture and fold in carefully; continue until all is used. Pour batter into ungreased angel food pan and bake at least one hour in slow oven. Begin at 275°F., and after 30 minutes increase heat slightly (325°F.). Remove from oven and invert pan for one hour, or until cake is thoroughly cold. Then remove from pan with special care.

74. Hints on mixing angel food cake. Air is the one and only leavening in angel food cake. This fact is considered in every step of the mixing.

Sift the flour several times in order to incorporate as much air as possible into it.

Beat until egg whites hold up in peaks, not dry

Beat the egg whites until they are just stiff enough to hold up in peaks. Underbeaten egg whites, which have not had as much air as possible beaten into them, make cake undersized, heavy, and coarse-textured. Overbeaten egg whites make cake dry.

Use folding motion to combine ingredients

More air can be enclosed in egg whites by beating them with a flat wire whisk than with a rotary beater. Consequently, angel food cake has greater volume if the egg whites are so beaten.

If the flavoring is added to the mixture before the flour, it will be thoroughly blended without the extra folding that would be necessary if it were added at the last.

In combining ingredients, use only the folding motion. (See paragraph 70.) Fold mixture just enough to blend ingredients. Undermixing makes coarse-textured cake; overmixing results in heavy, undersized cake with tough texture and a close compact grain.

Spread batter uniformly in pan. Cut through batter with circular motion to remove large air bubbles.

Cut through batter to remove air bubbles

75. Sponge cake may be combined in a number of ways—by the standard method, by variations of the standard method, or by the syrup method. Swans Down Sponge Cake is mixed by the standard method.

76. Swans Down Sponge Cake

1 cup sifted Swans Down Cake Flour
¼ teaspoon salt
5 egg yolks
½ lemon, grated rind and juice
5 egg whites
1 cup sifted sugar

Sift flour once, measure, add salt, and sift together four times. Beat egg yolks until thick and lemon-colored, add lemon juice and rind and beat until very light. Beat egg whites with flat wire whisk until stiff enough to hold up in peaks, but not dry. Fold in sugar, a small amount at a time, then egg yolks, and, finally, sifted flour. Pour batter into ungreased tube pan and bake in slow oven (325°F.) 60 minutes or more. Remove from oven and invert pan for one hour, or until cold.

77. Hints on mixing sponge cake. True sponge cake is leavened by air.

Eggs must be beaten separately, since more air can be enclosed in the whites alone than when they are in combination with the yolks.

It is essential that egg yolks be beaten until thick and lemon-colored. Underbeaten yolks may cause a tough, leathery streak on bottom of sponge cake.

Beat egg whites until they are stiff enough to hold up in peaks, but not dry. Underbeaten egg whites make sponge cake undersized, heavy, and coarse-grained. Overbeaten egg whites make cake dry.

Fold in the flour last rather than the egg whites.

Undermixing makes coarse-textured cake, while overmixing results in heavy, undersized cake with tough texture.

Spread batter uniformly in pan. Cut through the batter with a circular motion in order to remove any large air bubbles.

Cake Baking

78. Baking is an extremely important part of cake making. Even perfect batters do not make perfect cakes unless they are baked at the proper temperature, or within a range of the correct temperatures. The oven temperature must be adapted to the different types of cakes if the baking is to be perfect. Ovens that are too hot, or too slow, or have fluctuating temperatures cause many cake failures, as is illustrated many times in the discussion of cake defects in the Cake Chart (page 41). The heat should be turned on in advance and the desired temperature maintained before the cake is placed in oven. Angel food cake, however, may be placed in cold oven, and the heat increased gradually to the desired temperature (325°F.). Definite oven temperatures and baking times are given in all Swans Down recipes.

79. The portable oven thermometer is a great help in eliminating baking uncertainties. But even with a thermometer the greatest care must be used. For thermometers merely indicate temperature—they do not control it. For example, assume that the desired temperature is 275°F. If the heat is turned on full until 275°F. is reached, it must then be turned down, in order to maintain a uniform temperature of 275°F. over a given period. If, on the contrary, the heat is kept turned on full during the entire period, the temperature soon mounts far beyond 275°F. This means that the thermometer must be carefully watched and the temperature controlled while the cake is baking. Place the thermometer to the side and slightly in front of the cake to insure an easy reading. The heat may be adjusted at each baking quarter if necessary, but an even temperature is easily kept if oven is properly pre-heated.

80. An oven heat regulator is a thermostatic device that automatically keeps the oven at a uniform temperature, by regulating the flow of heat into the oven. A part of this device is an indicator (with temperatures stamped on it) placed outside the oven. A turn of the indicator will keep the oven at the temperature desired as long as the heat is on. For example, set the wheel at 325°F. and the temperature will not rise higher nor fall lower than this point during the time the heat is on. Oven heat regulators should be inspected frequently, in order to be sure that they are indicating correctly. It is impractical to have an oven heat regulator attached to an old stove, but a portable oven thermometer may be successfully used in any type of stove.

81. Baking problems vary according to type of stove. It is more difficult to maintain a uniform temperature in the oven of a range burning coal, wood, or cobs, than in the oven of a gas, oil, or electric stove. This fluctuating temperature may be controlled to some extent by putting a large piece of coal or wood in the fire box as soon as a brisk blaze is started. Coal gives a more uniform temperature than wood, cobs the most fluctuating temperature.

82. Division of baking period into baking quarters. Fluctuating oven temperature is also caused by continual opening and shutting of the oven door. Eliminate this difficulty by dividing the baking into quarters as follows:

1st quarter. Cake mixture begins to rise.
2nd quarter. Rising continues; surface begins to brown.
3rd quarter. Finishes rising; continues browning.
4th quarter. Finishes baking; shrinks from sides of pan.

At the end of each quarter the oven door may be opened to determine whether the cake is baking properly. If the oven is found to be too hot or too cold, adjust the heat to the correct temperature. Or, if the cake is baking unevenly, change the position of the pan to insure uniform baking.

If cakes are moved during the first baking quarter, there is a slight decrease in volume. Careful moving any time after the first ten minutes, however, seems to have no effect. It should be done quickly to avoid cooling the oven.

83. How to know when cake is done.

1. Cake should have risen to its full height and have a delicate brown crust.
2. Cake should have ceased the "singing" sound that it makes while baking.
3. Butter cake should have shrunk slightly from sides of pan.
4. Surface of cake, when pressed lightly by finger, should spring back. Imprint of finger indicates insufficient baking.
5. Wire cake tester when inserted in center of cake should come out clean and dry. Any dough clinging to the tester indicates insufficient baking. This test is the most certain and accurate of all.

If no dough adheres to tester, cake is done

Apply these tests to cake before it is removed from the oven, even though the cake may already have baked the length of time stated in the recipe.

84. A range of degrees is covered in baking temperatures. The terms slow, moderate, hot, and very hot, as applied to oven temperature, cover the generally accepted range which follows:

Slow oven, 250°F. to 350°F.	Hot oven, 400°F. to 450°F.
Moderate oven, 350°F. to 400°F.	Very hot oven, 450°F. to 550°F.

85. Practical oven temperature tests may be made which correspond to these thermometer ranges. Set a pan sprinkled with flour in the oven and if it becomes a delicate brown in five minutes, the oven is slow (250°F. to 350°F.). If the flour turns a medium golden brown in five minutes, the oven is moderate (350°F. to 400°F.). If the flour turns a deep dark brown in five minutes, the oven is hot (400°F. to 450°F.). If the flour turns a deep dark brown in three minutes, the oven is very hot (450°F. to 550°F.). These same tests may also be done with white tissue paper or white unglazed paper.

86. Uniform vs. increasing temperature during the baking. Cake may be successfully baked at a uniform temperature throughout the baking process, or at a temperature that is increased slightly in the last baking quarter. In case the oven is equipped with a heat regulator, so that the temperature can be accurately controlled, the volume of butter cake can be increased slightly by raising the temperature in the last baking quarter from 350°F. to 375°F. However, when a portable oven thermometer, or a thermometer on an oven door is used, or when a coal- or wood-burning range is used, it becomes more difficult to obtain an absolutely accurate increase in temperature. Hence in these cases, it seems advisable to employ the same temperature throughout the baking process.

87. Temperatures and Time-Table for Cake Baking.

Slow Oven 250°F. to 350°F.	*Moderate Oven* 350°F. to 400°F.	*Hot Oven* 400°F. to 450°F.
Sponge cake	Cup cakes	Jelly roll
Angel food cake	Layer, loaf, or sheet cake, 1 to 2½ inches thick	Sponge sheets
Thick loaf cake		Thin layer cake, ¾ to 1 inch thick
Fruit cake		
Pound cake		

Cup cakes..... 20–25 min.	Sponge cake..... 60 min. or more
Thin layer cake..... 20–30 min.	Angel food cake.. 60 min. or more
Layer, loaf, or sheet cake, 1 to 2½ inches thick 30–45 min.	Thick loaf cake... 50–60 min.
	Fruit and pound cakes 1½–4 hours

88. Pans in which cake is baked should fit the yield of the recipe. Cake should rise to top of pan in order to brown well. Fill pans two-thirds full of batter. If filled too full, batter may rise to run over side of pan.

Most butter cake mixtures may be baked equally well in round, square, or oblong pans, tube pans, or muffin pans. Tiny cup cakes, suitable for parties or afternoon tea, may be baked in very small muffin tins. Iron frying pans are good utensils in which to bake upside down cakes.

Sponge cake mixtures are usually baked in tube pans. However, if angel food or sponge cake is to be cut into small fancy shapes for frosting, it may be baked in a large shallow pan in moderate oven (350°F.) about 25 minutes. Remove from oven, invert pan until cold, then cut in desired shapes while cake is in pan. Use a sharp knife to insure clean-cut edges.

89. Bake immediately after mixing, sponge cakes and angel cakes. Much of the air that has been carefully incorporated into the batter is lost if the cakes are allowed to stand any appreciable period before baking.

90. Place pans as near center of oven as possible. When two grates are used, do not place the pans directly over one another. Cake baked on the upper grate may have to be put on the lower grate at the end of the baking, in order to brown the lower crust.

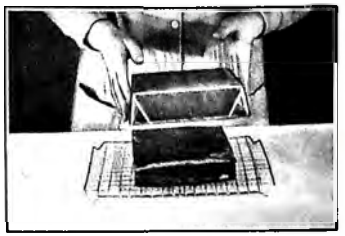
Place pan near the center of oven

Occasionally pans need to be turned during the baking in order to brown the cake uniformly. Do not crowd the oven full, as there must be circulation of air through the oven in order to give satisfactory baking results.

91. Incorrect baking temperature for butter cake causes many difficulties. Too hot an oven causes too rapid expansion accompanied by a quick formation of crust. The results may be coarse texture, thick, tough crust, or cracked, humped top. If the oven is too slow, gas is liberated before the cell walls are baked, resulting in an undersized cake with a heavy, close, crumbly texture, and pale, sticky crust.

92. Incorrect baking temperature for sponge cake causes many difficulties. If the oven is too hot the cell walls become firm before there has been sufficient expansion of air, resulting in an undersized cake with a tough, leathery texture and hard, uneven crust.

93. Butter cake, after removal from the oven, should be inverted on a cake rack and allowed to remain in the pan about five minutes. If necessary, loosen cake from sides of pan with spatula. Turn cake out of pan onto cake rack. Remove paper from bottom of cake. Turn cake again on rack and finish the cooling right side up. Cake rack permits circulation of air around cake while it is cooling. This prevents steaming or sweating, which is one cause of soggy crust. A clean tea cloth may be used in place of a cake rack, but of course it does not allow quite such free circulation of air.



Turn cake out of pan onto cake rack

Cut around edges and invert pan

94. Sponge cake, after removal from the oven, should be inverted and allowed to hang in the pan for one hour, or until cold. The cell walls of sponge cake are so delicate that they shrink slightly if the cake is removed while still warm. The volume will, therefore, be less if the cake is removed before cold. If sponge cake is left in pan too long, it may stick, or the crust may roll off in balls. Full directions for removal of angel food and other sponge cakes from Swans Down special angel food pan are given in paragraph 56. These fragile cakes should never be handled until cool.

Frostings and Fillings

95. The terms frosting and icing are almost synonymous. However, in the strictest sense, an icing is a sugar mixture thin enough to be spread with a pastry brush and hence used on fancy breads and pastries, whereas a frosting is a thicker and heavier sugar mixture used on cakes. This distinction is no longer generally recognized. Frosting is the word used throughout the Swans Down Cake Manual.

96. Uncooked frostings may be easily and quickly made with confectioners' sugar and some liquid, such as milk, cream, fruit juices, or water. Heat the liquid to prevent an objectionable raw taste in the frosting. Butter frosting, made with a large amount of butter and little or no liquid, remains moist for several days. Uncooked frostings, with the exception of butter frosting, should be put on while the cake is still warm.

97. For boiled frosting, sugar syrup is cooked to the soft ball stage, (234°F. to 242°F.). The temperature which ordinarily gives best results is 238°F. A candy thermometer is the most accurate means of testing sugar syrup. A practical cold water test for the soft ball stage is made by dropping about one teaspoon of syrup into ice water. Take the syrup between the thumb and forefinger and if it can be formed into a very soft ball that loses its shape when removed from the water it is at the soft ball stage (234°F. to 242°F.).

98. Prevent formation of crystals in sugar syrup as they make the frosting grainy or sugary. Avoid this difficulty by:

1. Adding 1 tablespoon light corn syrup or ⅛ teaspoon cream of tartar for every cup of sugar.
2. Wiping down sides of saucepan with wet cheesecloth while syrup is cooking.
3. Boiling for the first 3 minutes with cover on. Steam washes down any crystals that may form on sides of pan and they dissolve readily while syrup is thin.

99. Undercooked or overcooked syrup. If syrup is undercooked, the frosting will not thicken. In this case, place it over hot water, and beat vigorously until it is thick enough to spread. If syrup is overcooked, the frosting will thicken rapidly, and become too hard to spread. If this happens, beat in just a little boiling water. In damp weather boil the syrup to 240°F.-242°F. to overcome the effect of humidity. Beating the frosting in a warm place, or close to the stove, is a further precaution.

100. Beat egg whites for boiled frosting until stiff enough to hold up in peaks, but not dry. Overbeaten egg whites give frosting a curdled appearance. Beat the egg whites just before ready to pour the syrup onto them. Pour syrup onto egg whites in a very fine stream, beating constantly. Beat frosting vigorously in order to make it smooth, light, and fluffy.

101. For boiled chocolate frosting, melt the chocolate over warm water; cool. When the frosting is cool and ready to spread on cake, fold in chocolate carefully. Beating frosting after chocolate has been added thins it.

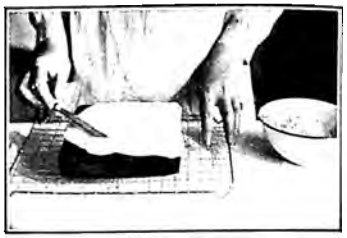
102. Caramel or fudge frosting, if beaten until too thick to spread, may be thinned with a little hot water or cream until of the right consistency to spread. If caramel or fudge frosting has been overcooked, add hot water, and re-cook the mixture to the correct temperature.

To prevent curdled caramel frosting, add a pinch of soda. The soda neutralizes the acidity of brown sugar, and thus prevents the acid of the sugar curdling the milk. If frosting is made with water instead of milk, omit soda.

103. In frosting cake with boiled frosting, have the cake cool and surface free from loose crumbs. Frosting should be cool so that it does not run or soak into the cake. Beat frosting until it is of the right consistency to spread. It should hold its shape without running over sides of cake. Let a little of the frosting run from end of spoon into bowl; if frosting retains its shape and piles up on top of the mixture as it falls it is ready to spread.

104. Layer cakes may be put together with bottom crusts together, or with bottom of one layer on the top of the other. The bottom crust is apt to be softer, and may be more difficult to frost. Loaf cakes are often frosted upside down, as the bottom crust is apt to be smoother and the cake will have a more attractive shape. Keep the edges of the cake even. If the layers are not uniformly thick, place them so that the cake, when frosted, will be uniform in thickness. The wire cake tester may be inserted into the layers to hold them in position while the cake is being frosted.

105. To frost a cake, cover the top first, putting the frosting on in the center, and working it out lightly to the edges with spatula, knife, or back of spoon. A whirl of frosting is attractive on the top of the cake. Next, frost the sides. Keep knife free from crumbs. Use quick, light, deft strokes to make each one count and avoid fussing with it unnecessarily.



Work frosting out lightly to edges

106. Fillings are often used instead of frostings between the layers of cakes. Fruit fillings, custards, or whipped cream may be used.

107. Prevent filling from soaking into cake by having both cake and filling cold. If filling contains egg yolks, cook it over hot (not boiling) water. Since high temperature coagulates protein, boiling water may cause mixture to curdle.

108. Toppings may take the place of frostings on cake. They can be easily and quickly made. Combinations of sugar, spices, nuts, and fruit are especially good when sprinkled over cakes baked in sheets about two inches thick. These may be cut into squares for serving.

One of the simplest toppings consists of sugar and cinnamon, sprinkled over the batter before the cake is put into the oven. Another is made by spreading the cake with butter, just before the baking is completed, then sprinkling with a mixture of powdered sugar and shredded almonds or coconut, and returning to oven for a few minutes to brown the nuts. This cake must be left in the pan until cut, as the nuts will fall off if it is turned out onto a cooler. Instead of almonds, other nuts, chopped candied orange peel, or raisins may be used. Brown sugar and pecans make a delicious combination. Raspberry jam may be folded into whipped cream and piled lightly on the cake just before serving, or it may be mixed with hard sauce and spread while the cake is still warm. Such toppings make the most inexpensive cake a delicious dessert.

Cake Difficulties

109. Even skilled cake makers may have some cake trouble, once in a while. In spite of all the care with which a cake may have been mixed and baked, something occasionally prevents complete success. However, most cake failures can be avoided if their possible causes are known. In the following paragraphs, the reasons for various cake troubles are briefly explained. In many cases, the cause of the trouble has already been discussed in a previous paragraph. (Figures refer to paragraph numbers in the text.) In other cases, the remedy is obvious.

110. When cake is undersized, the cause may be:

Butter Cake

1. Not enough baking powder or soda to leaven the mixture, 44, 45, 46.
2. Mixture baked in too large a pan, 88.
3. Oven too slow—cake does not rise sufficiently, 82, 84, 87, 91.

Sponge Cake

1. Underbeaten egg whites—not enough air has been enclosed to give sufficient expansion, 31, 74, 77.
2. Overmixing of ingredients, causing loss of air, 70, 74, 77.
3. Too much sugar, 28, 29.
4. Mixture baked in too large a pan, 88.
5. Oven too hot, 82, 84, 87, 92.
6. Cake removed from pan before cold—not allowing cell walls to become firm, 94.

111. When cake falls, the cause may be:

Butter Cake

1. Too much shortening, 19, 22, 24.
2. Not enough baking powder or soda to leaven the mixture, 44, 45, 46.
3. Too much sugar, 28, 29.
4. Insufficient baking, 83, 87.

Sponge Cake

1. Too much sugar, 28, 29.
2. Insufficient baking, 83, 87.

112. When cake runs over top of pan, the cause may be:

Butter Cake

1. Too much batter in pan—gas, in being liberated, raises batter over sides of pan, 88.
2. Oven not hot enough—gas is liberated, cell walls are not baked, and so cake is not held in shape, 82, 84, 87, 91.
3. Too much leavening, raises batter over sides of pan, 44, 45, 46.

Sponge Cake

1. Too much batter in pan—expanding air raises batter over sides of pan, 88.

113. When cake rises higher on one side, the cause may be:

Butter Cake

1. Uneven heat in oven, 78, 81, 82, 87, 90.
2. Oven grate not level.
3. Batter spread unevenly in pan, 69.

Sponge Cake

1. Uneven heat in oven, 78, 81, 82, 87, 90.
2. Oven grate not level.
3. Batter spread unevenly in pan, 74, 77.

114. When cake humps in middle or cracks on top, the cause may be:

Butter Cake

1. Too much flour, 16, 17.
2. Not enough liquid—even one tablespoon additional liquid may correct this, 38, 39, 49.
3. Oven too hot in early part of baking, 82, 84, 87, 91.

Sponge Cake

1. Too much flour, 16, 17.
2. Overbeaten eggs, causing loss of moisture, 31, 32, 74, 77.
3. Oven too hot, 82, 84, 87, 92.

115. When crust is crackled, the cause may be:

Butter Cake

1. Too much sugar, 28, 29.
2. Damp flour, 15.

Sponge Cake

1. Too much sugar, 28, 29.
2. Damp flour, 15.

116. When crust is sticky, the cause may be:

Butter Cake

1. Too much sugar, 28, 29.
2. Damp flour, 15.
3. Insufficient baking, 83, 87.

Sponge Cake

1. Too much sugar, 28, 29.
2. Damp flour, 15.
3. Insufficient baking, 83, 87.

117. When crust is hard, the cause may be:

Butter Cake

1. Oven too hot, 82, 84, 87, 91.
2. Cake baked too long, 82, 83, 87.

Sponge Cake

1. Oven too hot, 82, 84, 87, 92.
2. Cake baked too long, 82, 83, 87.

118. When crust is tough, the cause may be:

Butter Cake

1. Not enough shortening—correct amount makes tender crust, 19, 22, 24.
2. Not enough sugar, 28, 29.
3. Too much flour, 16, 17.

Sponge Cake

1. Oven too hot—high temperature toughens egg protein, 82, 84, 87, 92.
2. Too much sugar, 28, 29.

119. When crust is too light in color, the cause may be:

Butter Cake

1. Oven not hot enough—especially in last baking quarter, 82, 84, 87, 91.

Sponge Cake

1. Oven not hot enough—especially in last baking quarter, 73, 82, 84, 87, 92.

120. When crust is soggy or doughy, the cause may be:

Butter Cake

1. Cake allowed to steam while cooling, 93.

Sponge Cake

1. Cake allowed to steam while cooling, 94.

121. When cake is heavy, the cause may be:

Butter Cake

1. Batter stirred, resulting in loss of air, 69, 70.
2. Too much shortening, 19, 22, 24.
3. Too much sugar, 28, 29.
4. Too much liquid, 38, 39.
5. Too many egg yolks, 32.
6. Incorrect baking temperature, 87, 91.

Sponge Cake

1. Underbeaten egg whites—not enough air enclosed to leaven cake, 31, 74, 77.
2. Overmixing of ingredients, causing loss of air, 70, 74, 77.
3. Oven too hot, 82, 84, 87, 92.
4. Omission of cream of tartar, lemon juice, or other acid, 43.

122. When top part of cake is light and fluffy, but bottom is tough and leathery, the cause may be:

Butter Cake

1. Lower part of oven not hot enough, 90.
2. Batter allowed to stand in warm place before baking, 89.
3. Not enough leavening, 44, 45, 46.
4. Damp flour, 15.

Sponge Cake

1. Lower part of oven not hot enough, 90.
2. Underbeaten egg yolks, 32, 77.
3. Too many egg yolks for amount of other ingredients, 32.
4. Damp flour, 15.

123. When cake has coarse texture, the cause may be:

Butter Cake

1. Too much leavening, 44, 45, 46.
2. Insufficient creaming, 69, 70.
3. Use of liquid shortening, 21, 23.
4. Use of bread flour, 7, 8, 9, 11.
5. Oven too hot, 82, 84, 87, 91.

Sponge Cake

1. Underbeaten eggs, 31, 32, 74, 77.
2. Insufficient blending of ingredients—air not evenly distributed, 70, 74, 77.
3. Use of bread flour, 7, 8, 9, 11.
4. Oven too hot, 82, 84, 87, 92.

124. When cake is tough, the cause may be:

Butter Cake

1. Not enough shortening, 19, 22, 24.
2. Too much sugar, 28, 29.
3. Overbeating batter, 69, 70.
4. Oven too hot—high temperature toughens egg protein, 82, 84, 87, 91.

Sponge Cake

1. Overmixing of ingredients, causing loss of air, 70, 74, 77.
2. Too much sugar, 28, 29.
3. Oven too hot—high temperature toughens egg protein, 82, 84, 87, 92.

125. When cake is dry, the cause may be:

Butter Cake

1. Not enough shortening, 19, 22, 24.
2. Not enough liquid, 38, 39.
3. Overbeaten egg whites, causing loss of moisture, 31, 69.
4. Baked too long at too low temperature, 82, 83, 84, 87, 91.
5. Addition of chocolate without addition of little more liquid, 49.
6. Substitution of cocoa for chocolate without addition of more butter, 48.
7. Addition of cornstarch, 11.

Sponge Cake

1. Overbeaten egg whites, causing loss of moisture, 31, 74, 77.
2. Not enough sugar, 28, 29.
3. Too much flour, 16, 17.
4. Baked too long at too low temperature, 82, 83, 84, 87, 92.
5. Addition of cornstarch, 11.

126. When cake burns on sides, the cause may be:

Butter Cake

1. Oven not uniformly hot, 78, 81, 82, 87, 90.
2. Oven too full, 90.
3. Oven too hot, 82, 84, 87.

Sponge Cake

1. Oven not uniformly hot, 78, 81, 82, 87, 90.
2. Oven too full, 90.
3. Oven too hot, 82, 84, 87, 92.

127. When butter cake falls apart as it comes from pan, the cause may be:

1. Too much shortening, 19, 22, 24.
2. Too much leavening, 44, 45, 46.
3. Carelessness in removing cake from pan, 93.
4. Cake removed from pan too soon, 93.

128. When butter cake is too light, crumbly, and dry, the cause may be:

1. Too much leavening, 44, 45, 46.
2. Oven not hot enough, 82, 84, 87, 91.

129. When sponge cake shrinks, and falls out of pan before cold, the cause may be:

1. Damp flour, 15.
2. Greased pan, 56.
3. Insufficient baking—cell walls collapse, and cake shrinks from sides of pan, 83, 87.

130. When sponge cake sticks to pan, or crust rolls off in balls, the cause may be:

1. Cake left in pan too long, 94.
2. Oven not hot enough in last baking period, 73, 76, 82, 83, 87.

131. When jelly roll does not roll successfully, the cause may be:

1. Crisp edges not cut off.
2. Not rolled while warm.
3. Cake too thick.
4. Cake too dry.
5. Not wrapped in paper or clean tea cloth until cold.

Score Card for Judging Cake

132. The perfect cake. Cakes may vary in shape,—they may be round, oblong, square, or of some unusual or elaborate form. But a perfect cake, whether butter or sponge, is always of uniform thickness and attractive in appearance. The crust is delicate brown, tender, thin, and daintily crisp, with no cracks. Perfect cake is light, tender, and agreeably moist, but not sticky. It has an even, fine-grained texture, and a delicate flavor.

133. Cake may be judged according to a score card. In the following score card, the characteristics of perfect cake and their corresponding percentage ratings are listed. Such a score card, therefore, may be used as a standard of comparison for any cake that is to be judged.

Score Card

A. General Appearance.....20%
- 1. Shape..... (5)
- 2. Size..... (5)
- 3. Crust.....(10)
  - a. Color
  - b. Character
    - (1) Tender
    - (2) Thin
    - (3) Crisp
    - (4) Smooth

B. Flavor.....35%
- Odor
- Taste

C. Lightness.....15%

D. Crumb.....30%
- 1. Texture.....(20)
  - a. Fine
  - b. Tender
  - c. Moist
  - d. Elastic
- 2. Color..... (5)
- 3. Grain..... (5)
  - (Distribution of gas)

Total score.....100%

Cake Chart

Butter Cake

1. Characteristics of Perfect Cake	2. Defect	3. Reason	4. Remedy
A. *General Appearance*			
1. Shape Uniform, with flat, or slightly rounding top	1. Higher on one side	1. (a) Batter spread unevenly	1. (a) Spread batter evenly in pans
		(b) Uneven oven temperature	(b) Turn pans during baking
		(c) Oven grate not level	(c) Have oven grate level
Layers of uniform size, shape, and thickness	2. Hump in middle	2. (a) Too much flour	2. (a) Sift before measuring
		(b) Not enough liquid	(b) Use tested recipe; measure accurately
		(c) Oven too hot in first baking quarter	(c) See Temperature Table, 87
	3. Hollow top	3. (a) Too much batter in pan	3. (a) Use larger pan
		(b) Oven not hot enough	(b) See Temperature Table, 87
		(c) Too much leavening	(c) Use tested recipe; measure accurately
		(d) Too much shortening	(d) Use tested recipe; measure accurately
2. Size Right in proportion to amount of batter	1. Undersized	1. (a) Not enough leavening	1. (a) Use tested recipe; measure accurately
		(b) Baked in too large a pan	(b) Use pan that fits yield of recipe
		(c) Oven too slow	(c) See Temperature Table, 87

Note—This chart shows graphically the characteristics of perfect cake; also various cake defects, with possible reasons and remedies for each one. The key to the chart is simple.

Reading from left to right the columns are:

1. Characteristics of perfect cake, under which are listed the points considered in judging cakes.
2. Defects—referring to any imperfection or variation from ideal characteristics.
3. Reason—meaning possible cause of the defect.
4. Remedy—suggesting a means of avoiding the defect

Butter Cake (cont.)

1. Characteristics of Perfect Cake	2. Defect	3. Reason	4. Remedy
A. *General Appearance* (continued from preceding page)			
3. Crust			
a. Color	1. Deep dark brown	1. Oven too hot	1. See Temperature Table, 87
	2. Color too light	2. Oven not hot enough in last baking quarter	2. See Baking Quarters, 82
	3. Burned on sides	3. Oven not uniformly hot	3. Turn pans during baking
b. Character			
(1) Tender	1. Tough	1. (a) Not enough shortening	1. (a) Use tested recipe; measure accurately
		(b) Too much flour	(b) Sift once before measuring
		(c) Not enough sugar	(c) Use tested recipe; measure accurately
(2) Thin	1. Thick and hard	1. (a) Oven too hot in first baking quarter	1. (a) See Baking Quarters, 82
		(b) Baked too long	(b) See Temperature Table, 87
(3) Somewhat crisp	1. Sticky	1. (a) Too much sugar	1. (a) Use tested recipe; measure accurately
		(b) Damp flour	(b) Sift flour 5 or 6 times in front of open door of heated oven
		(c) Insufficient baking	(c) See Baking Tests, 83
	2. Crackled	2. (a) Too much sugar	2. (a) Use tested recipe; measure accurately
		(b) Damp flour	(b) Sift flour 5 or 6 times in front of open door of heated oven
	3. Soggy	3. Cake steams during cooling	3. Cool on rack
(4) Smooth	1. Cracks	1. (a) Too much flour	1. (a) Sift once before measuring
		(b) Oven too hot in first baking quarter	(b) See Temperature Table, 87
		(c) Not enough liquid	(c) Use tested recipe; measure accurately
B. *Flavor*			
Delicate odor Agreeable taste	1. Strong	1. Rancid fat, stale eggs, or inferior flavorings	1. Use fresh ingredients of good quality
	2. Bitter	2. Too much baking powder or soda	2. Use tested recipe; measure accurately
	3. Flat, uninteresting	3. Not enough salt or flavoring. Poor combination of flavorings	3. Use tested recipe; measure accurately. See Flavoring Combinations, 50.

Butter Cake (cont.)

1. Characteristics of Perfect Cake	2. Defect	3. Reason	4. Remedy
C. *Lightness*			
Suitable relation of weight to size	1. Heavy	1. (a) Batter stirred	1. (a) Beat batter well after each addition of milk and flour; fold in egg whites
		(b) Too much shortening	(b) Use tested recipe; measure accurately
		(c) Too much sugar	(c) Use tested recipe; measure accurately
		(d) Too much liquid	(d) Use tested recipe; measure accurately
		(e) Not enough leavening	(e) Use tested recipe; measure accurately
		(f) Incorrect temperature	(f) See Temperature Table, 87
		(g) Insufficient baking	(g) See Baking Tests, 83
	2. Too light and crumbly	2. (a) Too much leavening	2. (a) Use tested recipe; measure accurately
		(b) Oven not hot enough	(b) See Temperature Table, 87
D. *Crumb*			
1. Texture			
a. Fine	1. Coarse	1. (a) Too much leavening	1. (a) Use tested recipe; measure accurately
		(b) Insufficiently creamed shortening and sugar	(b) Cream shortening and sugar until light and fluffy
		(c) Use of liquid shortening	(c) Beat vigorously
		(d) Oven too hot	(d) See Temperature Table, 87
b. Tender	1. Tough	1. (a) Not enough shortening	1. (a) Use tested recipe; measure accurately
		(b) Too much sugar	(b) Use tested recipe; measure accurately
		(c) Overmixed batter	(c) Fold only until ingredients are combined
		(d) Oven too hot (cake containing large amount of egg)	(d) See Temperature Table, 87

Butter Cake (cont.)

1. Characteristics of Perfect Cake	2. Defect	3. Reason	4. Remedy
D. *Crumb* (continued from preceding page)			
1. Texture (cont.)			
c. Moist	1. Dry	1. (a) Not enough shortening	1. (a) Use tested recipe; measure accurately
		(b) Not enough liquid	(b) Use tested recipe; measure accurately
		(c) Overbeaten egg whites	(c) Beat egg whites until stiff, but not dry
		(d) Baked too long at too low temperature	(d) See Temperature Table, 87
		(e) Addition of chocolate without addition of more liquid	(e) Add more liquid
	2. Doughy	2. Insufficient baking	2. See Temperature Table, 87
d. Elastic	1. Tough, leathery streaks at bottom	1. (a) Batter allowed to stand too long in too warm place before baking	1. (a) Place pans in refrigerator or other cool place
		(b) Damp flour	(b) Sift flour 5 or 6 times in front of open door of heated oven
		(c) Not enough leavening	(c) Use tested recipe; measure accurately
		(d) Lower part of oven not hot enough	(d) Change position of pans during baking; overhaul stove
2. Color			
White	1. Grayish white	1. (a) Batter mixed with metal spoon or in metal mixing bowl	1. (a) Use enamel, earthenware, or glass bowl and wooden spoon
		(b) Flour inferior for cake making	(b) Use Swans Down Cake Flour
Yellow, brown	Color varies according to type of cake		
3. Grain			
Uniform distribution of gas	1. Occasional large holes	1. (a) Uneven distribution of baking powder or soda	1. (a) Sift baking powder or soda with flour several times
		(b) Oven too hot	(b) See Temperature Table, 87
		(c) Egg whites not combined sufficiently with batter	(c) Fold until ingredients are combined
		(d) Large air bubbles in batter	(d) Cut through batter with spatula, and rap pan on table
	2. Tunnels	2. (a) Formation of air pockets	2. (a) Use Swans Down Cake Flour, as beating does not develop gluten, and air pockets are not easily formed

Sponge Cake

1. Characteristics of Perfect Cake	2. Defect	3. Reason	4. Remedy
A. *General Appearance*			
1. Shape			
Uniform, with flat or slightly rounding top	1. Higher on one side	1. (a) Batter spread unevenly	1. (a) Spread batter evenly in pans
		(b) Uneven oven temperature	(b) Turn pans during baking
		(c) Oven grate not level	(c) Have oven grate level
2. Size			
Right in proportion to amount of batter	1. Undersized	1. (a) Underbeaten egg whites	1. (a) Beat egg whites until stiff, but not dry
		(b) Overmixing ingredients	(b) Fold only until ingredients are combined
		(c) Too much sugar	(c) Use tested recipe; measure accurately
		(d) Oven too hot	(d) See Temperature Table, 87
		(e) Cake removed from pan before cold	(e) Leave in pan one hour, or until cold
		(f) Damp flour	(f) Sift flour 5 or 6 times in front of open door of heated oven
		(g) Greased pan	(g) See Angel Food Pan, 56
		(h) Insufficient baking	(h) See Temperature Table, 87
	2. Hollow top	2. Insufficient baking	2. See Temperature Table, 87
3. Crust			
a. Color	1. Deep dark brown	1. Oven too hot	1. See Temperature Table, 87
	2. Color too light	2. Oven not hot enough	2. See Temperature Table, 87
	3. Burned on sides	3. Oven not uniformly hot	3. Turn pans during baking
b. Character			
(1) Tender	1. Tough	1. (a) Oven too hot	1. (a) See Temperature Table, 87
		(b) Too much sugar	(b) Use tested recipe; measure accurately
(2) Thin	1. Thick and hard	1. (a) Oven too hot during early part of baking	1. (a) See Temperature Table, 87
		(b) Baked too long	(b) See Temperature Table, 87

Sponge Cake (cont.)

1. Characteristics of Perfect Cake	2. Defect	3. Reason	4. Remedy
A. *General Appearance* (continued from preceding page)			
3. Crust (cont.)			
b. Character (cont.)			
(3) Somewhat crisp	1. Sticky	1. (a) Too much sugar	1. (a) Use tested recipe; measure accurately
		(b) Damp flour	(b) Sift flour 5 or 6 times in front of open door of heated oven
		(c) Insufficient baking	(c) See Baking Tests, 83
	2. Crackled	2. (a) Too much sugar	2. (a) Use tested recipe; measure accurately
		(b) Damp flour	(b) Sift flour 5 or 6 times in front of open door of heated oven
	3. Soggy	3. Cake steams during cooling	3. Cool on rack
(4) Smooth	1. Cracks	1. (a) Overbeaten eggs	1. (a) Beat until stiff, but not dry
		(b) Too much flour	(b) Sift once before measuring
		(c) Oven too hot	(c) See Temperature Table, 87
B. *Flavor*			
Delicate odor Agreeable taste	1. Strong	1. Stale eggs, inferior flavoring	1. Use fresh ingredients of good quality
	2. Bitter	2. Too much baking powder or cream of tartar	2. Use tested recipe; measure accurately
	3. Flat, uninteresting	3. Not enough salt or flavoring. Poor combination of flavorings	3. Use tested recipe; measure accurately. See Flavoring Combinations, 50
C. *Lightness*			
Suitable relation of weight to size	1. Heavy	1. (a) Underbeaten egg whites	1. (a) Beat eggs until stiff, but not dry
		(b) Overmixing ingredients	(b) Fold only until ingredients are combined
		(c) Oven too hot	(c) See Temperature Table, 87
		(d) Omission of cream of tartar	(d) Measure accurately
		(e) Too much sugar	(e) Use tested recipe; measure accurately
		(f) Insufficient baking	(f) See Baking Tests, 83

Sponge Cake (cont.)

1. Characteristics of Perfect Cake	2. Defect	3. Reason	4. Remedy
D. *Crumb*			
1. Texture			
a. Fine	1. Coarse	1. (a) Underbeaten eggs	1. (a) Beat egg whites until stiff, but not dry; egg yolks until thick
		(b) Insufficiently mixed batter	(b) Fold until ingredients are combined
		(c) Oven too hot	(c) See Temperature Table, 87
b. Tender	1. Tough	1. (a) Overmixing of ingredients	1. (a) Fold only until ingredients are combined
		(b) Too much sugar	(b) Use tested recipe; measure accurately
		(c) Oven too hot	(c) See Temperature Table, 87
c. Moist	1. Dry	1. (a) Overbeaten egg whites	1. (a) Beat egg whites until stiff, but not dry
		(b) Not enough sugar	(b) Use tested recipe; measure accurately
		(c) Too much flour	(c) Sift once before measuring
		(d) Baked too long at too low temperature	(d) See Temperature Table, 87
	2. Doughy	2. Insufficient baking	2. See Baking Tests, 83
d. Elastic	1. Tough, leathery streaks at bottom	1. (a) Underbeaten egg yolks	1. (a) Beat egg yolks until thick and lemon-colored
		(b) Too many egg yolks	(b) Use tested recipe
		(c) Damp flour	(c) Sift flour 5 or 6 times in front of open door of heated oven
		(d) Lower part of oven not hot enough	(d) Change position of pans during baking; overhaul stove
2. Color			
White	1. Grayish white	1. Flour inferior for cake making	1. Use Swans Down Cake Flour
Yellow, brown, etc.	Color varies according to type of cake		
3. Grain Uniform distribution of gas	1. Occasional large holes	1. (a) Insufficiently mixed batter	1. (a) Fold until ingredients are combined
		(b) Large air bubbles in batter	(b) Cut through batter with spatula
	2. Tunnels	2. Air folded in as batter is poured into pan	2. Cut through batter with spatula

Prices of Swans Down Cake Set and Oven Thermometer

The regular price of the entire Swans Down Cake Set is $1.00, postage paid; ($1.25 in Denver and west; $1.50 in Canada, postage and duty paid). Orders should be sent direct to General Foods, Battle Creek, Mich. The cake set is not sent C.O.D.

If any utensil of the cake set has been damaged in shipping, return it with a letter of explanation and a new utensil will be sent to replace the damaged one. Every effort is made to pack these sets carefully.

A special club offer of Swans Down Cake Sets in lots of twenty-four at 75 cents a set is made to women's clubs, church societies, home economics classes, and extension groups. Cake sets, so offered, are packed in cases of twenty-four sets each, and sent to one address. Groups may sell the cake set at the regular price of $1.00, thus making a profit of 25 cents a set. If more than twenty-four sets are desired, order them in lots of six or multiples of six if possible, to facilitate shipping. The price for twenty-four sets is $18.00, freight prepaid; (in Denver and west $21.60; in Canada $30.00 including freight and duty). The sets are not sent C.O.D.

The special angel food pan offer includes the patented Swans Down angel food pan, the new edition of "Cake Secrets," and a handy wire cake tester. Price, postage paid, 50c.

The price of the standard oven thermometer is $1.00, postage paid; ($1.25 in Denver and west; $1.50 in Canada, postage and duty paid). Orders should be sent direct to General Foods, Battle Creek, Mich.